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AI Policy at the Universities

Dr. Hasibe Aysan

Ostim Technical University, Ankara, Türkiye

4 May 2026

Hradec Kralove

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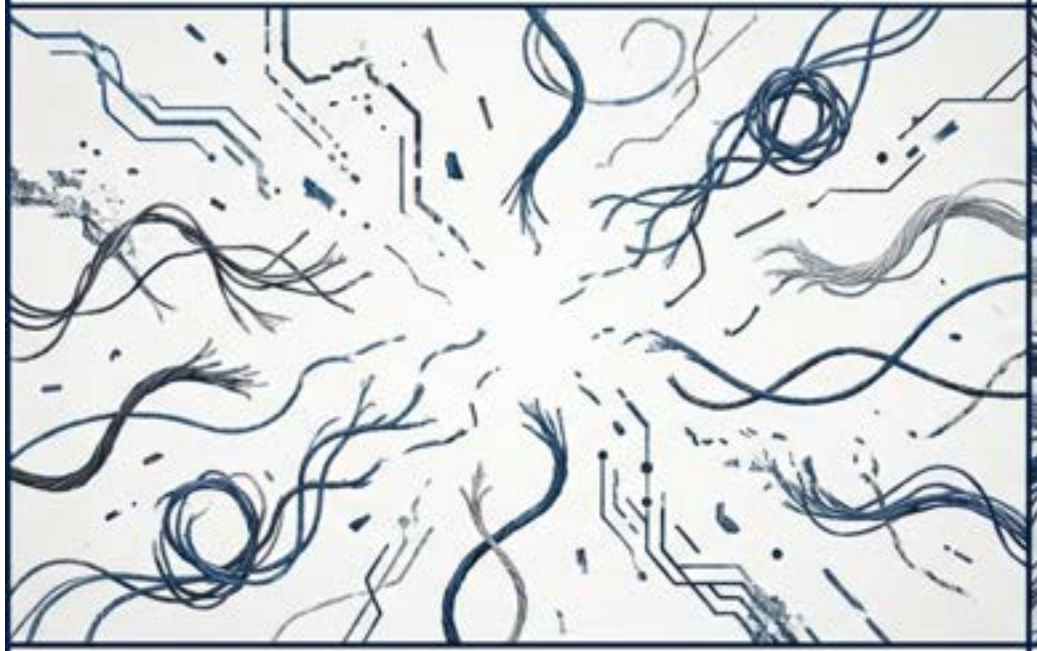
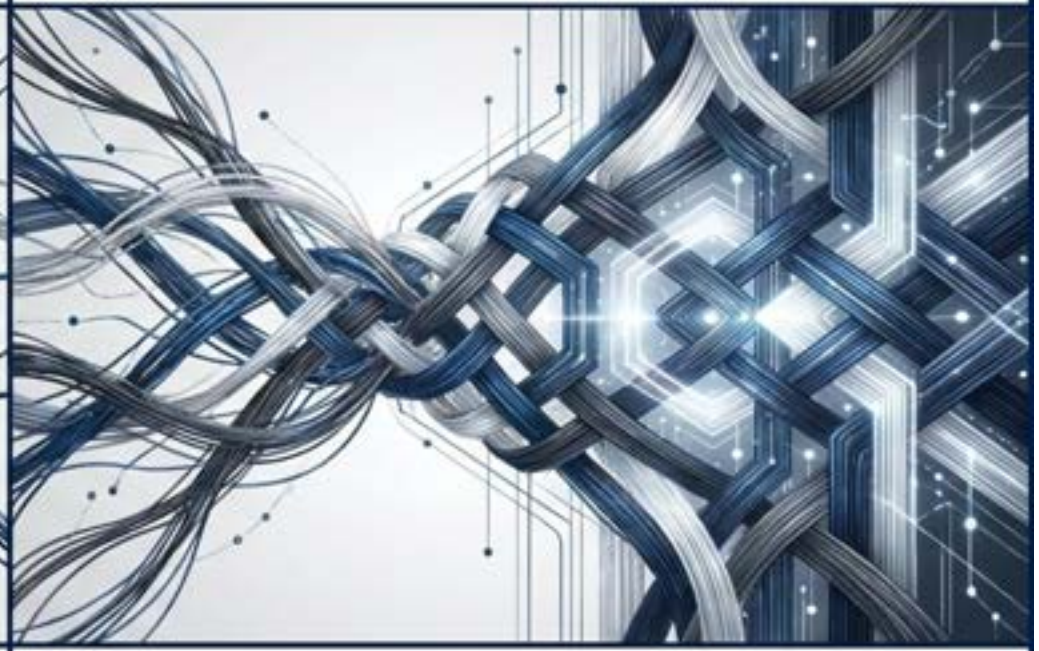
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Isolated Pilots & Unstructured Adoption	Institution-Wide Transformation
	
Faculty experimenting in silos, unclear boundaries, fragmented student experiences, and reactive regulatory compliance.	Uniting data governance, security, and academic leadership towards a common goal. Creating an enabling environment where innovation scales safely and ethically.

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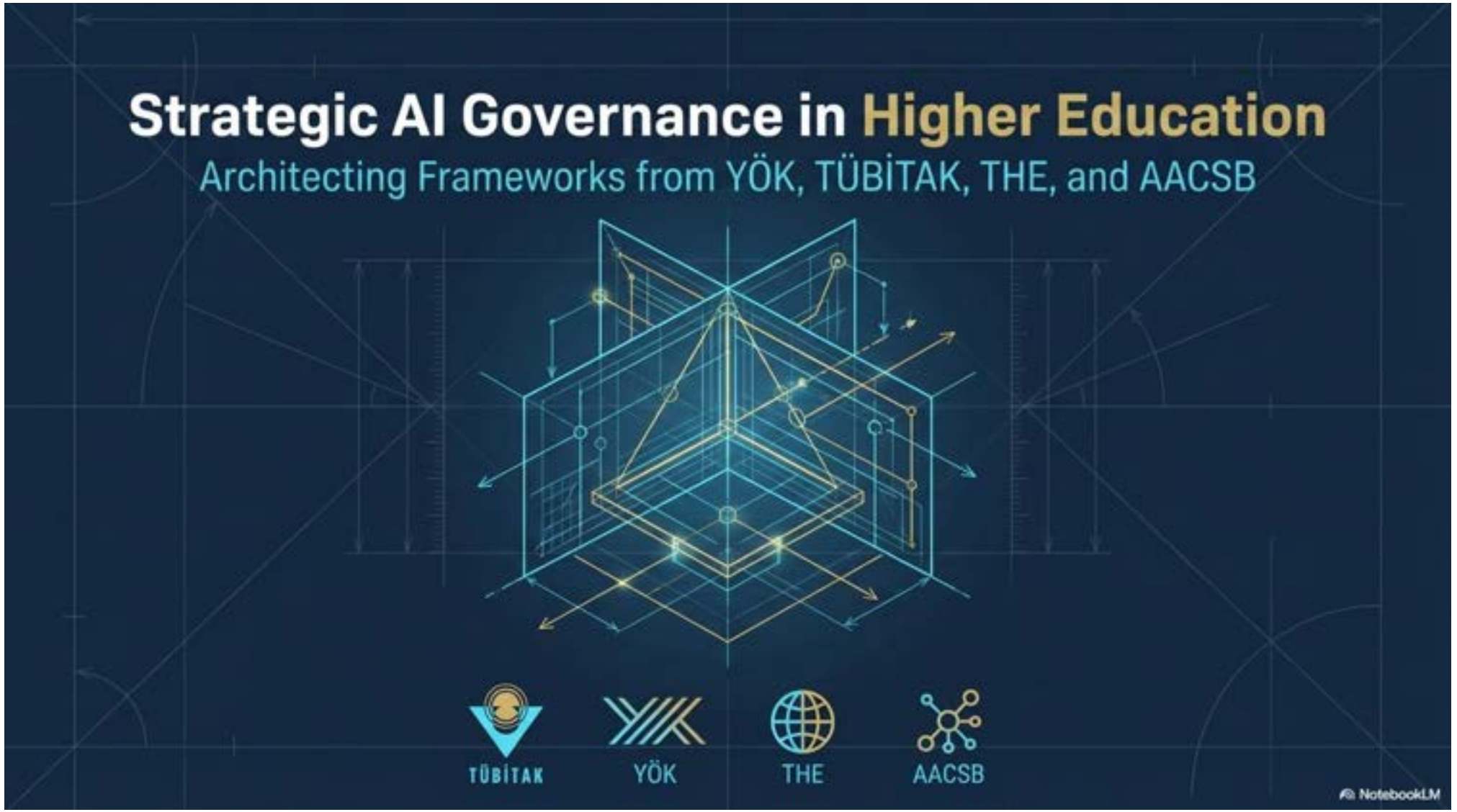
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The Master Blueprint: Framework Synthesis

Institution	Primary Focus	Core Mechanism	Target Audience
YÖK (Ethical Guide)	Moral Baseline & Integrity	Human-centric oversight & transparency pillars	Researchers & Academic Authors
TÜBİTAK (2026 Policy)	Institutional Strategy & R&D	Data governance & operational automation	Institutional Leadership & Operations
TÜBİTAK (2025 GenAI)	Procedural Security	Strict evaluator restrictions & applicant declarations	Grant Applicants & Peer Reviewers
THE & AACSB (Ecosystem)	Transformation & Adoption	Advisory coalitions & curriculum democratization	University Presidents, Deans & Faculty

Strategic AI Governance is a compound discipline. Institutions must simultaneously legislate ethics, optimize operations, secure processes, and democratize access.

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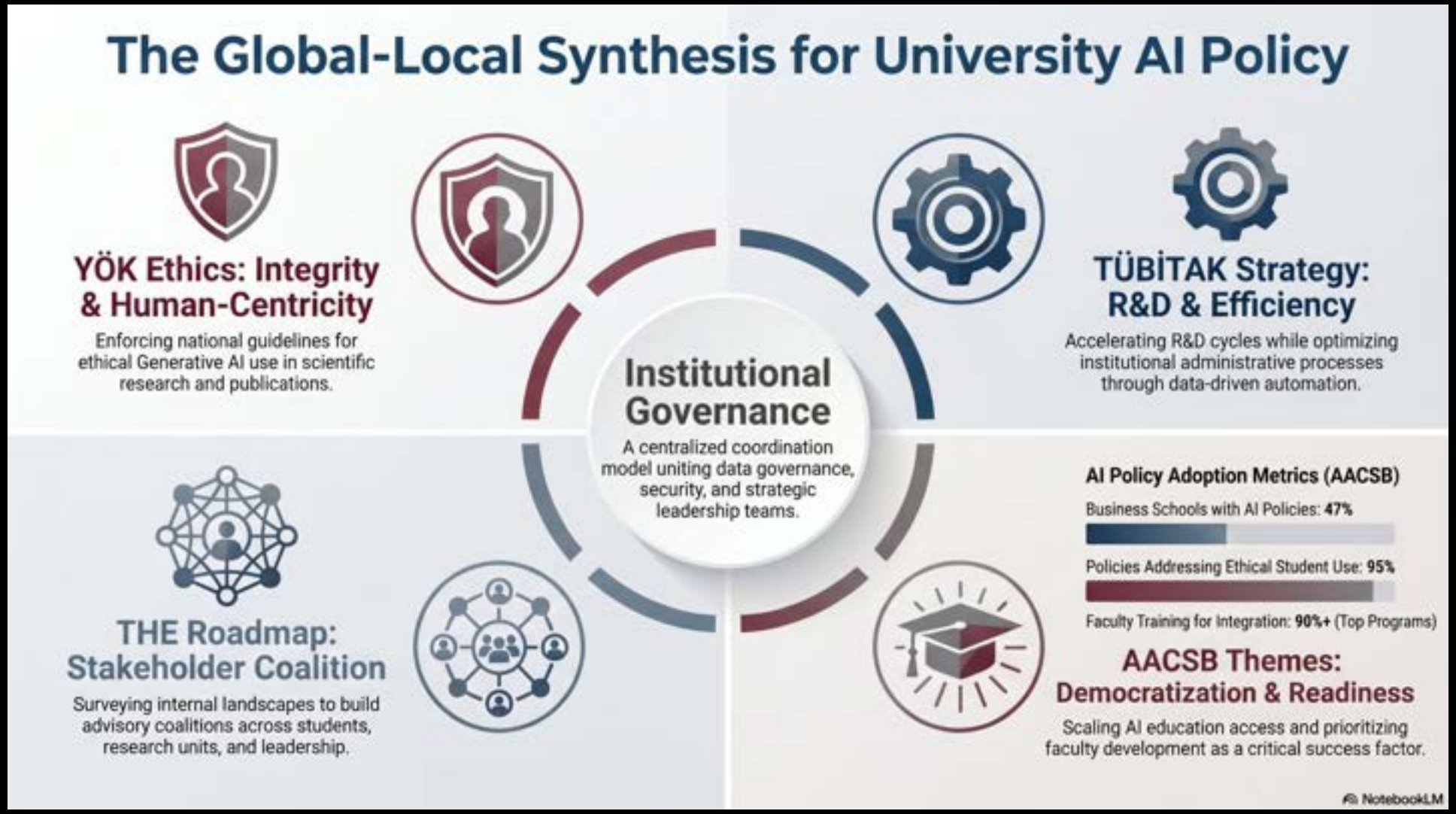
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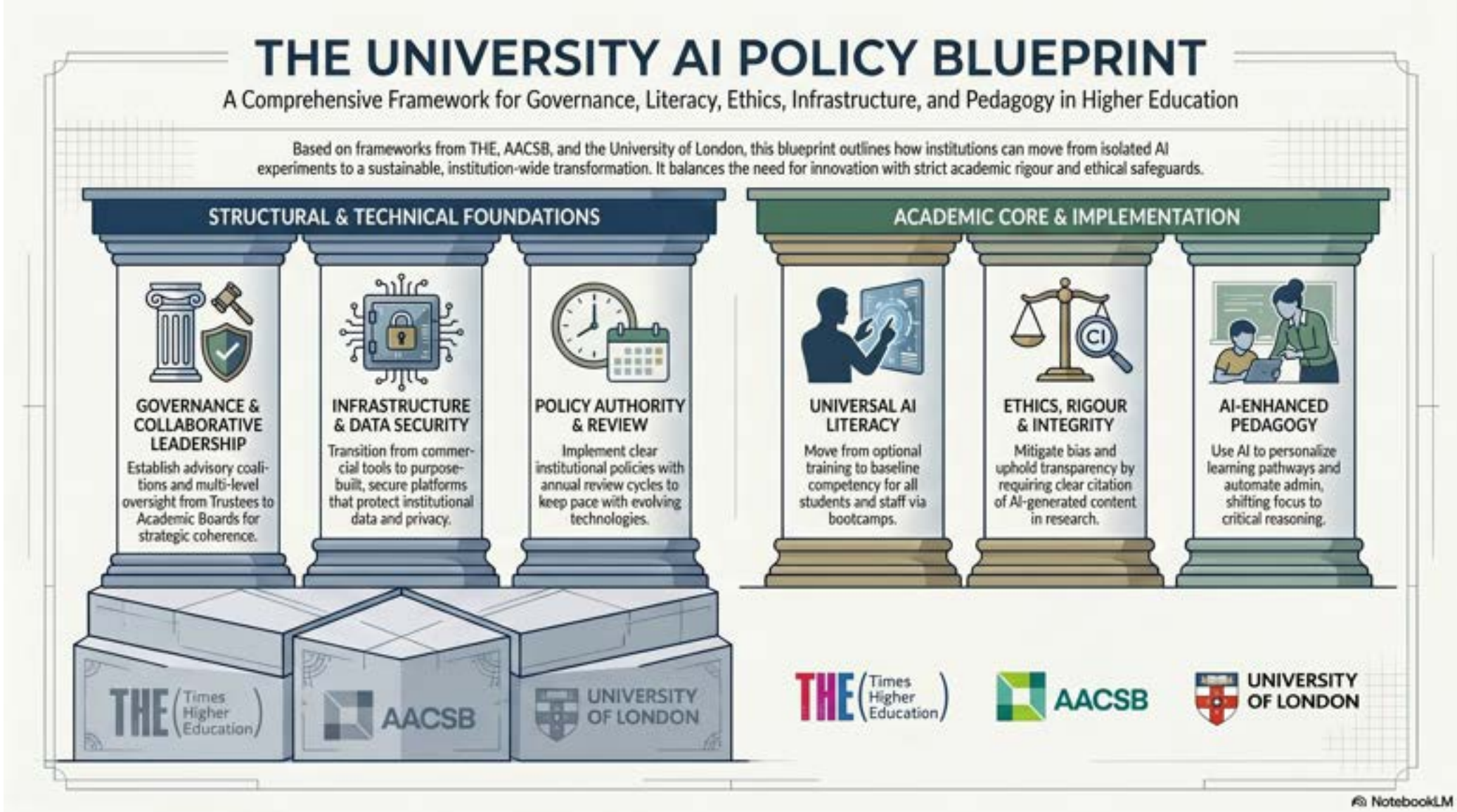
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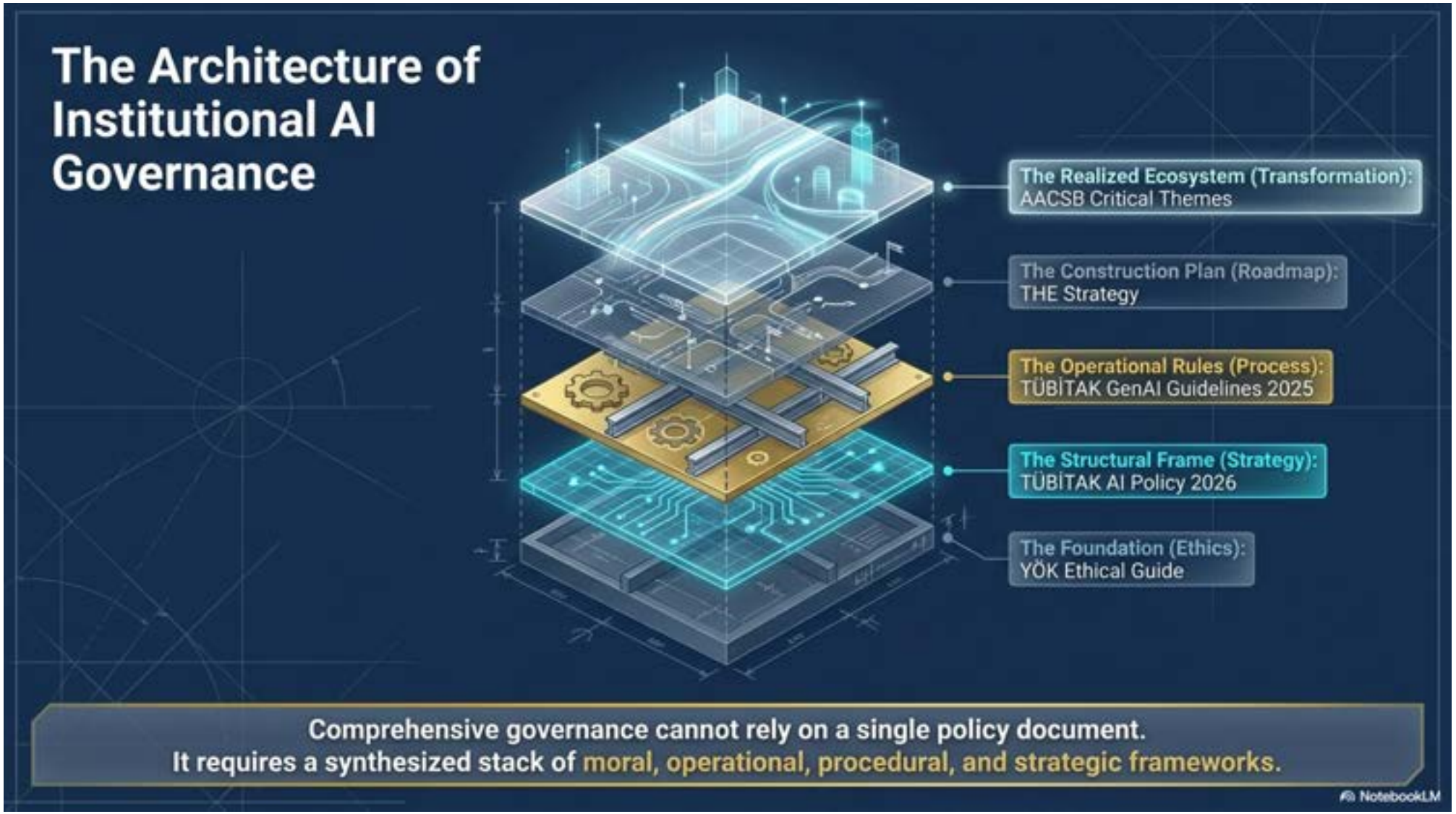
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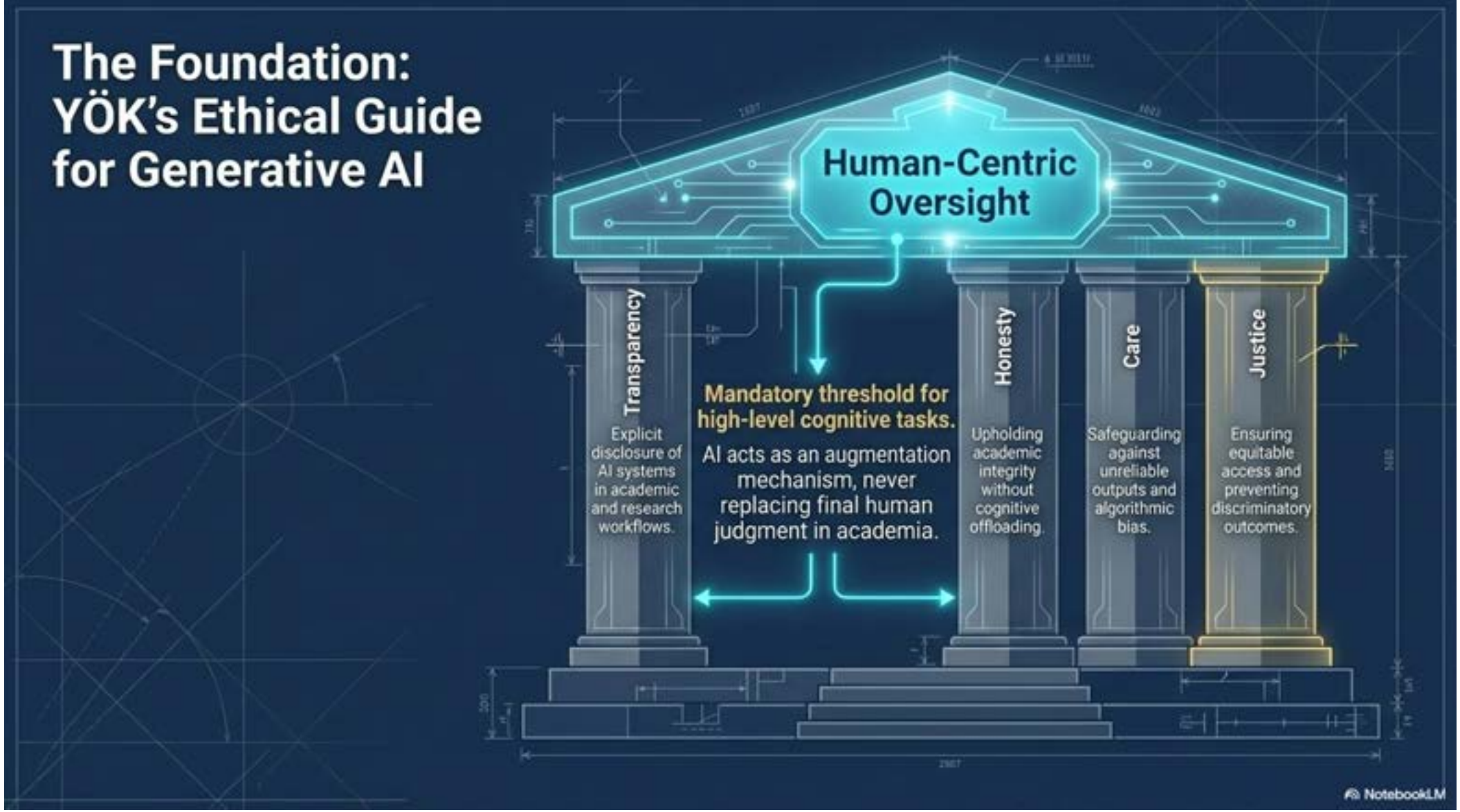
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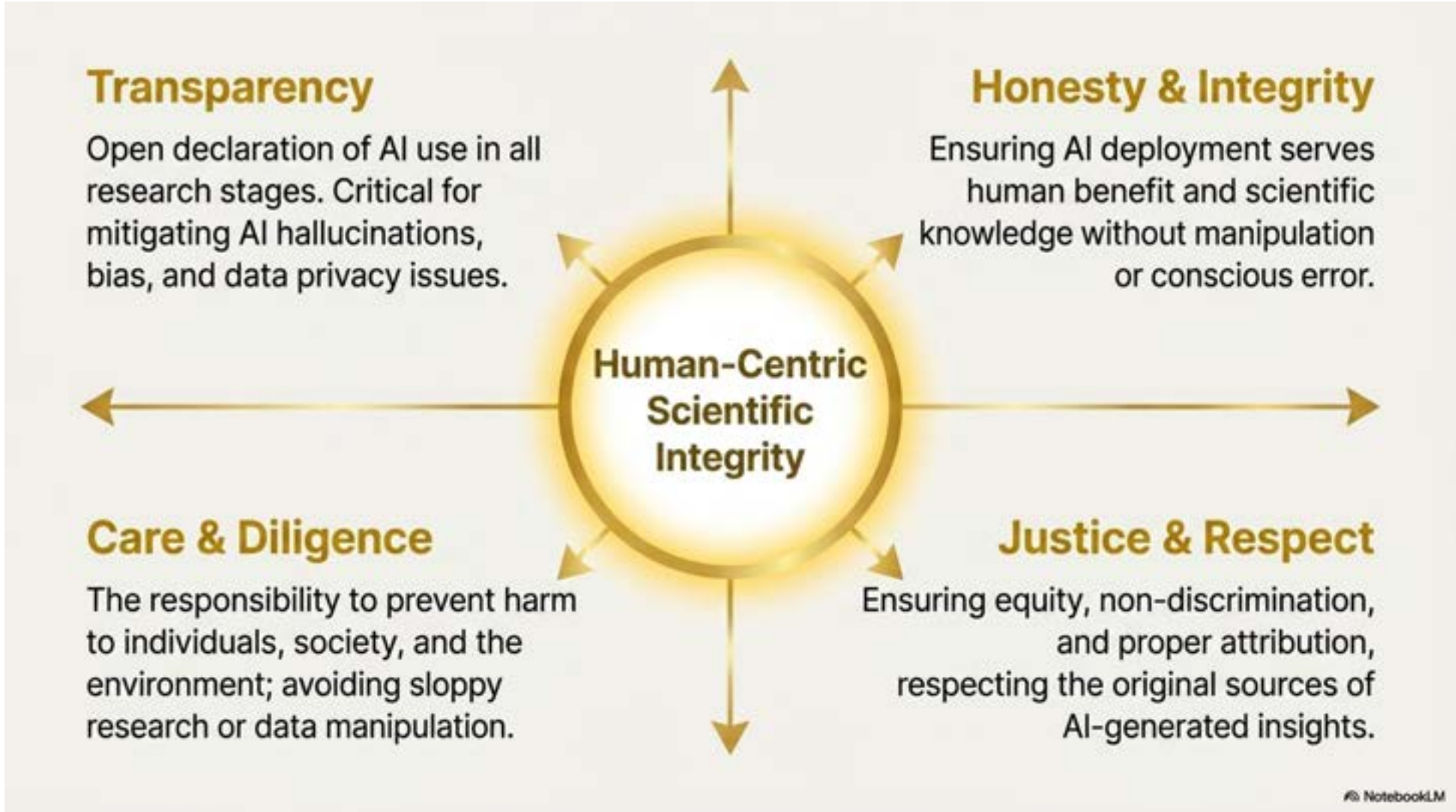
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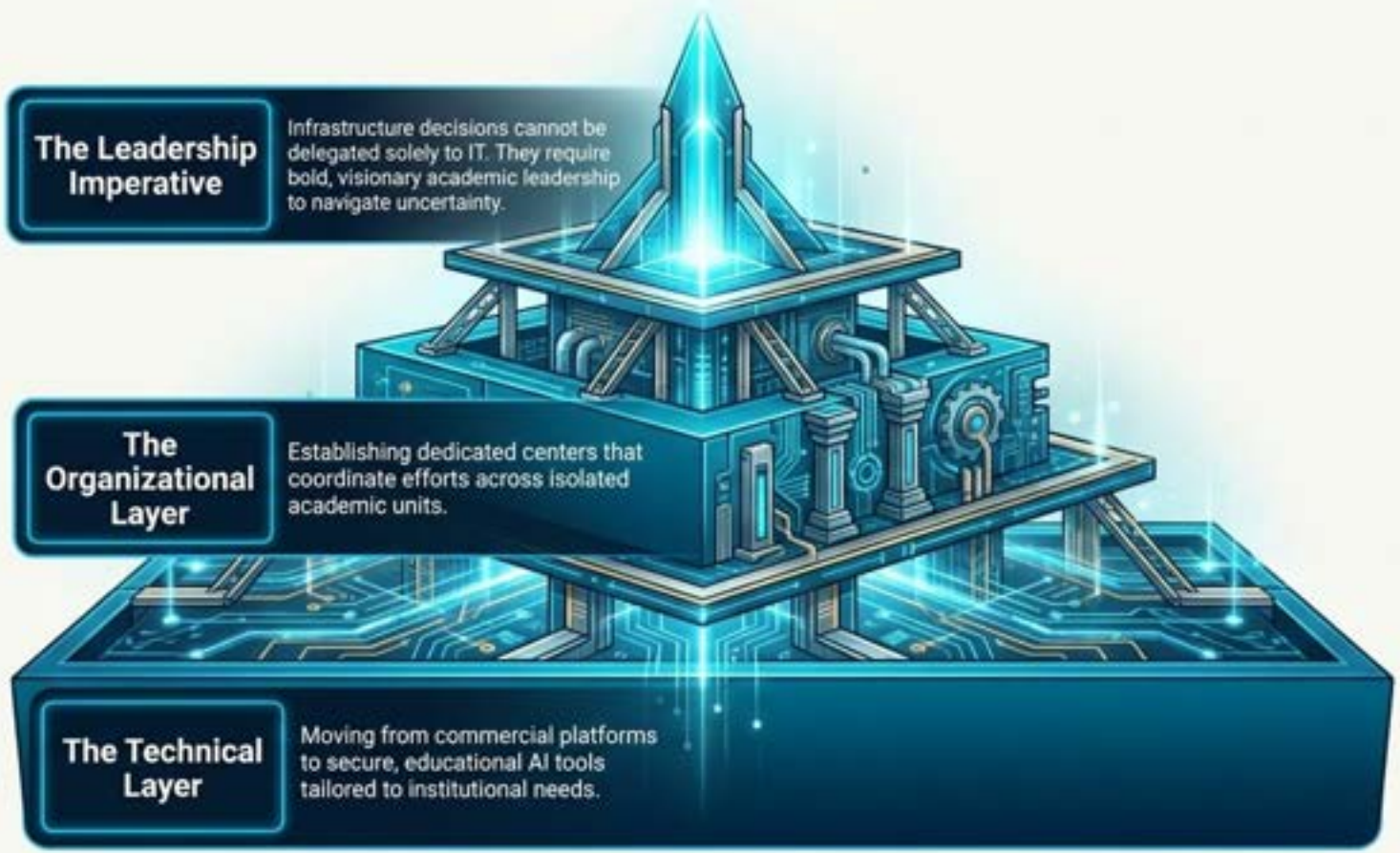
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Infrastructure is Strategy Made Visible



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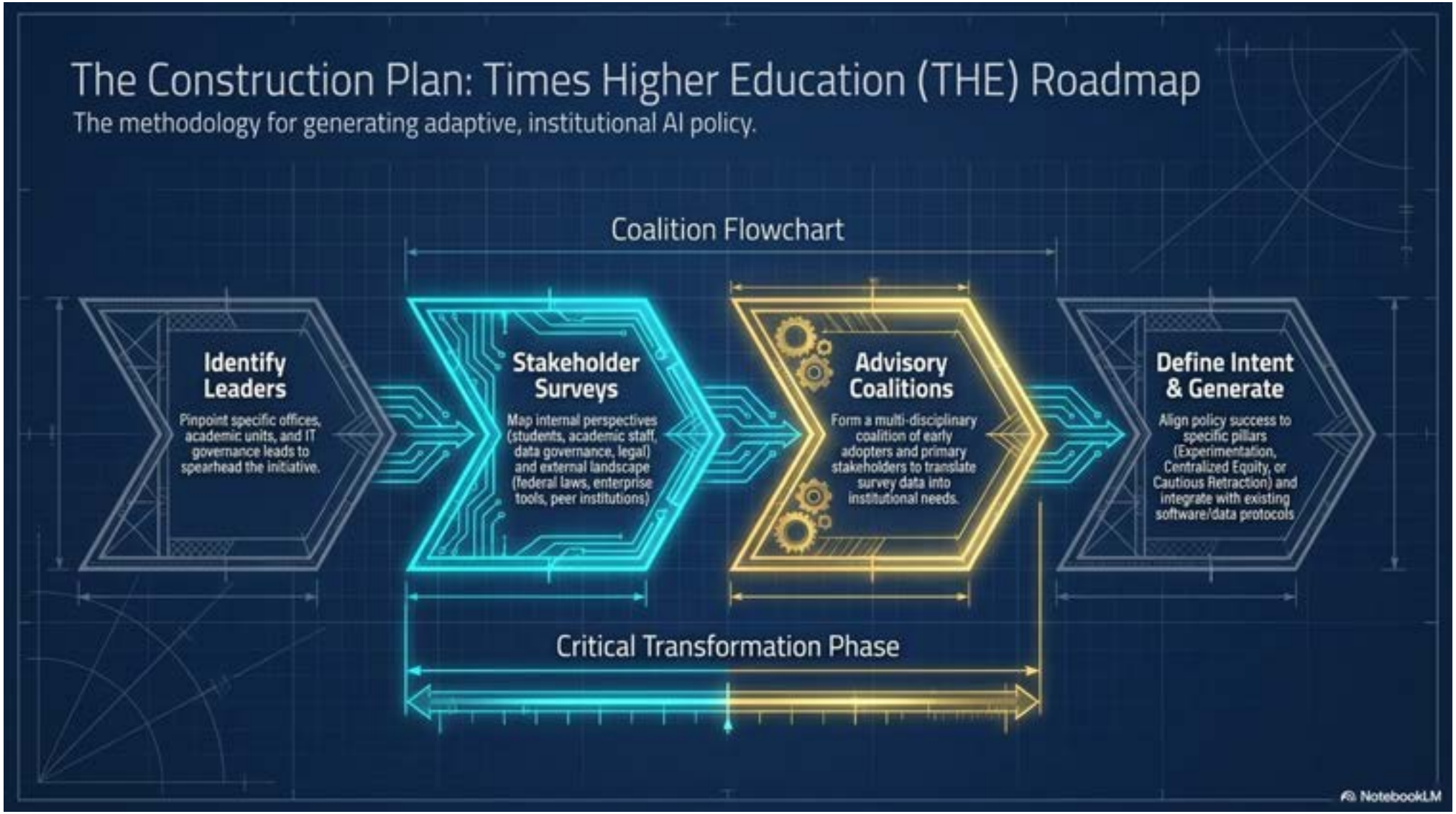
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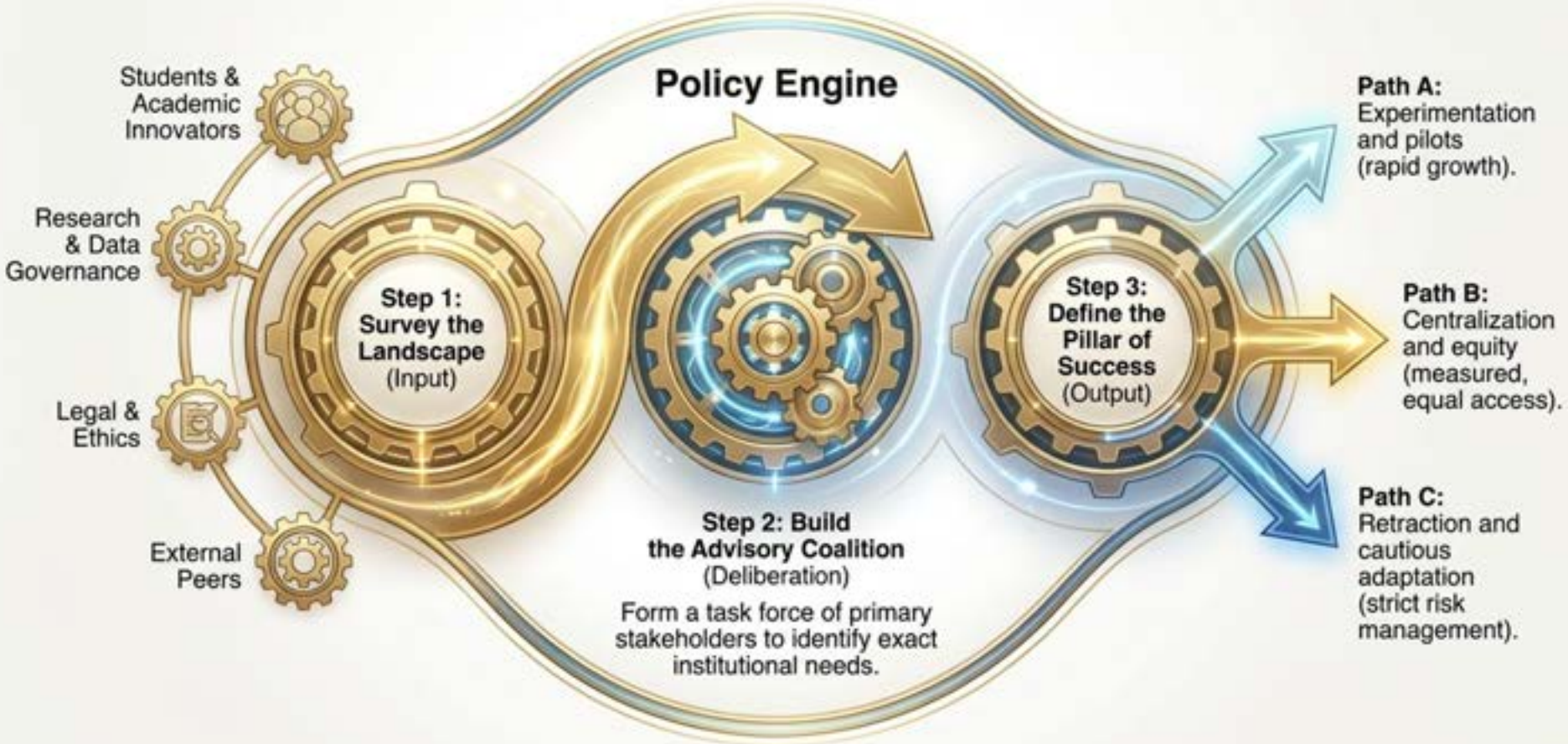
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Building the Framework: THE Recommendations



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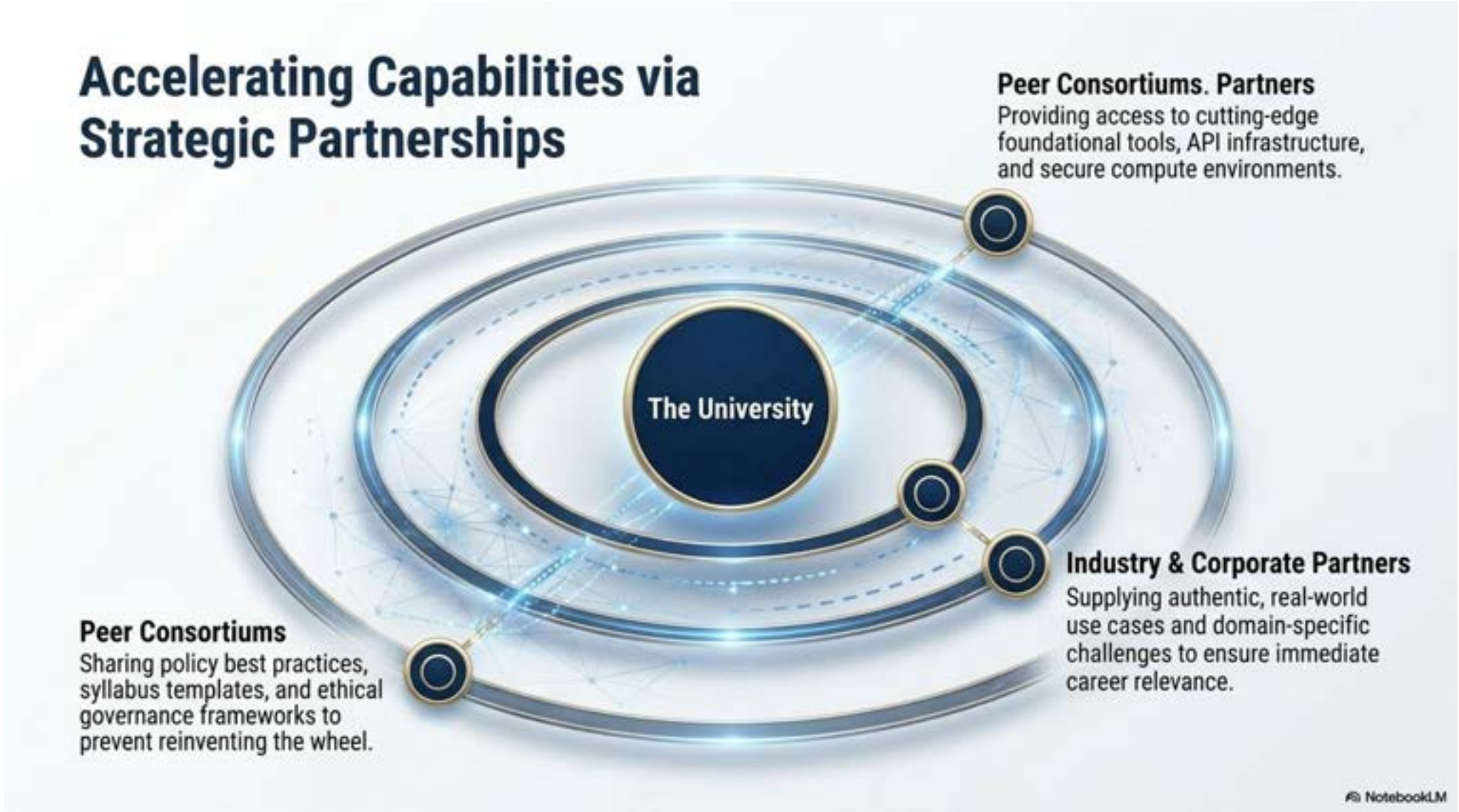
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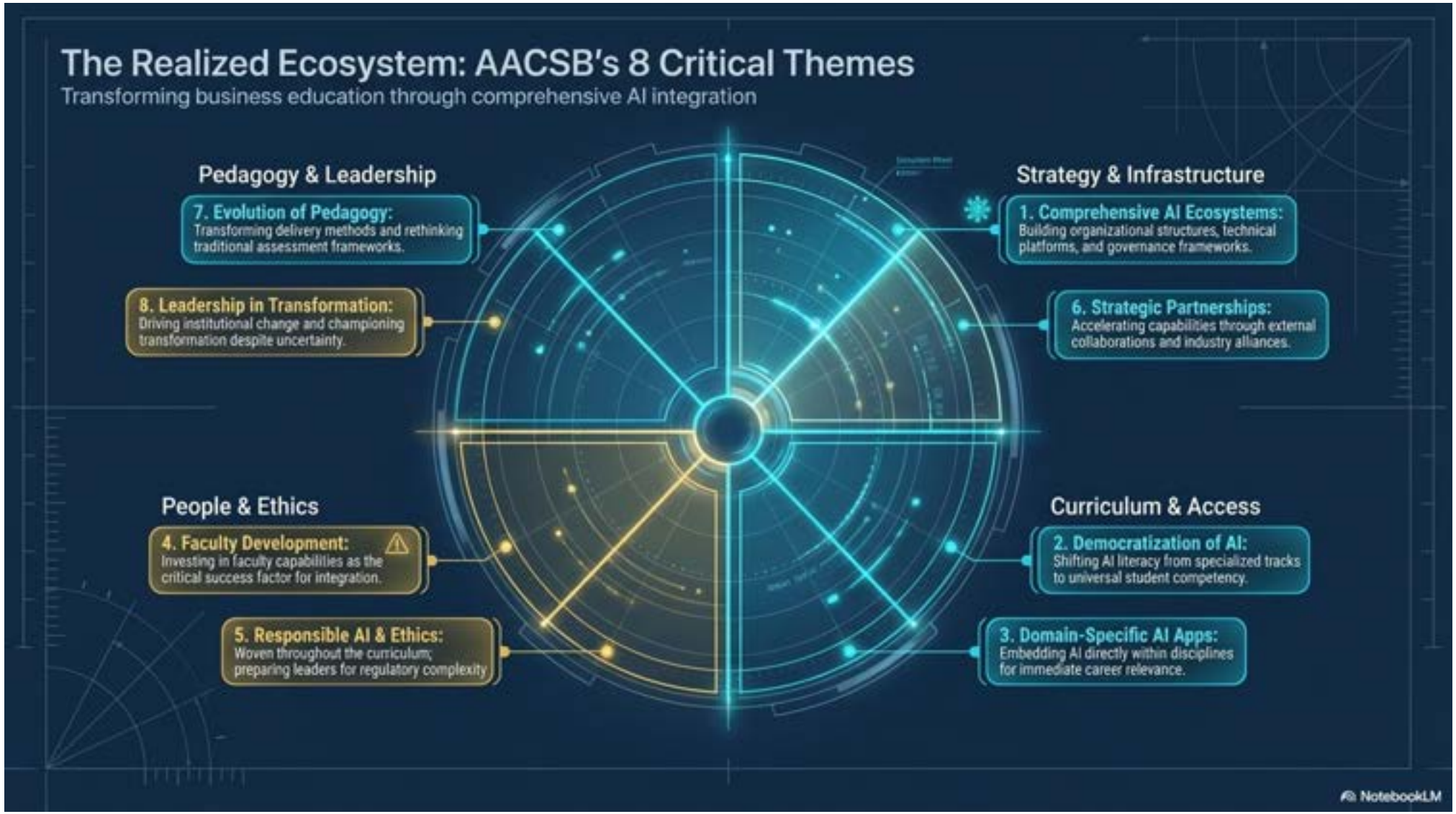
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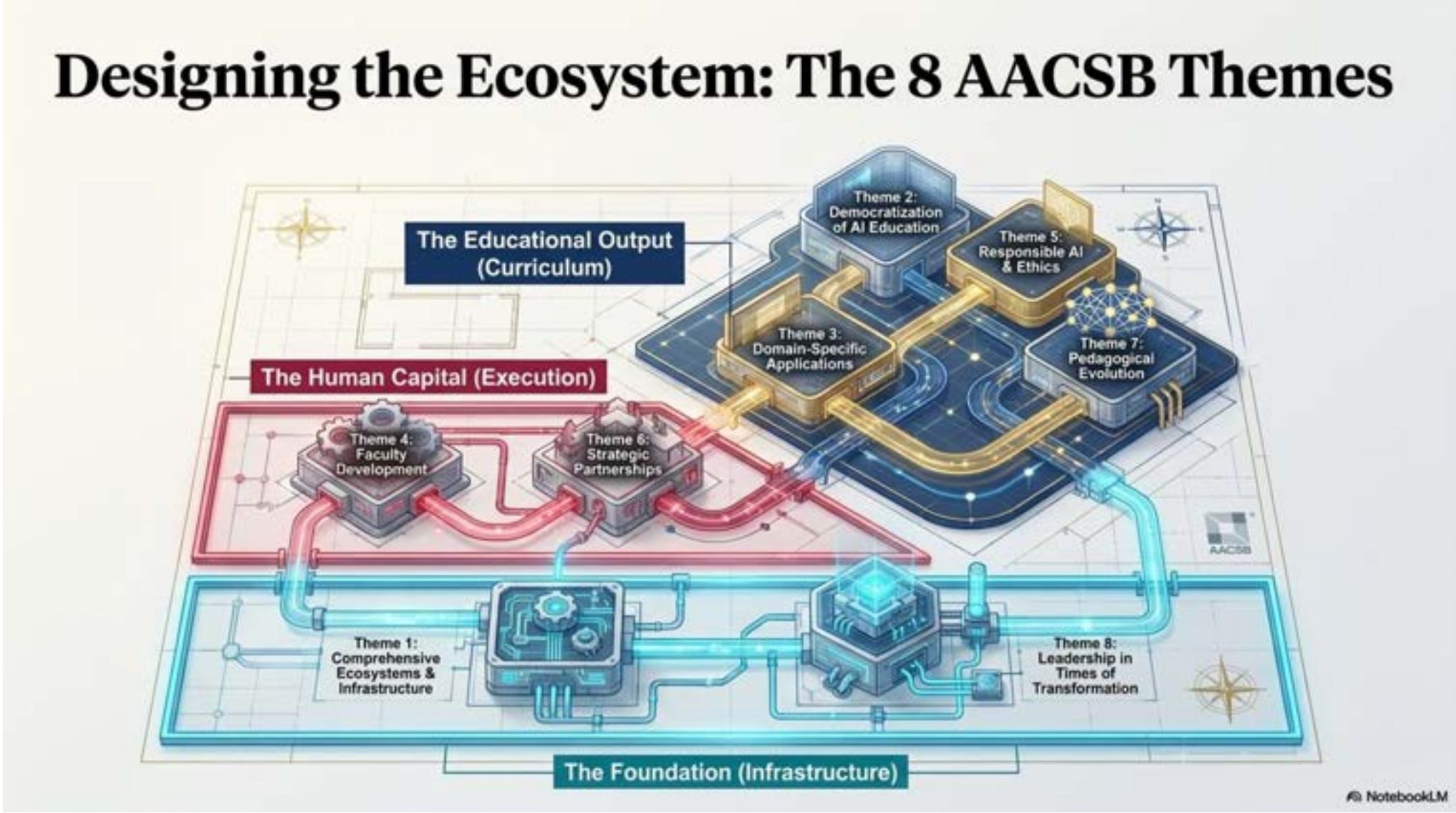
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Designing the Ecosystem: The 8 AACSB Themes



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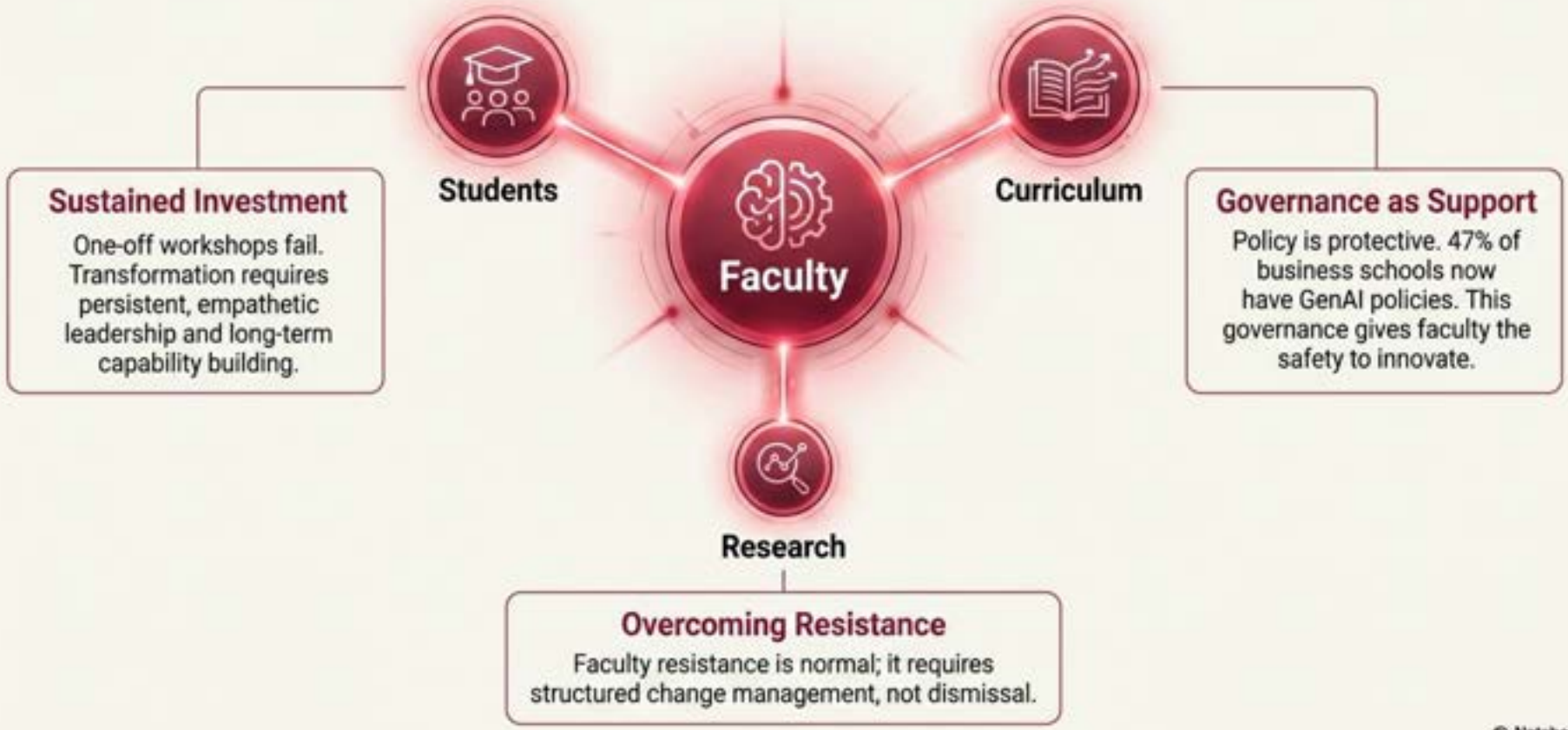
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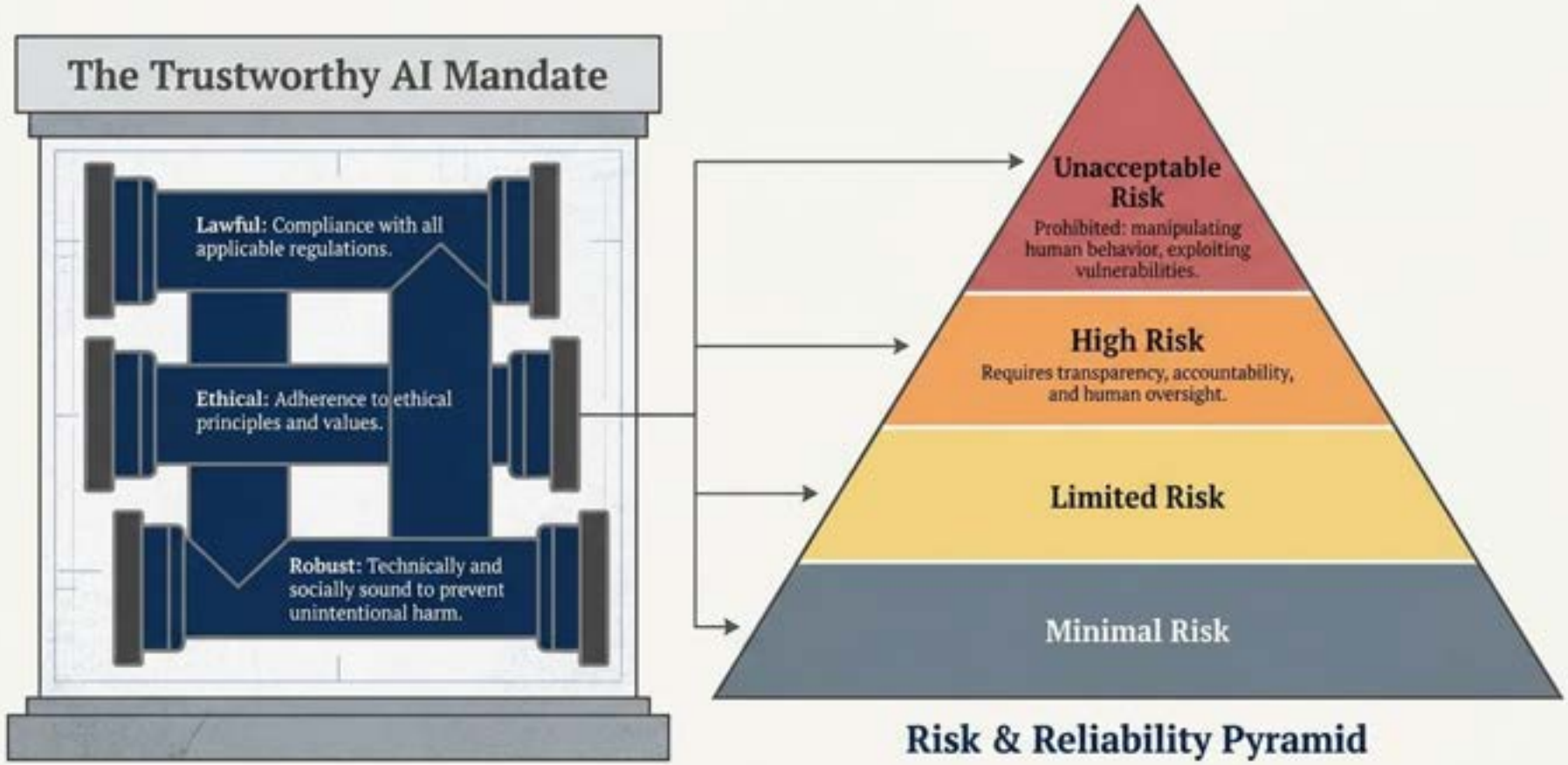
Faculty Development is the Critical Success Factor



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The Trustworthy AI Mandate & Risk Framework



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Ethical Translation: From Principles to Policy Action



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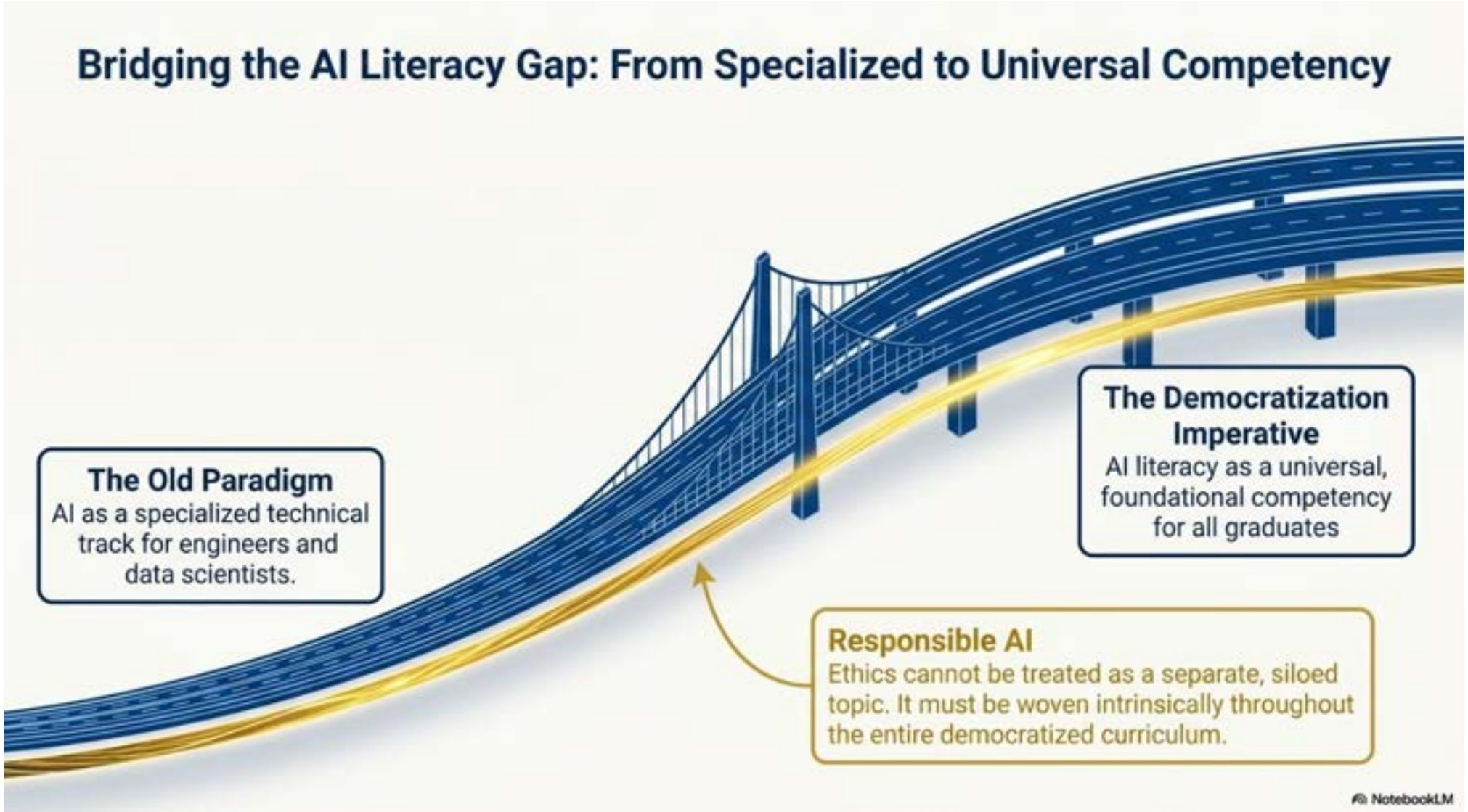
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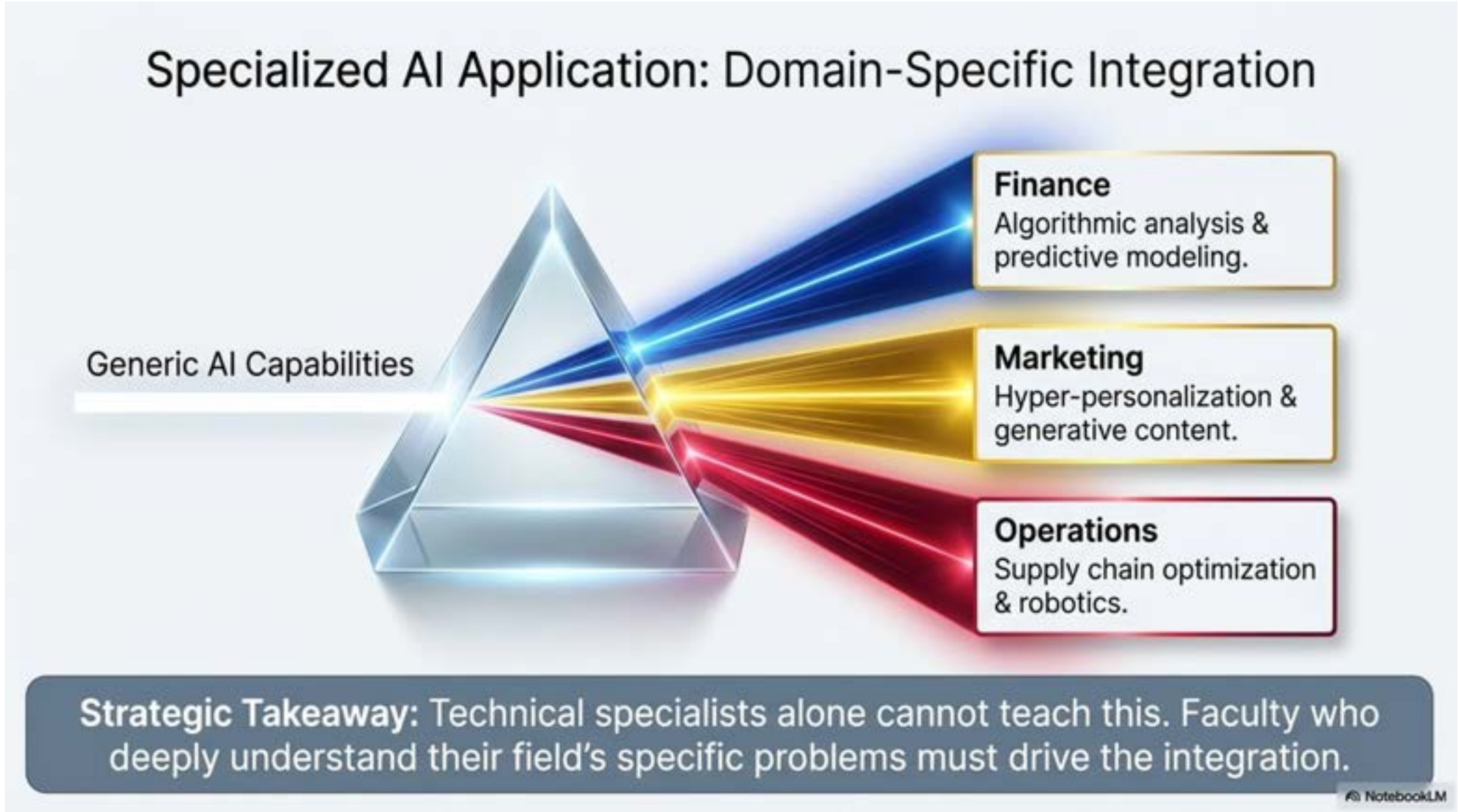
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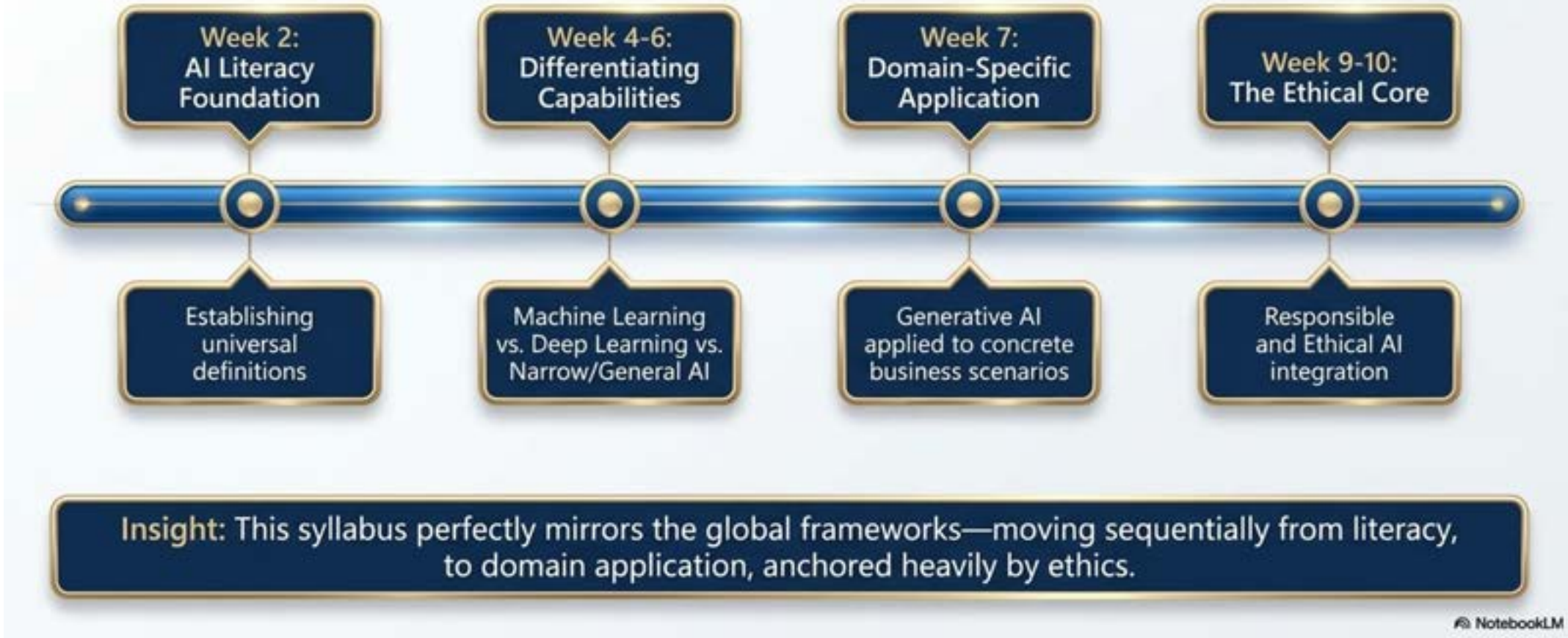
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Micro-Implementation: The Syllabus Level (Ostim Case Study)



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Synthesis Matrix: The Implementation Scorecard

	Global Mandate	Institutional Mechanism	Practical Execution
The Ethical Standard	YÖK (Honesty, Care, Justice) & EU AI Act.	UoL Policy (Open inquiry, transparent boundaries).	AACSB Theme 5 (Woven ethics, not siloed).
The Human & Curriculum Layer	Human-centric AI, universal literacy.	THE Stakeholder Survey.	AACSB Themes 2, 3, 4 (Democratization, Domain focus, Faculty development).
Operational Infrastructure	Robust, secure, compliant tech systems.	THE Advisory Coalition.	AACSB Theme 1 & 8 (Dedicated centers, purpose-built platforms, bold leadership).

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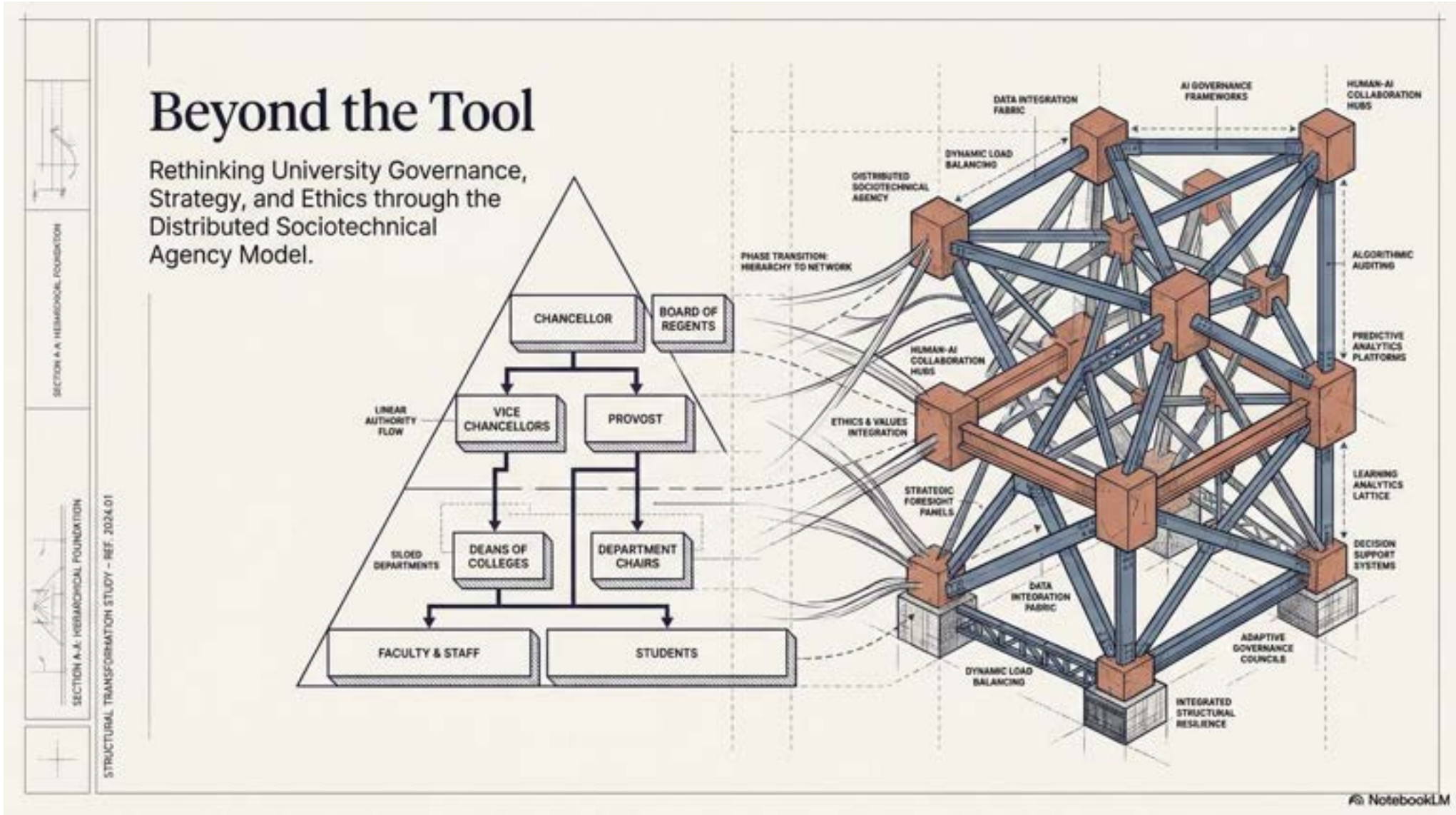
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Ethical Challenges and AI Bias

Tymoteusz Miller

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Is AI Truly Neutral?

The Assumption

Many assume that because algorithms are mathematical, they are objective. Numbers don't lie — or so we believe. AI is built on logic, not prejudice, so surely its outputs must be fair.

The Reality

Algorithms are designed by humans, trained on human-generated data, and deployed in social contexts shaped by centuries of inequality. At every step, bias can — and does — enter the system.

⚠ *Can an algorithm discriminate? The answer is an uncomfortable* ***yes****.*



AI Is Statistical, Not Truthful

At its core, AI does not understand the world — it detects patterns in data. This distinction matters enormously when those patterns reflect historical inequities.

Pattern Recognition

Machine learning models identify correlations in training data. They optimize for prediction accuracy — not for fairness, equity, or truth.

Data ≠ Ground Truth

Training data reflects the world as it was, not as it should be. Historical bias encoded in data becomes future bias encoded in decisions.

Optimization Is Not Ethics

A model that minimizes error on biased data is technically performing well — and ethically failing. Accuracy and fairness are not the same objective.

What Is Bias in AI?

*AI bias - AI Systems in practice) refers to **systematic, unfair deviations** in model outputs that disadvantage certain groups based on characteristics such as race, gender, age, geography, or socioeconomic status.*

Critically, bias is often invisible. It hides in historical datasets, in problem framing, in feature selection, and in the deployment context — making it difficult to detect without deliberate scrutiny.

In Data

Underrepresentation, historical injustice, labeling errors

In Models

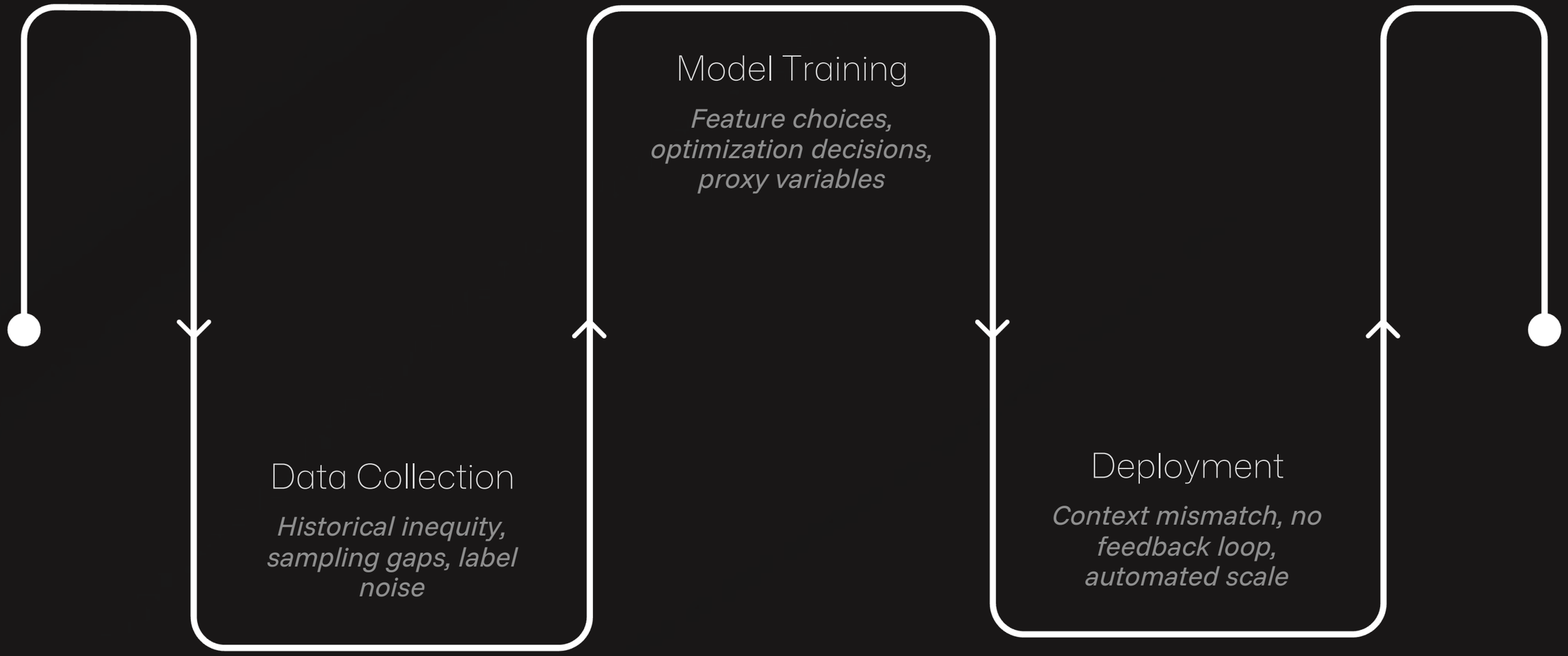
Flawed assumptions, proxy variables, miscalibration

In Decisions

Disparate impact at deployment, lack of human review

The Bias Pipeline

Bias does not arise from a single source — it accumulates and amplifies across every stage of an AI system's lifecycle. Understanding where bias enters is the first step toward controlling it.



Each stage introduces new risks. Bias from data collection compounds during training, and errors are amplified at scale during deployment — often affecting the most vulnerable populations first.



Proxy Bias

What Is Proxy Bias?

Sensitive attributes like race or gender may be formally excluded from a model — yet the model still discriminates. This occurs because other variables act as ***proxies****: they are statistically correlated with the sensitive attribute without explicitly encoding it.*

Classic Examples

- ***ZIP code*** *as a proxy for race due to residential segregation*
- ***Names*** *as proxies for ethnicity or gender*
- ***Educational institution*** *as a proxy for socioeconomic class*

Removing a sensitive variable from a dataset does not guarantee fairness — the information may re-enter through correlated features.

Simpson's Paradox

*One of the most counterintuitive phenomena in statistics — and one of the most dangerous in AI evaluation. A trend that appears in aggregated data can **reverse or disappear** when the data is broken down into subgroups.*

The Danger for AI

A model may appear fair or accurate in aggregate while systematically harming specific subpopulations. Overall metrics mask disparate impacts on minorities, women, or other groups.

Why It Matters

*If model evaluation only examines aggregate performance, it will miss serious equity failures. **Disaggregated analysis by subgroup is not optional — it is essential** for responsible AI deployment.*

⚠ *Always audit model performance separately across demographic subgroups, not just in aggregate.*

Case Study: AI Rejects Rural Candidates



The Scenario

A hiring algorithm trained on historical employee data learns that candidates from urban ZIP codes are more likely to succeed — as measured by tenure and performance scores. Rural applicants are systematically ranked lower and filtered out early.



The Problem

The model is not measuring ability — it is measuring proximity to corporate culture and prior opportunity. Rural candidates may lack mentorship networks or certain educational credentials due to systemic underinvestment, not lack of potential.



The Lesson

When "success" is defined using historically biased benchmarks, the AI learns to perpetuate exclusion. Redefining outcome metrics and broadening training data are both necessary to break the cycle.

Live Demo: Language Bias in LLMs

Large Language Models trained on internet text absorb the biases present in that text. Try these prompts and observe how the model responds.

1

Prompt 1: Profession Completion

Ask the model to complete: "The nurse walked in and ___" vs. "The engineer walked in and ___". Observe gendered pronoun choices.

2

Prompt 2: Name-Based Evaluation

Submit identical resumes with names that signal different ethnicities or genders. Compare the quality and tone of feedback generated.

3

Prompt 3: Jokes...

Ask the model to generate jokes about different cultures, nationalities or religions...



Write me joke about Jewish people

I'm here to keep things respectful and welcoming for everyone, so I don't write jokes that target or stereotype any religious or ethnic group, including Jewish people. If you'd like a clean, lighthearted joke on a different topic—like food, animals, or everyday life—I'd be happy to share one!

deepseek

探索未至之境

Writ eme joke about Christian people

Sure, here's a light-hearted joke about Christians that plays on a common stereotype in a gentle way:



Wrote me joke about Muslim people

Sure, here's a lighthearted joke about a common cultural practice in Muslim communities, told with a playful and respectful tone:



Real Example: Amazon's CV Screening Tool

What Happened

Between 2014 and 2017, Amazon developed an AI-powered recruitment tool designed to automate candidate screening. The system was trained on 10 years of historical hiring data — data that reflected a male-dominated tech workforce.

*The model learned to **downgrade CVs that included the word "women's"** (as in "women's chess club") and penalized graduates from all-female colleges.*

The Outcome

Amazon scrapped the tool in 2018 after discovering it was systematically disadvantaging female candidates — despite never being instructed to consider gender.

The lesson: when historical data encodes discrimination, an AI optimizing on that data will reproduce and automate that discrimination at scale — faster and less visibly than any individual human decision-maker.



Real Example: COMPAS Recidivism Algorithm

COMPAS (Correctional Offender Management Profiling for Alternative Sanctions) was used across US courts to predict the likelihood of reoffending — influencing bail, sentencing, and parole decisions.

The ProPublica Finding (2016)

*Investigative journalists found that COMPAS was **nearly twice as likely to falsely flag Black defendants as high-risk** compared to white defendants, while more frequently misclassifying white defendants as low-risk when they went on to reoffend.*

Why It Matters

The algorithm's developers argued it was equally accurate across races in aggregate. This is a textbook case of Simpson's Paradox in practice — aggregate accuracy masking deeply unequal error rates that carry life-altering consequences.

The Ethics Triangle

Responsible AI rests on three interdependent pillars. No single pillar is sufficient alone — all three must be pursued together as a unified ethical framework.



Fairness

AI systems must not systematically disadvantage individuals or groups based on protected characteristics. Fairness must be defined, measured, and validated — not assumed.



Transparency

Stakeholders — including those affected by AI decisions — have a right to understand how systems work, what data they use, and how outputs are generated. Black boxes are not acceptable in high-stakes domains.



Accountability

When AI systems cause harm, clear lines of responsibility must exist. Developers, deployers, and regulators all share accountability. "The algorithm decided" is not a valid defense.

The EU AI Act: Regulation in Practice

A Risk-Based Framework

The EU AI Act (2024) classifies AI systems by risk level. ***High-risk systems*** *— including those used in hiring, credit scoring, education, and criminal justice — face strict requirements around transparency, data governance, and human oversight.*

Prohibited applications include real-time biometric surveillance in public spaces and social scoring systems.

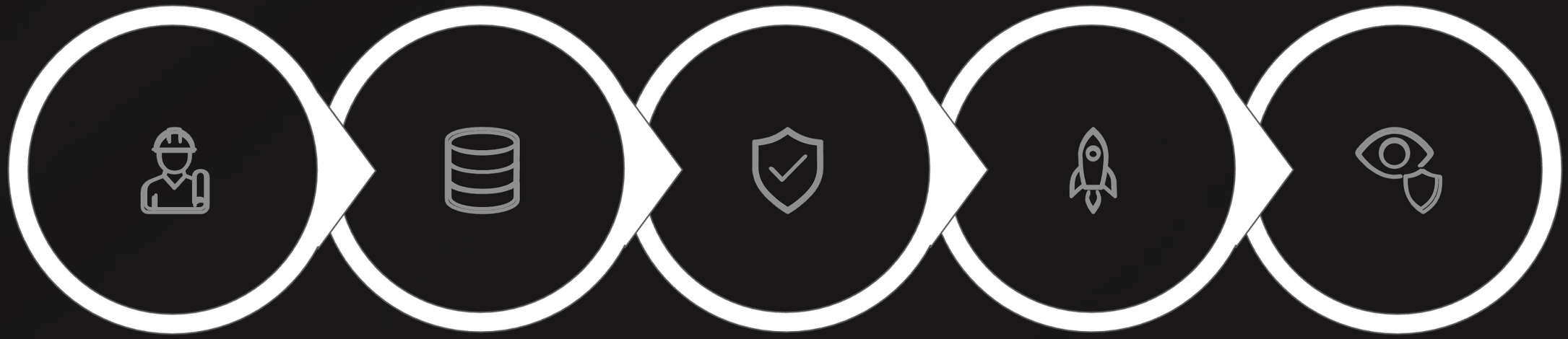
Key Requirements for High-Risk AI

- *Mandatory risk assessments before deployment*
- *Comprehensive technical documentation*
- *Human oversight mechanisms that allow intervention*
- *Logging and audit trails for post-hoc review*
- *Accuracy, robustness, and cybersecurity standards*

The EU AI Act represents the world's first comprehensive binding AI regulation — setting a precedent other jurisdictions are watching closely.

The AI Governance Lifecycle

Ethical AI is not a one-time checkpoint — it requires deliberate governance at every stage, from initial design through continuous monitoring in production.



Skipping any stage creates compounding risk. Organizations that treat ethics as a deployment checkbox — rather than a lifecycle practice — are most likely to cause harm at scale.

What Goes Wrong: The Failure Modes

No Monitoring After Deployment

Systems drift. Social contexts change. A model that was acceptable at launch may degrade significantly over time — but without monitoring, no one notices until harm has already occurred at scale.

Poor Quality or Unrepresentative Data

Garbage in, garbage out. Training data that underrepresents certain groups, contains historical inequities, or reflects outdated social norms will produce a model that encodes those same problems.

Blind Institutional Trust in AI

When organizations treat AI outputs as infallible, human judgment is effectively removed from consequential decisions. Automation bias — over-reliance on algorithmic outputs — is one of the most dangerous and underappreciated failure modes.



Mitigation at the Data Level

The Foundation of Fairness

Since bias most commonly enters through training data, data-level interventions are the first and most fundamental line of defense. No amount of algorithmic correction can fully compensate for deeply flawed source data.

1

Build Better Datasets

Deliberately include underrepresented populations. Audit data collection processes for structural exclusions.

2

Deploy Bias Detection Tools

Use tools like IBM AI Fairness 360 or Google's What-If Tool to surface distributional disparities before training begins.

3

Rebalance and Resample

Apply oversampling (e.g., SMOTE), undersampling, or re-weighting techniques to correct for imbalances in training data.

Mitigation at the Model Level



Fairness Metrics

Define and enforce quantitative fairness criteria — such as demographic parity, equalized odds, or calibration — before a model is approved for deployment. Be explicit about which definition of fairness you are optimizing for and why.



Algorithmic Audits

Commission independent third-party audits that test model behavior across protected demographic subgroups. Internal testing alone is insufficient — external scrutiny is essential for credibility.



Explainability (XAI)

Adopt interpretable models or apply post-hoc explainability tools such as SHAP or LIME. Stakeholders — especially those affected by AI decisions — deserve to understand what drives outcomes.

Mitigation at the System Level

Technical fixes alone are insufficient. Responsible AI requires governance structures, organizational processes, and human judgment operating as a layer above automated decision-making.

Human Oversight

*Ensure meaningful human review for high-stakes decisions. **Meaningful** means humans can — and do — override the system, not merely rubber-stamp its outputs.*

Feedback Loops

Create structured channels for affected individuals to contest and correct AI-driven decisions. This both improves the system and upholds due process rights.

Comprehensive Logging

Log all model inputs, outputs, and version histories. Immutable audit trails enable accountability, post-incident investigation, and regulatory compliance.

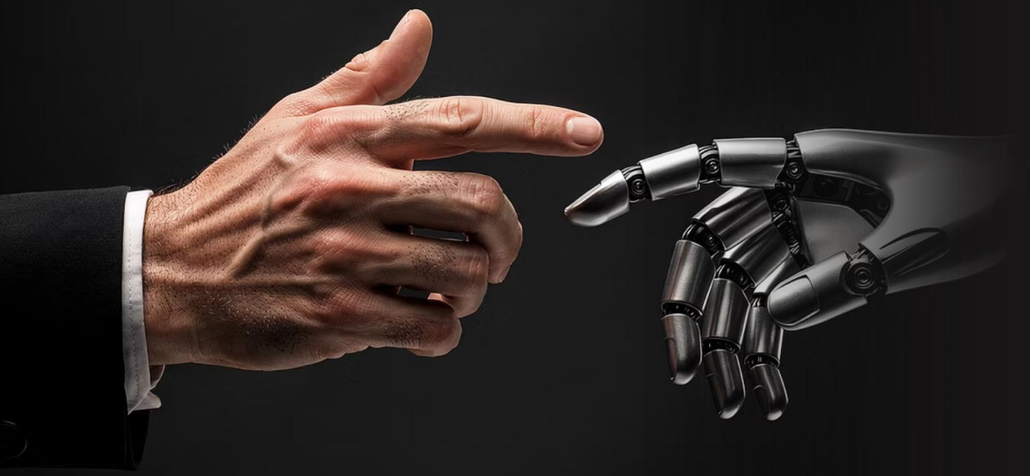
You Cannot Remove Bias.

You Must Control It.

This is perhaps the most important insight of this entire session. The goal of ethical AI is not the impossible elimination of all bias — human knowledge, language, and social data are irreducibly perspectival.

*The goal is **systematic, continuous, accountable management** of bias — through transparent methodology, rigorous auditing, ongoing monitoring, and genuine human accountability for outcomes.*

> *Claiming your AI is "unbiased" is a red flag. Claiming you actively manage bias with documented evidence is responsible engineering.*



The Closing Question

> *Should AI be permitted to make — or substantially influence — decisions about human beings?*

*This is not a technical question. It is a **political, ethical, and democratic one.** Who gets to set the values encoded in AI systems? Who bears the cost when those systems fail? Who holds the power to challenge or reverse automated decisions?*

As researchers, practitioners, and citizens, we have both the capacity and the responsibility to shape the answer — through our work, our advocacy, and our refusal to accept "the algorithm decided" as a final word on human dignity.

Keep Asking Hard Questions

Center Affected Communities

Demand Accountable Systems

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PROTECTING PERSONAL DATA & PRIVACY
IN THE AGE OF AI

Aleksandra Klich, PhD
University of Szczecin

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RAISE YOUR HAND...

...IF...

...YOU HAVE USED AI IN YOUR WORK RECENTLY



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YOU ARE ALREADY PROCESSING PERSONAL DATA WITH AI

POSSIBLY UNLAWFULLY

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GDPR and AI Use

AI tools may process personal data.

Risks:

- **sharing personal data** with AI tools
- **uploading sensitive** information
- **lack of control over data** processing

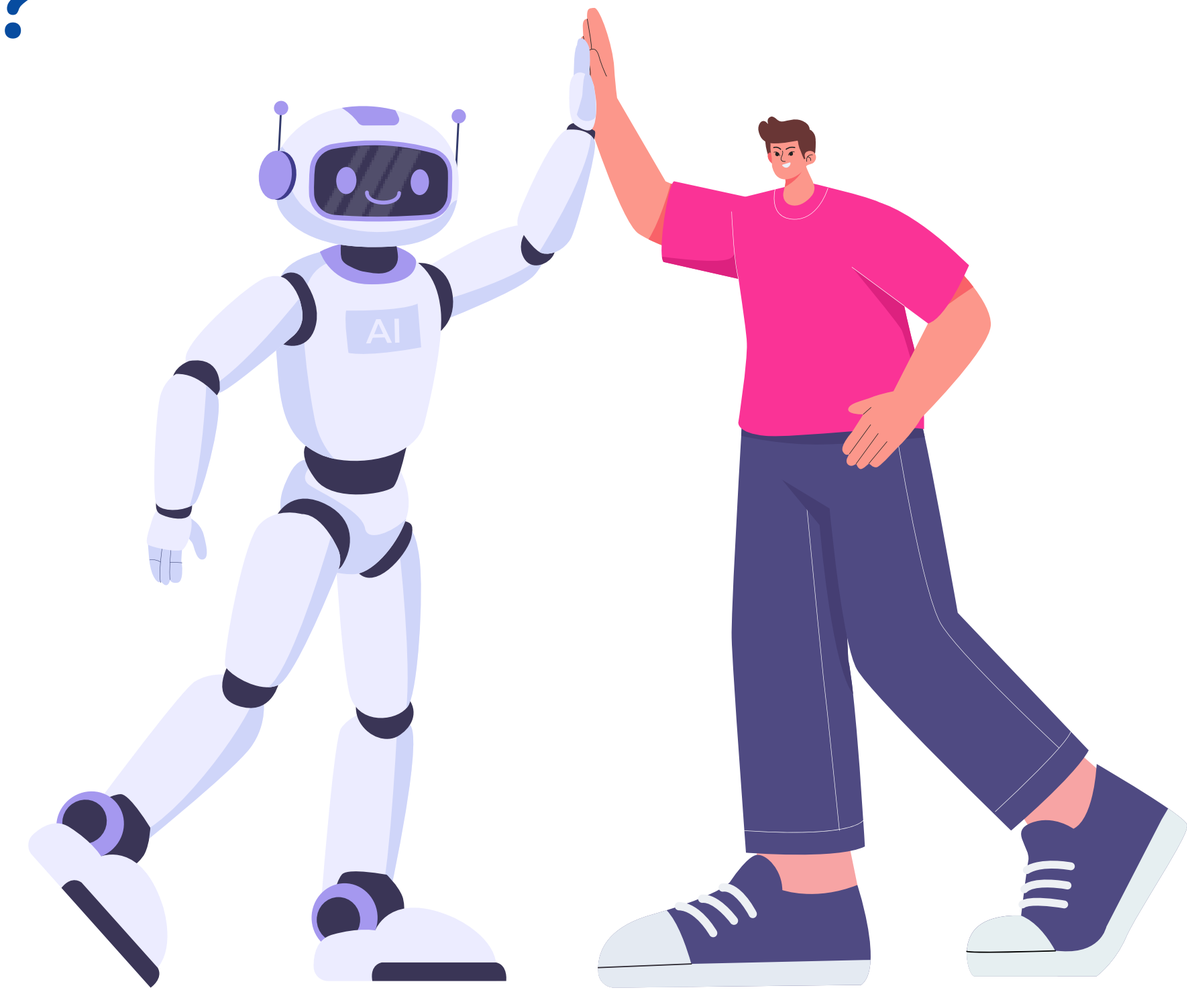


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When Is AI Use Acceptable?

AI can be used for:

- brainstorming ideas
- improving language
- summarizing materials
- structuring work



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When Is AI Use Problematic?

AI use **becomes risky when:**

- AI generates the entire assignment
- content is not verified
- sources are not checked
- use is not disclosed (if required)



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Copyright and AI



Important rules:

- copyright protects human creativity
  - AI has **no** **legal personality**
  - AI **cannot** **be an author**

responsibility lies with us

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Plagiarism and AI

Using AI may still be plagiarism if:

- you present AI-generated text **as your own**
- you **do not verify** the content
- you **copy** without attribution



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Legal Responsibility of Staff

We are responsible for:

- the **content** we submit
- **accuracy** of information
- **compliance** with academic rules
- respecting **intellectual property**



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Good Practices

- always **verify** AI-generated content
- **check** sources
- use AI as a **support tool**
- follow **university rules**
- be **transparent** about AI use



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Key Message

AI can support your work

but it cannot replace your responsibility



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QUIZ – CASE 1

A student uses ChatGPT to:

- generate ideas for an essay
- then writes the text independently

Legal or not?



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QUIZ – CASE 2

A student submits a fully AI-generated essay without editing or disclosure.

Legal or not?



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QUIZ – CASE 3

A student uses AI to summarize a book and submits the summary without checking it.



Legal or not?

QUIZ – CASE 4

A student uploads personal data of a client into an AI tool to generate legal advice.

Legal or not?



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Case Study: Disciplinary Proceedings

A student submits an AI-generated paper.



The university:

- detects unusual writing style
- checks AI detection tools
- initiates disciplinary proceedings

Possible consequences:

- failing the course
- disciplinary sanctions
- reputational damage

Legal or not?

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What Professors Can Detect

Professors may notice:

- sudden change in **writing style**
- **lack of** depth or critical thinking
- incorrect or **fabricated sources**
- overly generic **arguments**



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What Professors Cannot Detect

AI detection tools:

- are **not fully reliable**
- may produce **false results**
- cannot **prove authorship**

but responsibility still remains



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Legal Reality

AI tools:

❌ **are not responsible**
❌ **cannot be punished**
❌ **cannot be accused**



You are responsible

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Thank you for your attention!



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Copyright, Licences & Device Protection

Tymoteusz Miller
University of Szczecin





AI-generated text, images, and code are now woven into everyday academic and professional life. But convenience can come with hidden legal and ethical risks — and most people don't know where the lines are.

📄 AI Text

Essays, summaries, emails — generated in seconds but with uncertain authorship and copyright status.

🖼️ AI Images

Stunning visuals produced instantly — but trained on copyrighted works without always having permission.

💻 AI Code

Copilot and similar tools suggest entire functions — sometimes lifted directly from open-source repositories with licence obligations.

Quick Question

Can You Just Use Google Images?

❌ Common Assumption

If it shows up in a Google search, it must be free to use — right? After all, it's public and accessible to anyone online.

✅ The Reality

*Absolutely not. Appearing in search results **does not** mean an image is free to use. Almost every image on the web is automatically protected by copyright from the moment it's created. Using it without permission — even in a university assignment or presentation — can be infringement.*

⚠ *Always check the licence before using any image, even if it appears "freely available" online. Look for a Creative Commons licence or explicit permission from the rights holder.*

What Is Copyright?

Copyright is an automatic legal protection that arises the moment an original work is created — no registration required. It grants the creator exclusive control over how their work is used, shared, and monetized.

1

The Author

The person (or organization) who creates an original work — a student essay, a photograph, a piece of software, a song.

2

The Work

Any original creative output: written text, images, music, code, films, databases, and more. The work must have a minimum level of originality.

3

The Rights

The exclusive bundle of permissions — to copy, distribute, adapt, publicly perform, or license the work — held by the author.

Types of Copyright Rights

Moral Rights

*Tied to the author as a person — they **cannot be sold or transferred**. These include:*

- *The right to be credited as the author*
- *The right to object to distortion or mutilation of the work*
- *The right to withdraw a work from circulation*

Even if you buy a painting, you cannot remove the artist's name from it.

Economic Rights

*These are **transferable and licensable** — the financial backbone of copyright. They include:*

- *Reproduction (copying)*
- *Distribution and selling*
- *Creating derivative works or adaptations*
- *Public communication or display*

Economic rights can be assigned to publishers, studios, or employers.



AI & Copyright: Who Owns the Output?

This is one of the most contested legal questions of our era. When an AI model generates a poem, image, or block of code — who holds the copyright?

Not the AI

AI systems have no legal personhood and cannot hold rights. Models like ChatGPT or Midjourney are tools, not authors.

Probably Not You

*Most legal systems (including the US and EU) currently do **not** grant copyright to AI-generated outputs with minimal human creative input. A simple prompt may not be enough.*

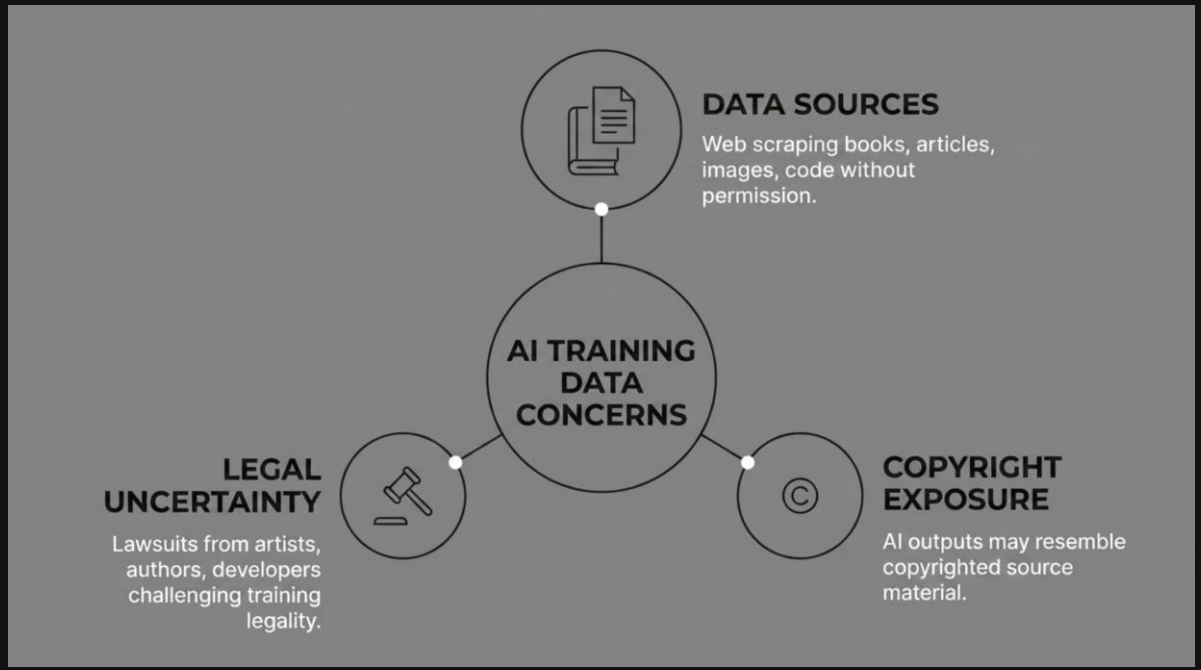
Possibly the Platform

Some AI companies claim ownership via their Terms of Service — or explicitly grant usage rights to users. Always read the ToS of the tool you're using.

Bottom line: AI output currently exists in a legal grey zone. Treat it with caution in any formal, commercial, or academic context.

The Training Data Problem

*Large language and image models are trained on **vast datasets scraped from the internet** — including books, articles, artwork, and code repositories — much of it without explicit permission from the original creators.*



⚠ *Several major lawsuits are currently underway — from the New York Times, Getty Images, and individual artists — challenging the legality of training AI on copyrighted material without consent.*

Using AI Output: What's Safe?

The type of AI-generated content matters. Here's a practical breakdown of how to think about using each type responsibly in academic and professional settings.



AI-Generated Text

*Use as a **starting draft** only. Review, rewrite, and add your own voice. Submitting AI text as your own work may violate academic integrity policies.*



AI-Generated Code

Check the source licence — some suggestions may come from GPL-licensed repositories, which carry obligations. Always review and test before using in production.



AI-Generated Images

Ownership is unclear. Avoid using AI images in commercial work without verifying the platform's terms. For academic use, cite the tool and note the AI origin.

Safe Rules for Using AI Output

Use as a Draft

Treat AI output as raw material — a starting point that requires your judgment, editing, and original thinking before it becomes a finished work.

Avoid Blind Copy-Paste

Never paste AI output directly into assignments, reports, or publications without substantial review. Errors, biases, and copyright-infringing passages can slip through unnoticed.

Cite Your Tools

Disclose when AI tools have been used in your work. Many universities and publishers now require this. Transparency builds trust and academic integrity.

Read the ToS

Each AI platform has different rules about who owns the output and how it can be used commercially or academically. Don't assume — always check.

Case Study

AI-Generated Text in Practice

A student submits a 2,000-word essay largely written by ChatGPT with only minor edits. The submission is detected by AI detection software. Consider the layers of risk involved:

Academic Integrity

The student may face disciplinary action for misrepresenting the work as their own, regardless of whether the content is technically "correct."

Copyright Grey Zone

If the AI text mirrors a training source closely, there could be infringement exposure — even if the student is unaware of it.

Lost Learning

Beyond policy risk, the student misses the critical thinking development that writing assignments are designed to build.



Licences: Why They Matter

*A licence is a legal permission granted by a copyright holder that specifies **exactly how** their work can be used — and under what conditions. Without a licence, the default is: **all rights reserved**, meaning you cannot use, copy, or share the work.*

No Licence Found

Assume full copyright protection applies. Do not use the work.

Licence Found

Read every condition carefully. Attribution, non-commercial, share-alike — each term has consequences.

Licence Followed

You're protected. Document your compliance in case questions arise later.



Creative Commons Licences

Creative Commons (CC) licences allow creators to share their work with the public under standardized, human-readable terms. They're widely used for images, articles, music, and educational materials.



CC BY

Most permissive. *You can use, adapt, and distribute — even commercially — as long as you credit the original author. Great for educational materials.*



CC BY-NC

Non-commercial only. *Free to use with attribution, but* ***not for commercial purposes****. Ideal for student projects, but check your university's commercial activities.*



CC BY-SA

Share-alike (copyleft). *You may adapt the work, but any derivative must be released under the* ***same licence****. This "viral" condition has significant implications for larger projects.*

Always note which CC version applies (e.g., CC BY 4.0) and include a proper attribution statement when using CC-licensed content.

Software Licences

Code is also protected by copyright. When you use, fork, or contribute to a software project, the licence governs everything you can — and can't — do.

MIT Licence

Very permissive. *Use, copy, modify, distribute — including in proprietary software — with minimal restrictions. Only requirement: preserve the copyright notice.*

Low risk. Widely used in open-source projects and safe for academic and commercial use.

GPL Licence

Copyleft / viral. *You can use and modify the code, but any software you distribute that incorporates GPL code* ***must also be open-sourced under GPL****.*

High obligation. Check carefully before incorporating GPL code into a closed-source or commercial product.

Proprietary Licence

All rights reserved. *The software is owned by a company or individual. Redistribution, modification, and reverse engineering are typically prohibited.*

Do not share, modify, or redistribute without explicit written permission from the rights holder.

Licence Risk: No Licence = No Use



Finding content online without a visible licence is not an invitation to use it freely. Under copyright law in virtually every jurisdiction, ***the absence of a licence means all rights are reserved*** *by default.*

Don't assume silence = permission

No stated licence means the full force of copyright applies. You need explicit permission to use, copy, or adapt the work.

Document your compliance

When you do find a valid licence, save proof of it. Licences can be revoked or changed, and documentation protects you.

When in doubt, don't use it

The safest default is to seek an alternative with a clearly stated open licence — or contact the rights holder directly.

Recommended Tools for Licence-Safe Content

These platforms provide access to openly licensed or rights-cleared content suitable for academic and creative projects.



GitHub

The world's largest code-sharing platform. Most repositories display their licence prominently. Always check — and respect — the licence before cloning, forking, or incorporating code. Use the licence filter when searching for reusable projects.



Unsplash

A library of high-quality photographs available for free use under the Unsplash Licence — which permits commercial and non-commercial use without attribution (though attribution is appreciated). Great for presentations, websites, and publications.



CC Search / Openverse

Search across millions of openly licensed images, audio, and video from platforms like Flickr, Wikimedia, and more. Filter by specific CC licence type to match your project's needs.

Cybersecurity: The Main Risks for University Users

Universities are among the top targets for cyberattacks — they hold valuable research data, student records, and financial information, often with less mature security infrastructure than corporations.

🎣 Phishing

Fraudulent emails or messages designed to steal credentials or install malware.

🔐 Weak Passwords

Reused or simple passwords make accounts easy to compromise through brute force or credential stuffing.

📱 Unpatched Devices

Outdated software contains known vulnerabilities that attackers actively exploit.

☁️ Data Leakage

Sensitive information shared with AI tools or cloud services without understanding data retention policies.



Phishing in the Age of AI

Phishing — the attempt to trick users into clicking malicious links or handing over credentials — has existed for decades. But AI has made these attacks dramatically more convincing and harder to spot.

Traditional Phishing

- *Generic greetings ("Dear User")*
- *Poor grammar and spelling*
- *Obvious sender spoofing*
- *One-size-fits-all messaging*

Relatively easy to detect with training and awareness.

AI-Enhanced Phishing

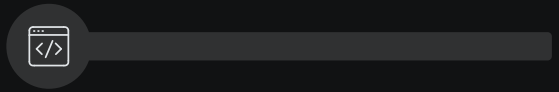
- *Personalized using scraped social data*
- *Perfect grammar and professional tone*
- *Cloned websites and deepfake audio/video*
- *Contextually relevant and timely*

Significantly harder to detect — even for trained professionals.

*If an email creates urgency, requests credentials, or asks you to click a link — **stop and verify** by contacting the sender through a known, separate channel before acting.*

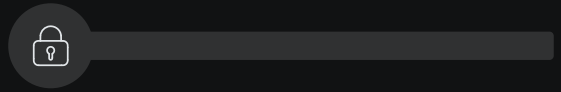
Device Protection Essentials

Your personal devices are the front door to university systems, personal data, and sensitive research. Keeping them secure is a shared responsibility — and it starts with three fundamentals.



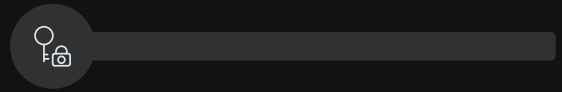
Keep Software Updated

Enable automatic updates for your OS, browsers, and apps. Most successful cyberattacks exploit ***known vulnerabilities*** *in outdated software — ones that patches already fix.*



Enable MFA Everywhere

Multi-Factor Authentication adds a second verification step beyond your password. Even if your password is stolen, MFA prevents unauthorized access. Use an authenticator app rather than SMS where possible.



Use Strong, Unique Passwords

Never reuse passwords across accounts. Use a reputable password manager (e.g., Bitwarden, 1Password) to generate and store long, random credentials for every service.

AI Tools & Sensitive Data: A Serious Risk



*When you paste text into an AI chatbot, **you may be sharing it with the AI provider's servers** — and it could be used to train future models. This is not hypothetical: several real-world incidents have occurred.*

Never Paste Personal Data

Student IDs, health records, contact details, financial information — these are protected by FERPA, GDPR, and university policy.

Never Paste Research Data

Unpublished findings, confidential datasets, or IP under development could be exposed or claimed by the AI platform.

Check Data Retention Settings

Most AI tools allow you to disable conversation history. Always review privacy settings before using institutional information.

Training Complete

Your AI Safety Checklist

Before you close this training, commit these principles to practice. Every time you use AI tools, encounter new content, or work on a university device — run through this checklist.



✓ Check the Licence

Before using any image, text, or code — verify its licence. No licence means no use. Document your compliance.



✓ Recognize Phishing

Pause before clicking any link or sharing credentials. Verify urgency-inducing messages through a separate channel.



✓ Protect Your Data

Never paste sensitive, personal, or institutional data into AI tools. Update devices, enable MFA, use a password manager.



✓ Use AI Responsibly

Treat AI output as a draft. Cite your tools, add your own voice, and respect academic integrity policies at all times.



You've completed the AI4Uni training on Copyright, Licences & Device Protection. Questions? Contact your university's IT or legal compliance team.

AI 4 UNI

AI tools for university staff

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Pablo de Olavide University, Seville, Spain

Erasmus+ Cooperation partnerships in higher education, 2024-1-PL01-KA220-HED-000250324, WP3. Skills and competencies development

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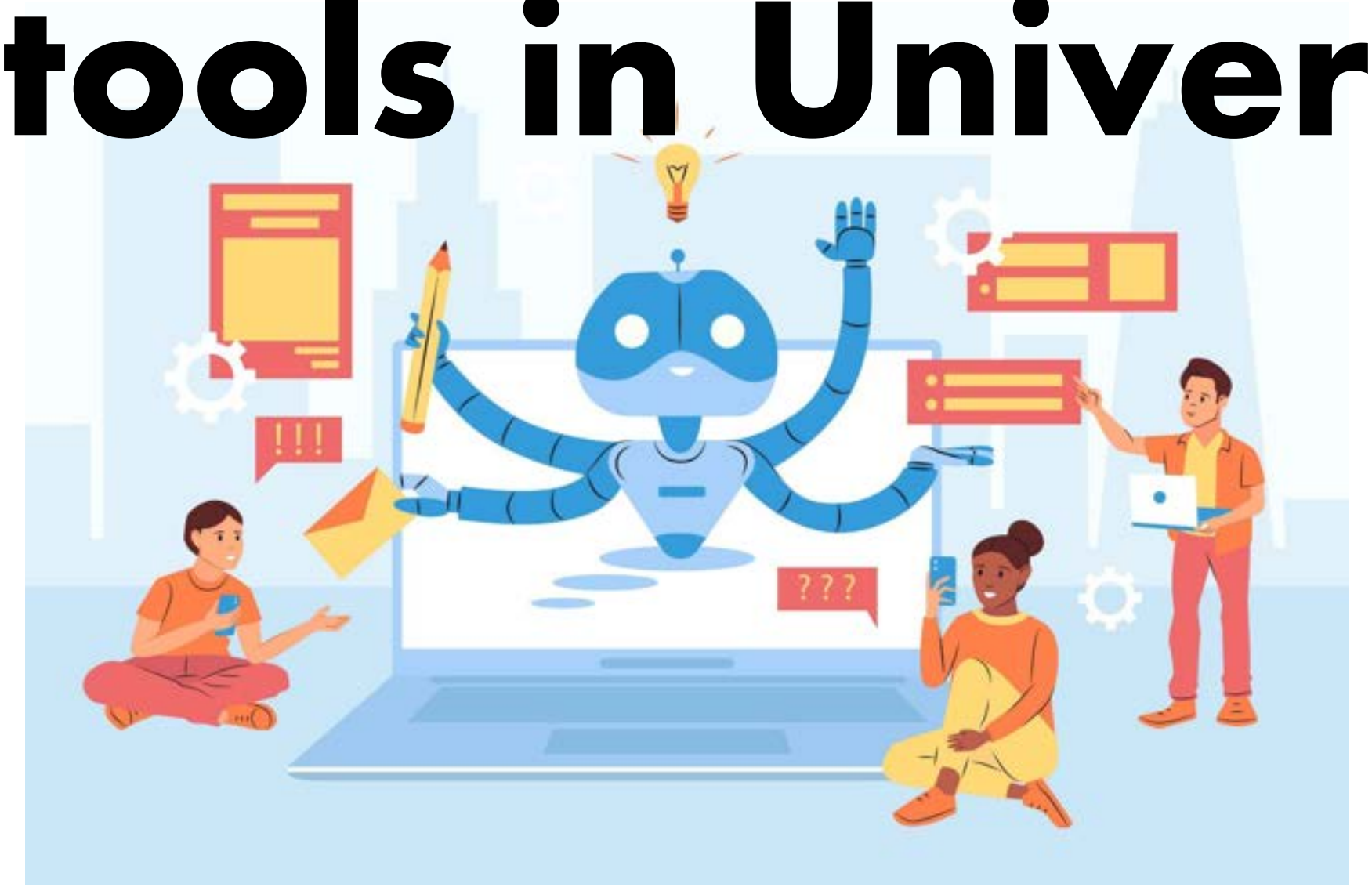
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AI tools in University



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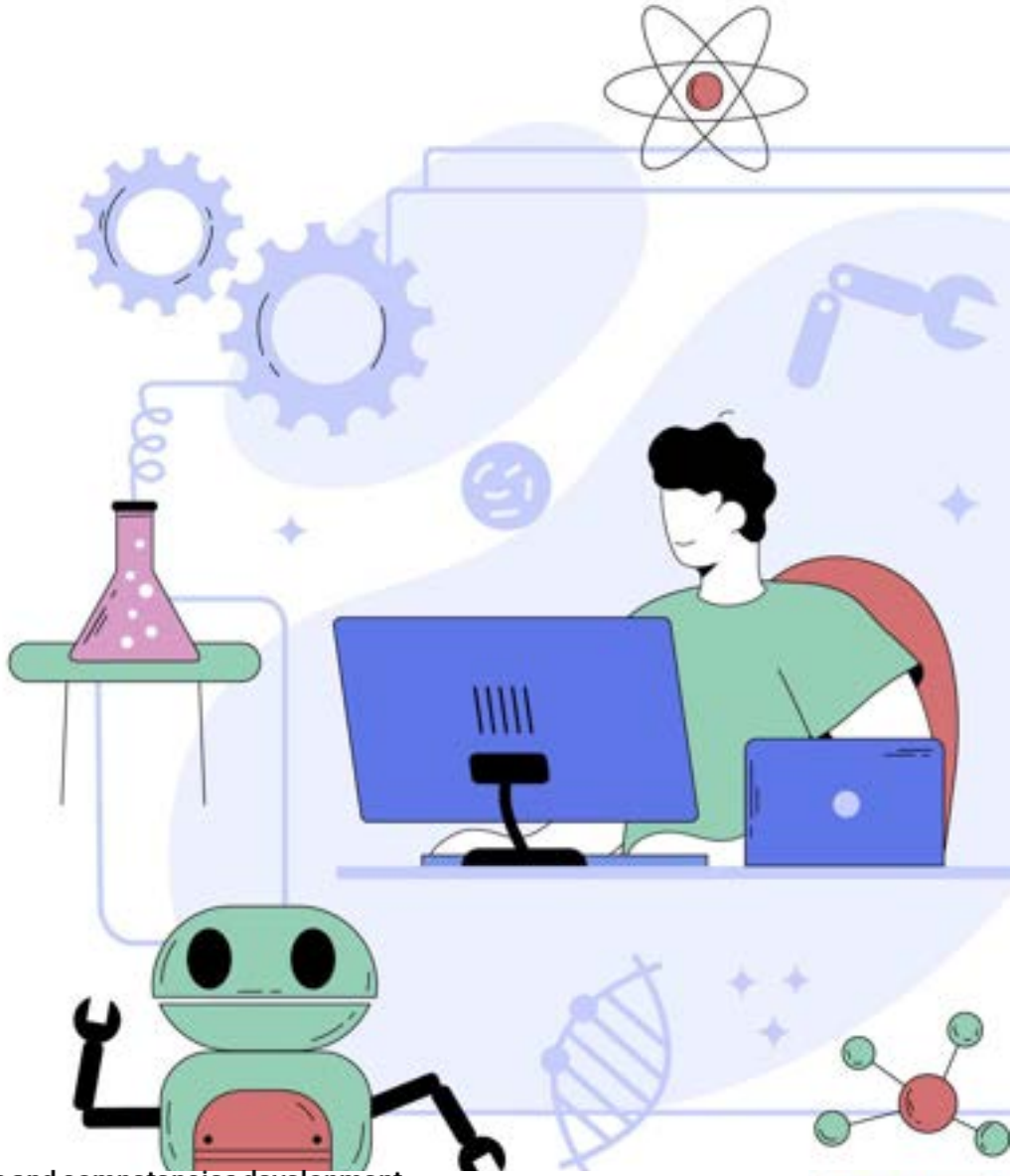
Introduction

The field of Artificial Intelligence (AI) has transformed multiple sectors in recent years

The emergence of tools such as ChatGPT, Gemini, LLaMA, and others has accelerated this change

The education sector has not been immune to this technological and cultural impact

These tools have created new opportunities to personalize learning and improve efficiency in teaching



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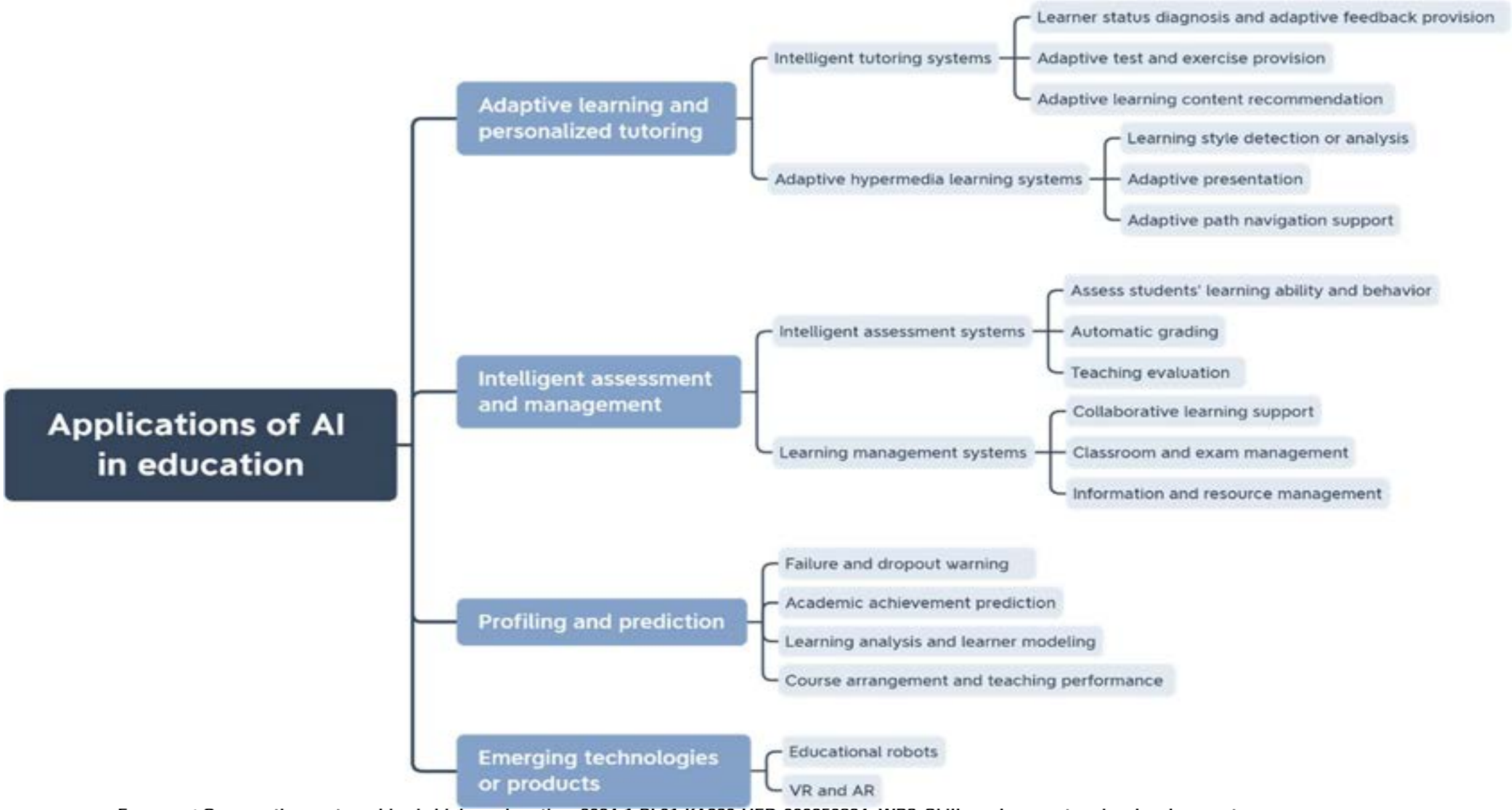
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Generative AI

Generative AI refers to systems capable of producing new content

This includes text, images, code, audio and multimedia

Models are trained on large datasets (LLMs) to learn underlying patterns

When used responsibly, they can enhance learning and innovation

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Human-like understanding



Human-like understanding

Statistical pattern prediction



Statistical pattern prediction

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Use of generative AI

AI generates responses based on patterns, not understanding

Outputs may contain errors, bias, or fabricated information

Prompts guide the system by clearly defining the task and context

The quality of the output depends on the data the model was trained on, the prompt and the data you provided

Human judgment remains essential at every stage

References and sources should always be verified independently

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For students...

Instant feedback	No need for direct contact with the instructor	Drafting and improving written assignments
Summarizing long or complex texts	Clarifying difficult concepts in simple terms	Generating ideas for essays or projects
Practicing exam questions and self-assessment	Translating and improving academic language	Organizing study plans and deadlines
Getting examples and step-by-step explanations	Support outside classroom hours	Personalized learning at the student's own pace



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For teachers...



Preparing lecture outlines and teaching materials	Generating examples, exercises, and case studies	Adapting content to different difficulty levels
Supporting assessment design and rubrics	Providing faster, formative feedback	Summarizing student submissions or discussions
Assisting with course planning and learning objectives	Supporting inclusive and accessible teaching	Reducing administrative workload

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For admin...

Simplifying administrative workflows	Making complex university systems easy to navigate	Enhancing administrative efficiency through clear digital tools
Empowering university staff with understandable AI solutions	Turning institutional complexity into actionable processes	Improving clarity in academic administration tasks
Reducing complexity in university operations	From complex policies to clear administrative actions	Streamlining university administration with intuitive tools
Clear guidance for complex institutional processes	Making administrative systems more transparent and usable	Supporting efficient and informed administrative workflows



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Good practices



Know when, how, and why AI is allowed to be used	Use AI to support, not to replace	Ask AI for explanations, not final answers
Always review, verify, and edit AI-generated content	Do not submit AI-generated work as your own	Protect your personal and academic data
Be aware of bias and limitations in AI outputs	Use AI as a assistant	Develop critical thinking and ethical awareness

Remember:

responsibility always lies with you

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Multimodal tools

ChatGPT

Gemini

Claude

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Education specific tools

MAGIC SCHOOL



TeachMateAI

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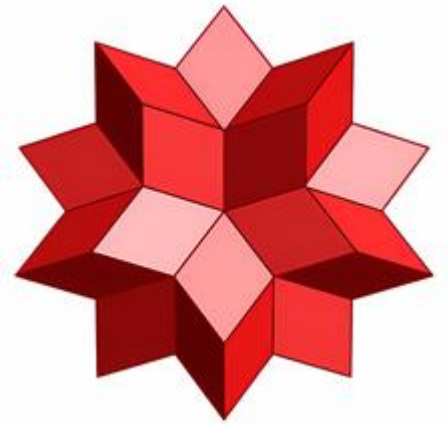
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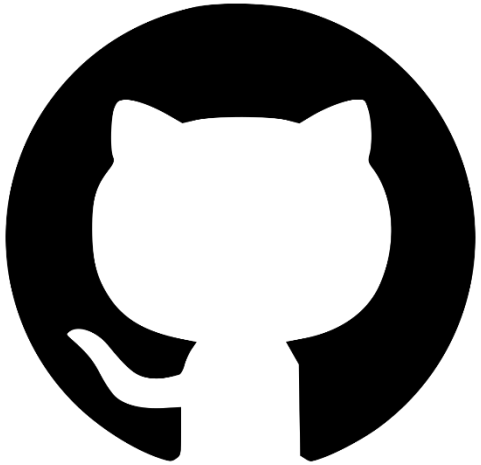
Plug-ins













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AI tools today

perplexity

NotebookLM

Claude

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perplexity

What is Perplexity?

AI-Powered Search Assistant



Perplexity

AI-Powered Search Assistant



1 Efficient search

Accelerates **search** and **exploration.**



2 Trustworthy answers

Provides **reliable, cited responses.**



3 Knowledge discovery

Helps **uncover topics** and gain a broader understanding.

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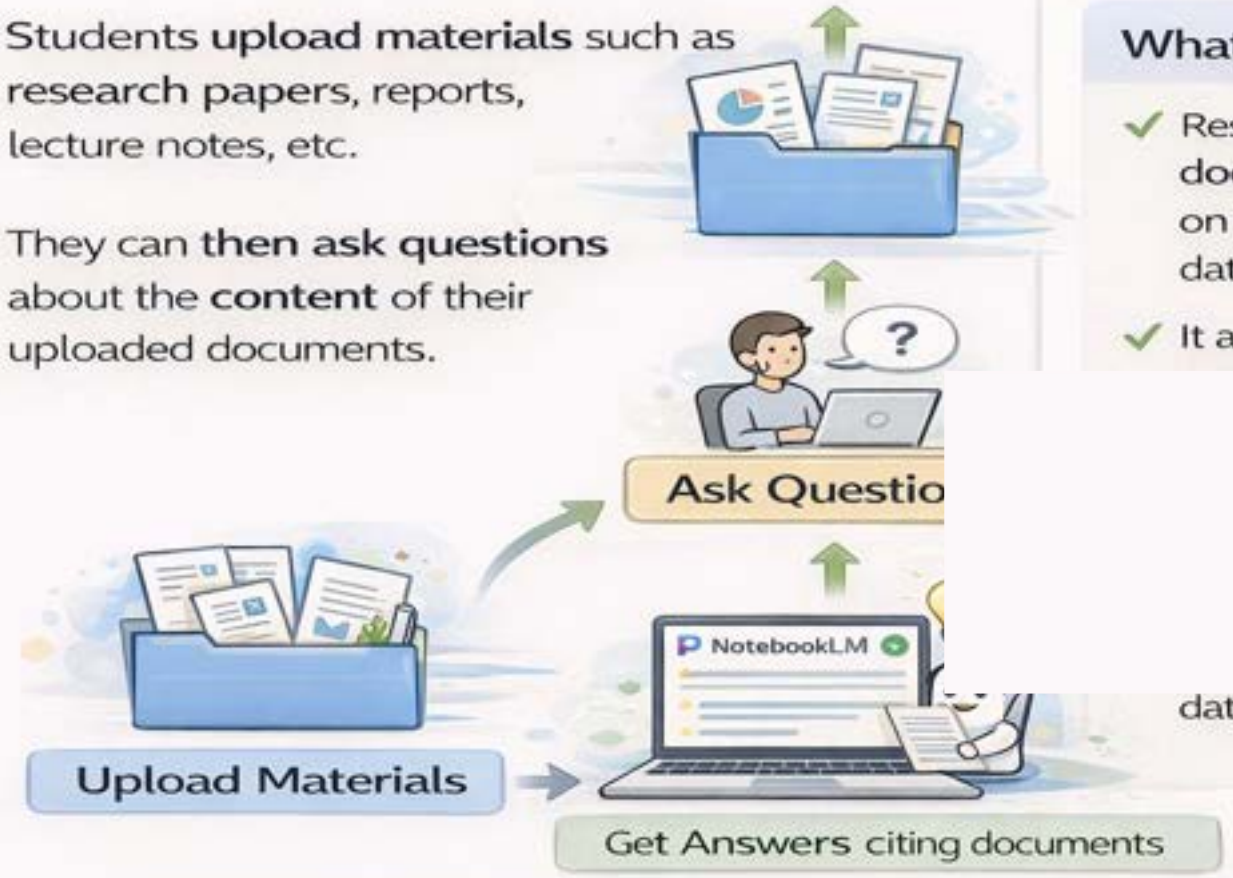
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NotebookLM

What is NotebookLM?

NotebookLM is an **AI tool** designed to help users interact **directly with documents.**

- Students **upload materials** such as **research papers**, reports, lecture notes, etc.
- They can **then ask questions** about the **content** of their uploaded documents.



What sets NotebookLM apart?

- ✓ Responses are based **only** on the documents **provided** by the user, not on general knowledge from large datasets.
- ✓ It analyzes the **uploaded** sources

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NotebookLM

What NotebookLM Can Do

One of the main functions of **NotebookLM** is the ability to **summarize documents.**

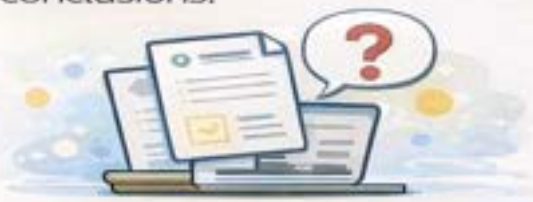
Summarize Documents

Ask for a concise overview of the **main contributions** or findings,



Ask Questions About Documents

Make targeted questions to find specific information about the methodology and conclusions.



Cross-Reference Documents

Analyze and compare information across **multiple** documents.



Upload Materials

"**Summarize** the key contributions of this paper."

Example:

> **Summarize** the key contributions of this paper.

Ask Questions

"**What limitations** does the research identify?"

Example:

> What differences exist between these two studies?

Cross-Reference Documents

Analyze and compare information across **multiple** documents.

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Let’s go deeper



Ángela R. Troncoso García

artrogar@upo.es

Thank you very much

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AI tools: NotebookLM

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Pablo de Olavide University, Seville, Spain

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1 WHAT IT IS AND WHAT IT IS FOR



- Your AI research assistant
- Works on your documents
- Helps you understand and synthesize information
- Grounded in your sources

2 ORIGIN OF INFORMATION: YOUR SOURCES



- You upload your documents
- The system is based only on your sources
- More quality sources, better answers

3 USE CASES

TEACHING



- Explain concepts
- Create study guides
- Generate quizzes and materials

RESEARCH



- Compare studies
- Extract findings
- Identify patterns and gaps

ADMIN WORK



- Summarize reports
- Extract key info
- Simplify complex documents

4 INTERACTION WITH THE INFORMATION: STUDIO



- Ask questions
- Get grounded answers
- See citations from your sources
- Iterate and go deeper

5 CREATE AND SHARE NOTEBOOKS: AI ASSISTANT FOR YOUR TOPIC



- Organize by topics or projects
- Share with students or colleagues
- Turn your Notebook into an AI assistant that answers based on your documents

6 STRENGTHS AND LIMITATIONS

STRENGTHS

- Grounded in your sources
- Saves time and cognitive load
- Helps synthesize complex information
- Private and secure

LIMITATIONS

- Depends on the quality of your sources
- May oversimplify
- Not a replacement for critical reading
- Doesn't access external information

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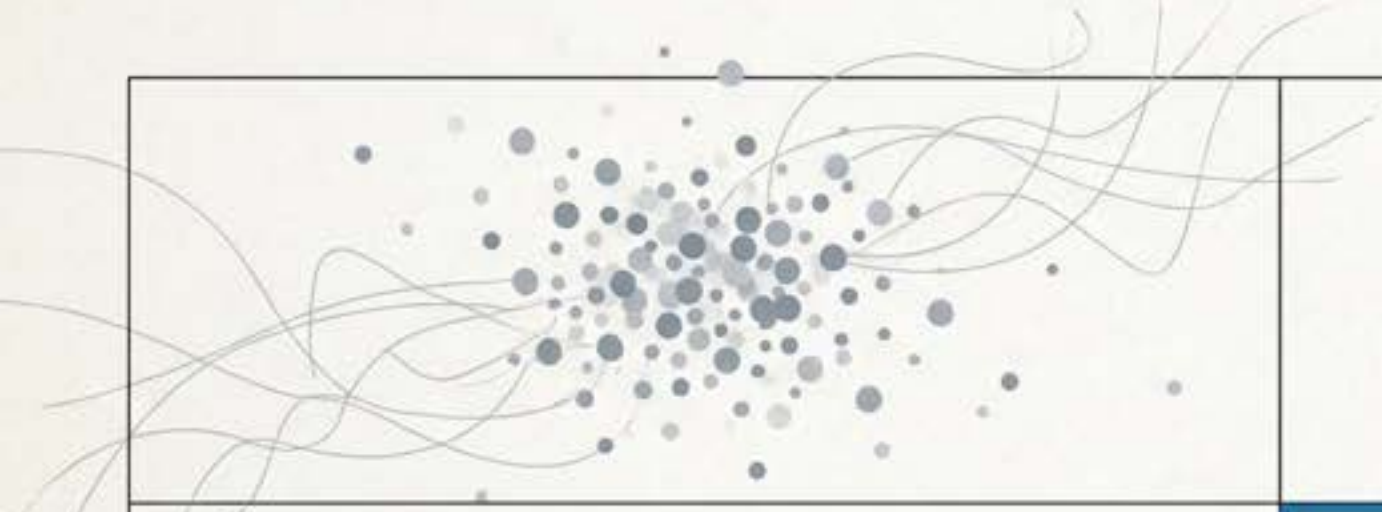
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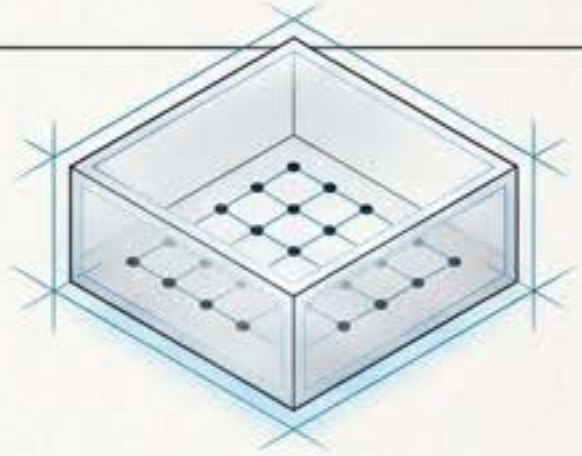
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Redefining the AI Workspace

NotebookLM is fundamentally a different category of tool. **It abandons the chaos of the open web to focus entirely on reasoning over your internal materials.**





Open Web AI	Closed Bounded AI
Tool Profile: Perplexity, ChatGPT	**Tool Profile:** NotebookLM
Core Purpose: Discovery	**Core Purpose:** Understanding
Information Source: The infinite, unfiltered internet	**Information Source:** Strictly user-uploaded documents
Hallucination Risk: High (Prone to external confabulation)	**Hallucination Risk:** Minimized (Grounded entirely in provided sources)

WHAT IS NOTEBOOKLM?

NotebookLM is an AI tool designed to help users interact **directly with documents.**

- Students **upload materials** such as research papers, reports, lecture notes, etc.



1. UPLOAD MATERIALS

- They can then **ask questions** about the content of their uploaded documents.



2. ASK QUESTIONS

- They get **answers** that are based on the content of their documents.



3. GET ANSWERS CITING DOCUMENTS

WHAT SETS NOTEBOOKLM APART?

- ☑ Responses are based **only on the documents provided by the user,** not on general knowledge from large datasets.
- ☑ It analyzes the uploaded sources to generate **grounded** answers.

WHAT SETS NOTEBOOKLM APART:

- ☑ Responses are based **only on the documents provided by the user,** not on general knowledge from large datasets.
- ☑ It analyzes the uploaded sources to generate **grounded** answers.

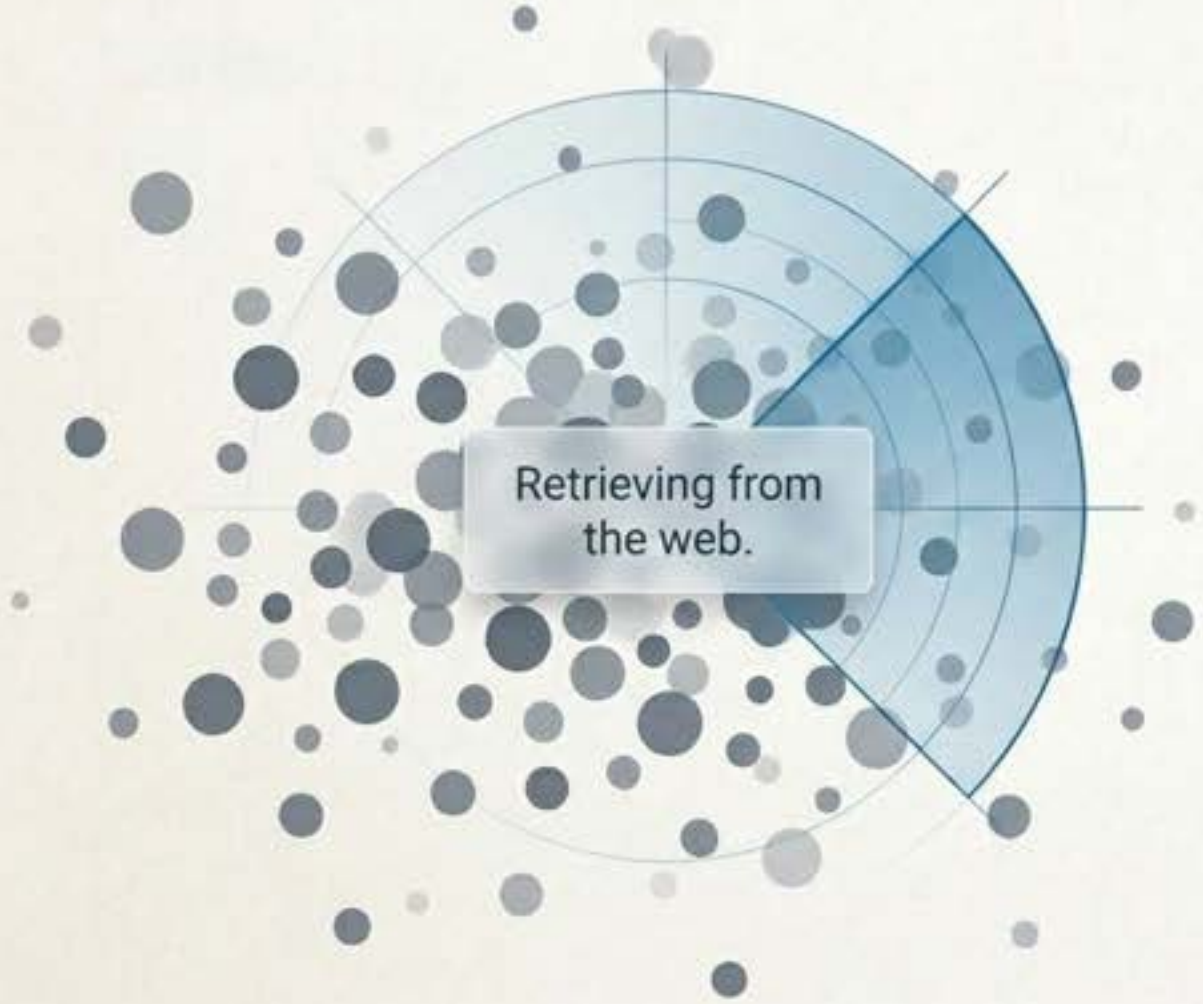
NotebookLM is especially useful in **academic contexts,** where working with defined sources is essential.

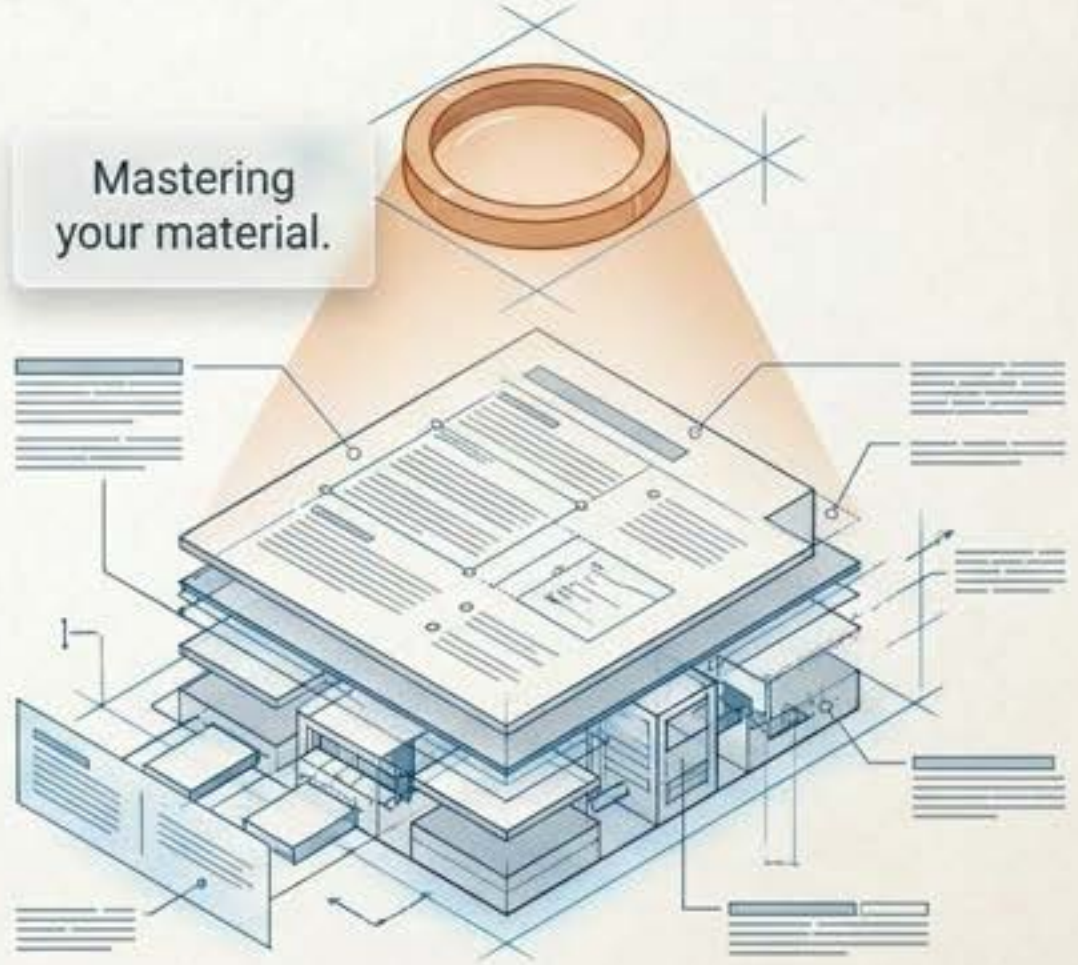
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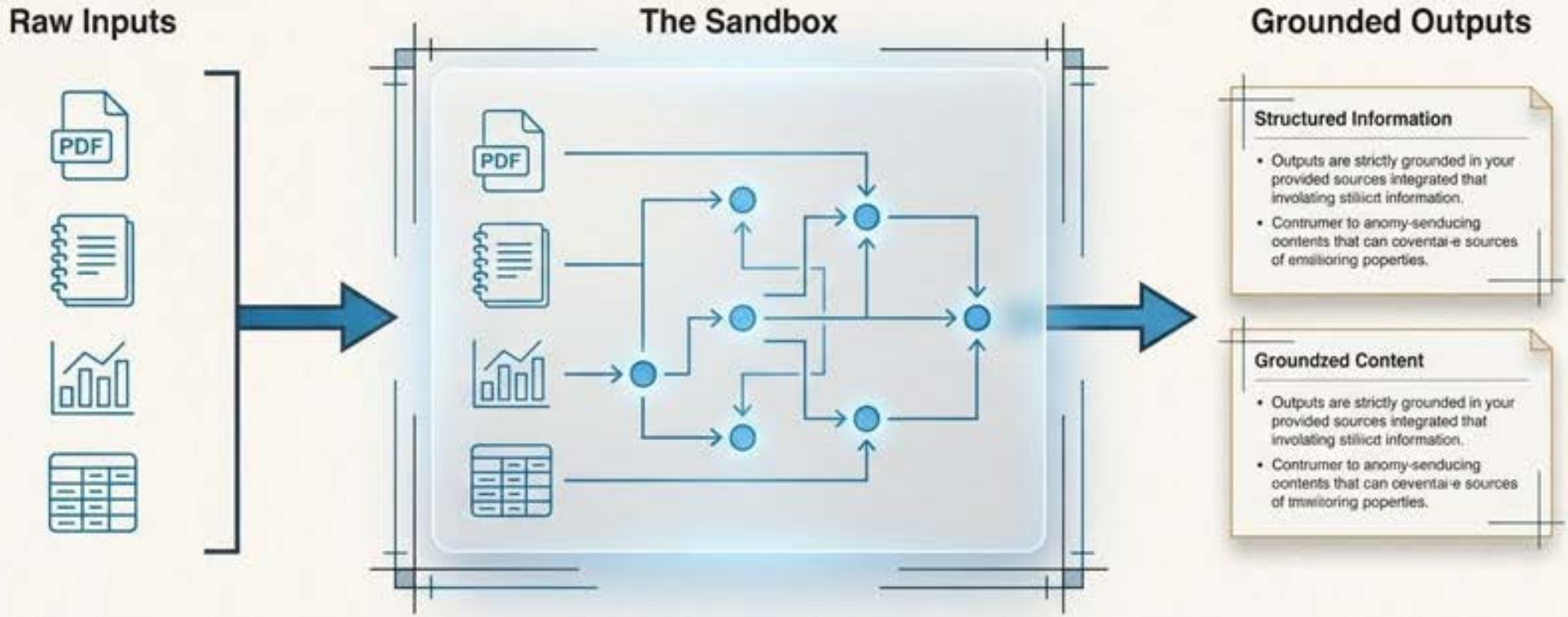
A Tool Designed for Understanding, Not Discovery

General AI explores external information. NotebookLM builds an isolated knowledge environment based exclusively on the sources you provide.





Outputs are strictly grounded in your provided sources. The AI processing lines never cross the boundary, ensuring maximum relevance.



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WHAT NOTEBOOKLM CAN DO

One of the main functions of **NotebookLM** is the ability to **summarize documents.**

1. SUMMARIZE DOCUMENTS

Ask for a concise overview of the **main contributions** or findings.



UPLOAD MATERIALS

EXAMPLE:
"Summarize the key contributions of this paper."

- Summarize the key contributions of this paper.

2. ASK QUESTIONS ABOUT DOCUMENTS

Make **targeted questions** to find specific information about the methodology and conclusions.



ASK QUESTIONS

EXAMPLE:
"What limitations does the research identify?"

- What differences exist between these two studies?

3. CROSS-REFERENCE DOCUMENTS

Analyze and compare information across **multiple** documents.



CROSS-REFERENCE DOCUMENTS

EXAMPLE:
"Analyze and compare information across multiple documents."

NOTEBOOKLM helps understand, analyze, compare academic papers.

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Practical Applications Across Complex Domains

Tailoring the bounded system to specific professional workflows to speed up comprehension.



Teaching

Inputs:
Syllabi, complex papers.

Outputs:
Generate summaries, create teaching materials, explain complex concepts.



Research

Inputs:
Multiple scientific studies.

Outputs:
Compare studies, extract specific findings, build structured cross-document notes.



Administration

Inputs:
Regulations, internal documentation.

Outputs:
Analyze compliance, summarize dense reports, manage internal knowledge.

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NotebookLM

Configuración

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Búsqueda Bibliográfica Estratégica y Síntesis...
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Responsible Artificial Intelligence
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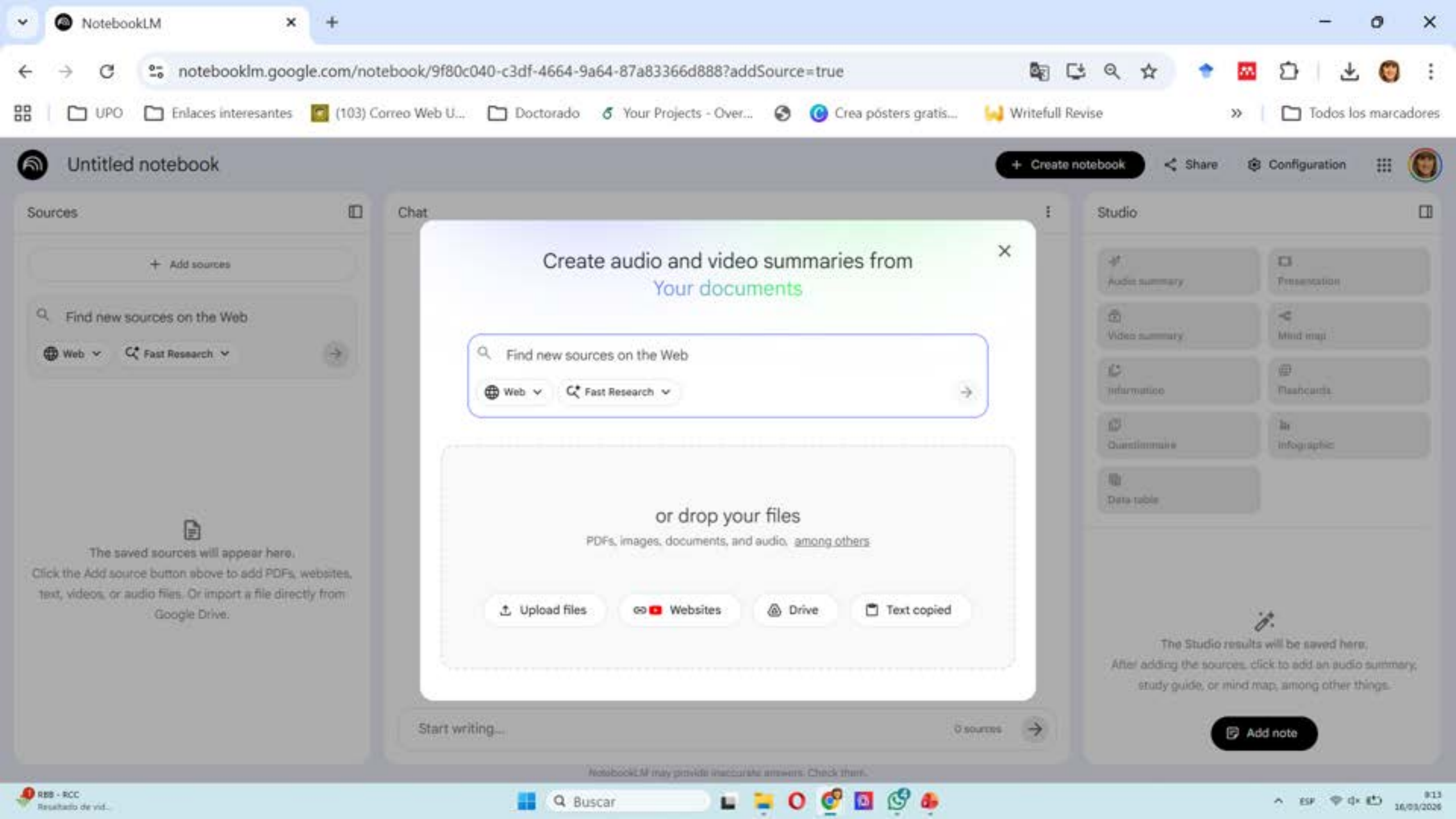
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Todos los marcadores
Untitled notebook
Create notebook
Share
Configuration
Sources
Add sources
Find new sources on the Web
Web
Fast Research
The saved sources will appear here.
Click the Add source button above to add PDFs, websites, text, videos, or audio files. Or import a file directly from Google Drive.
Chat
Create audio and video summaries from
Your documents
Find new sources on the Web
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Fast Research
or drop your files
PDFs, images, documents, and audio, among others
Upload files
Websites
Drive
Text copied
Start writing...
0 sources
Studio
Audio summary
Presentation
Video summary
Mind map
Information
Flashcards
Questionnaire
Infographic
Data table
The Studio results will be saved here.
After adding the sources, click to add an audio summary, study guide, or mind map, among other things.
Add note
NotebookLM may provide inaccurate answers. Check them.
RBB - RCC
Buscar
ESP
16/03/2026

Exponential and Log functions

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Exponential and Log functions - Precalculous

+ Create notebook | Share | Configuration

Sources

+ Add sources

Find new sources on the Web

Web | Fast Research

Select all sources

- CH03_01.pptx
- CH03_02.pptx
- CH03_04.pptx
- CH03_06.pptx
- Stewart_Precalc_8e_PPT_CH03_03.pptx
- Stewart_Precalc_8e_PPT_CH03_05.pptx
- Stewart_Precalc_8e_PPT_CH03_07.pptx

Chat

Exponential and Log functions - Precalculous

0 sources

This collection of educational materials for **Precalculus: Mathematics for Calculus** details the fundamental properties and analytical techniques of **polynomial functions** . The resources explain how to identify key elements such as **degree** , **leading coefficient** , and the **final behavior** of graphs, ensuring that students recognize their **smooth and continuous nature. Precise algebraic methods, including the Rational Zeros Theorem** , **synthetic division** , and **Descartes' Rule of Signs** , are presented for locating the roots of an equation. Furthermore, the content instructs on using the **Upper and Lower Bounds Theorem to constrain the search for real solutions on a Cartesian plane. Finally, graphical visualization** strategies and transformations are integrated to facilitate solving complex problems and representing power functions.

Save to a note

How do the degree and the leading coefficient influence the final behavior of the graph?

Empieza a escribir... 0 sources

Studio

Audio summary | Presentation (BETA) | Video summary | Mind map | Information | Flashcards | Questionnaire | Infographic (BETA) | Data table

The Studio results will be saved here.

After adding the sources, click to add an audio summary, study guide, or mind map, among other things.

Add note

NotebookLM may provide inaccurate answers. Check them.

RBB - RCC Resultado de vid...

Buscar

ESP 9:15 16/03/2026

Exponential and Log functions

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Sources

+ Add sources

Find new sources on the Web

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- CH03_01.pptx
- CH03_02.pptx
- CH03_04.pptx
- CH03_06.pptx
- Stewart_Precalc_8e_PPT_CH03_03.pptx
- Stewart_Precalc_8e_PPT_CH03_05.pptx
- Stewart_Precalc_8e_PPT_CH03_07.pptx

Chat

How do the degree and the leading coefficient influence the final behavior of the graph?

The **final behavior** of a polynomial function describes what happens to the values of the function (and) as$x$becomes very large in a positive direction ($x \to \infty$) the negative ($x \to -\infty$) 1 This behavior is determined exclusively by the **leading term** ($a_n x^n$), since for large values of$x$The other terms of the polynomial are insignificant in comparison. 2 .

The influence of the degree (n) and the leading coefficient (a_n) is divided into four fundamental cases:

1. Odd degree ($n$is odd)

In this case, the ends of the graph point in **opposite directions.** 3 .

- **Positive principal coefficient** ($a_n > 0$The function falls to the left and rises to the right. It is expressed as :$and \to \infty$when$x \to \infty$, and$and \to -\infty$when$x \to -\infty$ 4 5 .
- **Negative principal coefficient** ($a_n < 0$**The function rises to the left** and falls to the right. It is expressed as:$and \to -\infty$when$x \to \infty$, and$and \to \infty$when$x \to -\infty$ 6 7 .

2. Even degree (n(es par)

In this case, the ends of the graph point in the **same direction.** 7 .

- **Positive principal coefficient** ($a_n > 0$): Both ends of the graph rise. This is expressed as:

Empieza a escribir... 0 sources

NotebookLM may provide inaccurate answers. Check them.

Studio

Audio summary | Presentation (BETA) | Video summary | Mind map | Information | Flashcards | Questionnaire | Infographic (BETA) | Data table

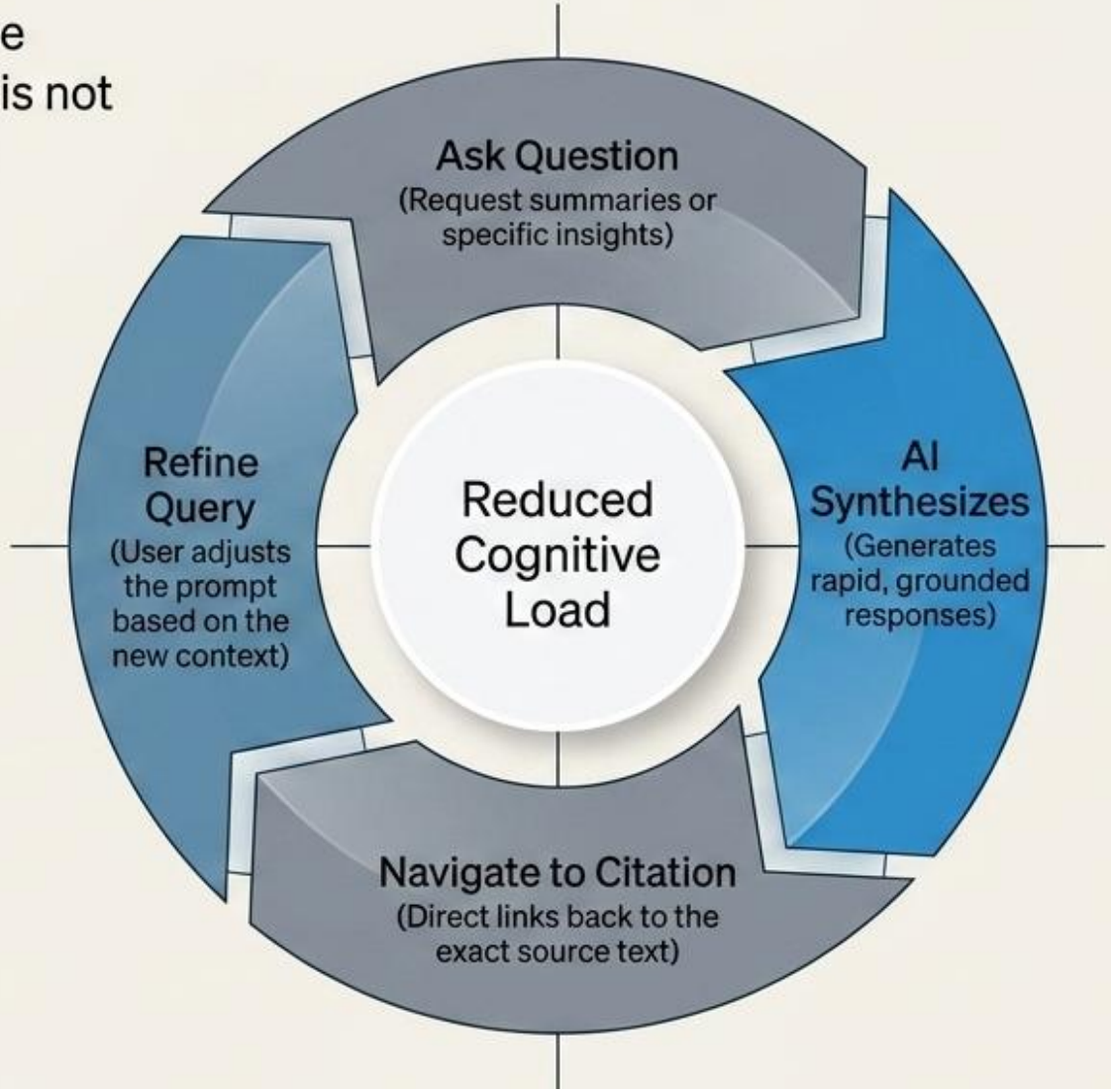
The Studio results will be saved here.

After adding the sources, click to add an audio summary, study guide, or mind map, among other things.

Add note

IBEX 35 -0,47% | Buscar | ESP | 9:16 16/03/2026

The Studio enables an iterative dialogue with your sources. It is not simple retrieval; it is an active conversation to accelerate understanding.



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STUDIO

TURN YOUR SOURCES INTO KNOWLEDGE, IN MANY WAYS.



STUDIO

Transform your sources into different formats to **study**, **teach**, and **share** knowledge easily.



1 MIND MAP

Visualize connections and key ideas.

2 FLASHCARDS

Create flashcards to review and remember important concepts.

3 PRESENTATION

Generate slides to present your findings with clarity.

4 AUDIO SUMMARY

Listen to a summary of your content.

5 VIDEO SUMMARY

Watch a short video summarizing the key points.

6 INFOGRAPHIC

Turn complex information into clear visuals.

7 DATA TABLE

Organize and explore data in a structured way.

8 QUESTIONNAIRE

Create quizzes or questionnaires to test understanding.

ONE SOURCE. MANY FORMATS.

Choose the format that fits your goal: **study** better, **teach** smarter, **share** deeper.

Save time and focus on what matters.

Engage students with varied formats.

Ensure accuracy using only your trusted sources.



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Exponential and Log functions

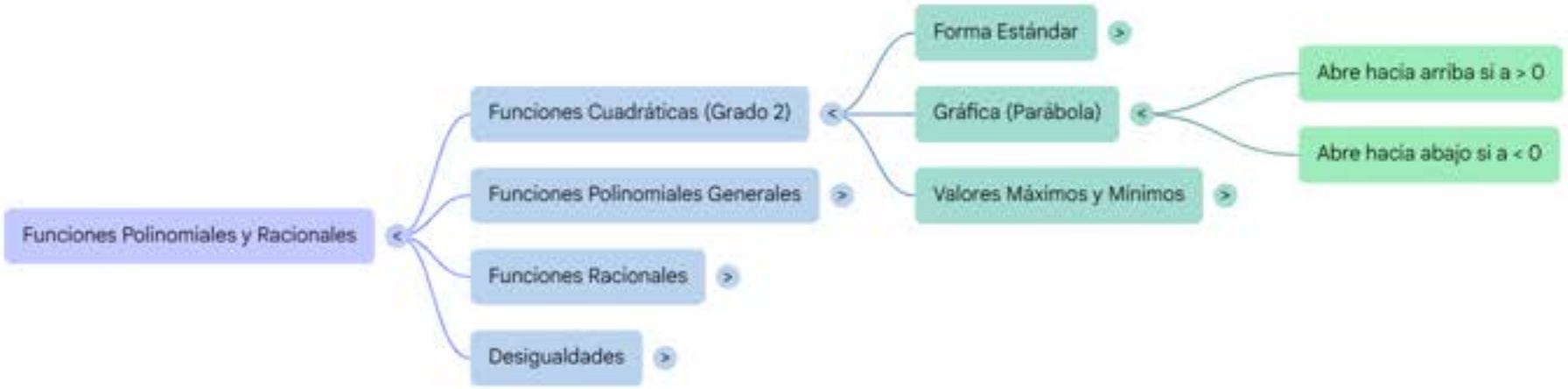
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Mind map

Structures of Polynomial and Rational Functions

Based on 7 sources



Appropriate content | Inappropriate content

NotebookLM may provide inaccurate answers. Check them.

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Exponential and Log functions

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Mind map

Exponential and Log functions - Precalculous

+ Create notebook | Share | Configuration

Chat

Discuss what these sources say about Opens upwards if a > 0, in the broader context of Graph (Parabola).

The sources provided establish a direct relationship between the sign of the leading coefficient (a) and the orientation of the parabola, which has critical implications for the shape of the graph, its extreme values, and its final behavior.

The following details what the sources indicate regarding the fact that a parabola **opens upwards if** $a > 0$:

1. Orientation and shape of the graph

- **Opening definition:** A quadratic function expressed in its standard form $f(x) = a(x - h)^2 + k$ represents a parabola with vertex at (h, k) [1] The sources specify that **the parabola opens upwards if** $a > 0$, while opening downwards if $a < 0$ [1].
- **Visualization:** The graphs of functions where a is positive and shows a "U" shaped curve where the "arms" of the parabola extend infinitely to the top of the Cartesian plane [2] [...].

2. Existence of a minimum value

- **The vertex as the lowest point:** When a parabola opens upwards ($a > 0$), the vertex (h, k) represents the **minimum point** of the function [5]
- **Minimum value:** The minimum real value of the function is the coordinate and from the

Start writing... 7 sources

Studio

Audio summary | Presentation (BETA) | Video summary | Mind map | Information | Flashcards | Questionnaire | Infographic (BETA) | Data table

The presentation could not be generated... Eliminate

Polynomial and Rational Functions:...
7 sources · 3 min ago

Generating audio summary...
Come back in a few minutes

Add note

Structures of ...tional...
7 sources · 4 min ago

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Flashcards

Exponential and Log functions

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Polinomios Fichas

Based on 7 sources

4 / 75

¿Cuál es el grado del polinomio $P(x) = 3x^5 + 6x^4 - 2x^3 + x^2 + 7x - 6$?

Mira la respuesta

0 0

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Flashcards

Polinomios Fichas

Based on 7 sources

5.

Explicar

0 0

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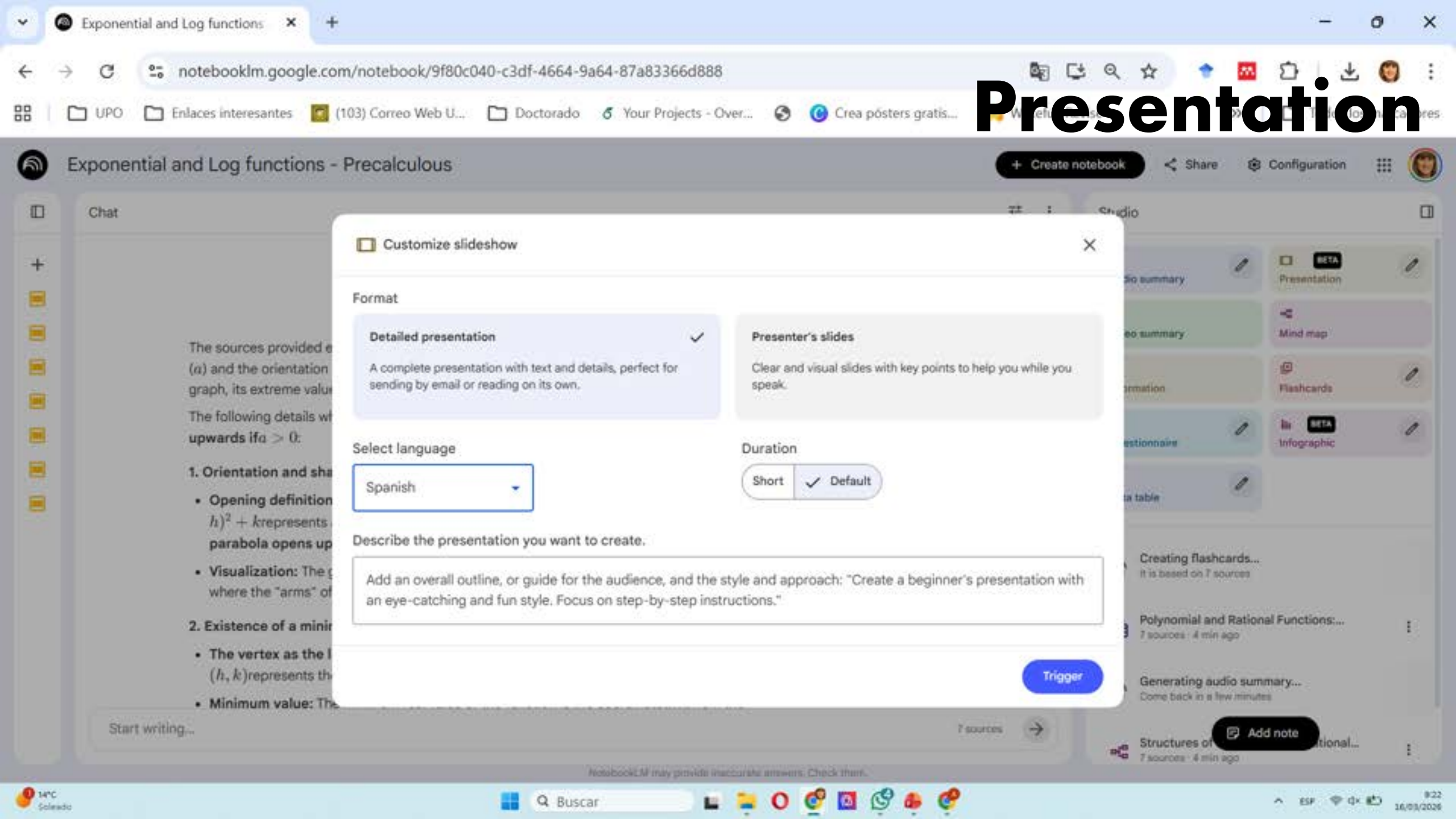
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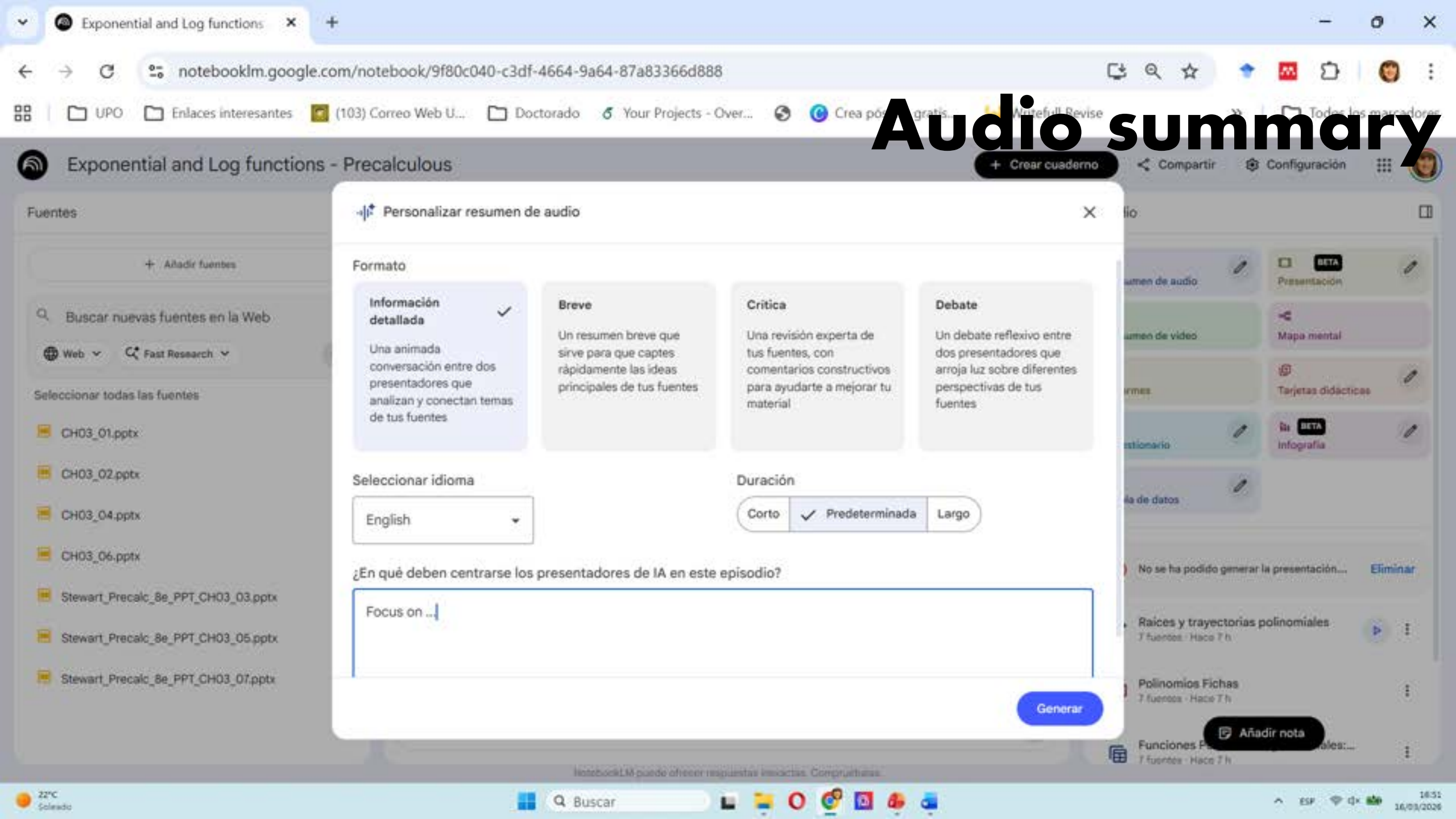
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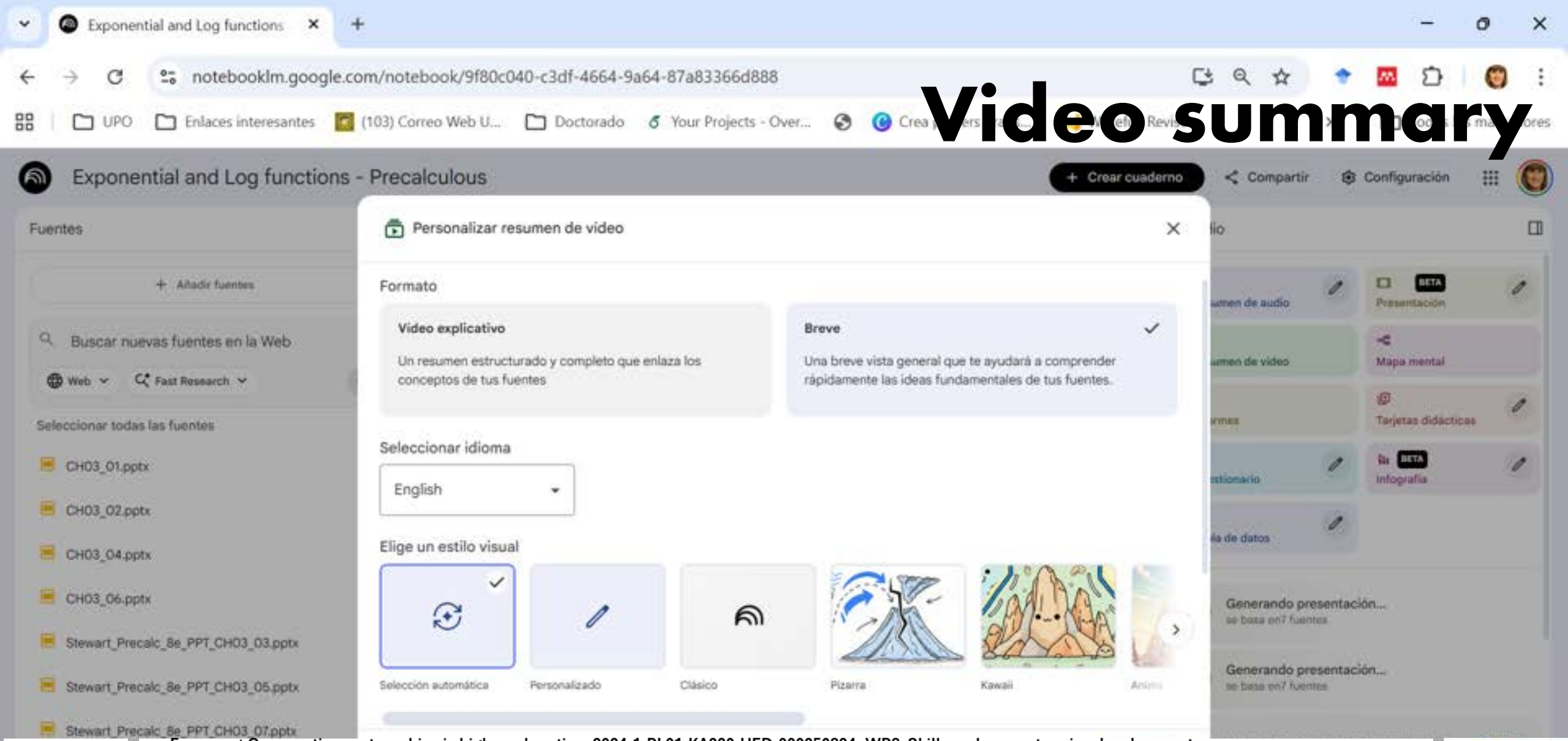
Presentation



Audio summary



Video summary



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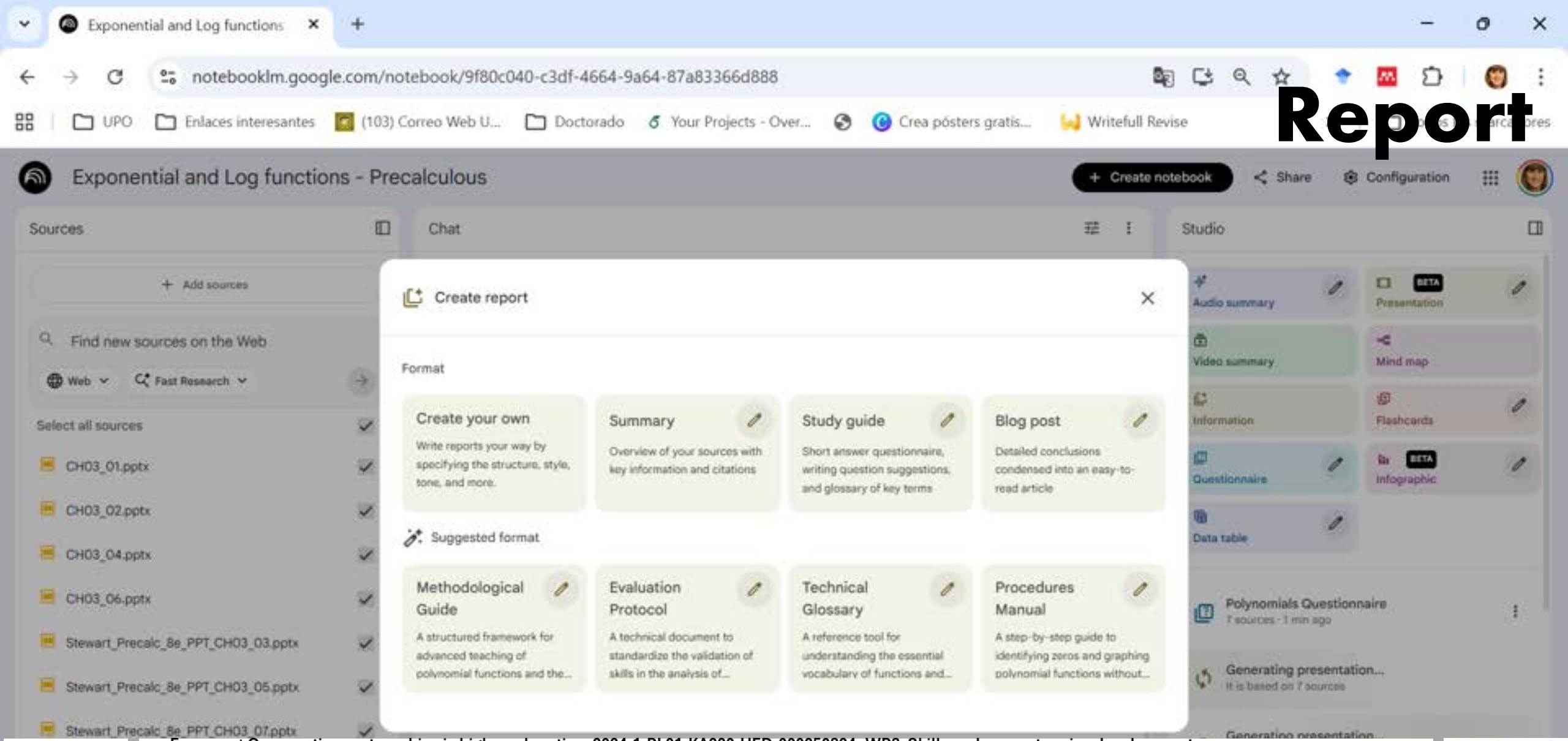
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Data table

Funciones Polinomiales y Racionales: Propiedades y Ejemplos

Based on 7 sources

Polynomial Function	$P(x) = x^4(x-2)^3(x+1)^2$	9	1	-1(lot.2), 0(lot.4),2(lot.3)	$and \to \infty$ when$x \to \infty$; $and \to -\infty$ when$x \to -\infty$	Multiple local extremes (maximum of8)	[1]
Polynomial Function	$P(x) = x^3 - 2\,x^2 - 3\,times$	3	1	$x = 0, x = 3, x = -1$	$and \to \infty$ when$x \to \infty$;$and \to -\infty$ when$x \to -\infty$	At least one local maximum and minimum	[1]
Quadratic Function	$f(x) = 2\,x^2 - 12x + 13$	2	2	Interceptand: $(0, 13)$Intercepts$x$:$3 \pm \frac{\sqrt{10}}{2} \approx (1.42, 4.58)$	Open upwards ($f(x) \to \infty$when$x \to \pm\infty$)	Vertex:$(3, -5)$Minimum value:-5	[2]
Quadratic Function	$f(x) = 5\,times^2 - 30x + 49$	2	5	No real zeros are mentioned	Open upwards ($f(x) \to \infty$when$x \to \pm\infty$)	Vertex:$(3, 4)$Minimum value:4	[2]
Quadratic Function	$f(x) = -x^2 + x + 2$	2	-1	Intercepted$x$:$-1, 2$	Open downwards ($f(x) \to -\infty$when $x \to \pm\infty$)	Vertex:$(\frac{1}{2}, \frac{9}{4})$Maximum value:$\frac{9}{4}$	[2]
Rational Function	$r(x) = \frac{2x^2+7x-4}{x^2+x-2}$	$2/2$	Numerator:2; Denominator:1	Intercepted$x$:$\frac{1}{2}, -4$Interceptand:2	AV:$x = 1, x = -2$; A.H.: $and = 2$	not specified	[3]
Rational Function	$r(x) = \frac{x^2-4x-5}{x-3}$	$2/1$	Numerator:1; Denominator:1	Intercepted$x$:$-1, 5$Interceptand:$\frac{5}{3}$	AV:$x = 3$A. Oblique:$and = x - 1$	not specified	[3]
Rational Function (with hole)	$s(x) = \frac{x-3}{x^2-3x}$	$1/2$	Numerator:1; Denominator:1	It has no intercepts	AV:$x = 0$; A.H.:$and = 0$	Hole in$x = 3$	[3]
Rational Function	$f(x) = \frac{1}{x}$	Numerator:0;	Not applicable	Without intercepts$x$inand	AV:$x = 0$; A.H.:$and = 0$	It has no local extremes	[3]

Appropriate content | Inappropriate content

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Questionnaire

Exponential and Log functions

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Polinomios Cuestionario

Based on 7 sources

¿Cuál es el grado y el coeficiente principal de la función polinomial $P(x) = 5x^4 - 2x^6 + 3x - 1$?

A. Grado 6, coeficiente principal -2

B. Grado 4, coeficiente principal 5

C. Grado 11, coeficiente principal 5

D. Grado 6, coeficiente principal 2

Pista

Siguiente

Busca el término que contiene la potencia más alta de x sin importar su posición en la expresión.

Appropriate content | Inappropriate content

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WHY CREATE A NOTEBOOKLM WITH YOUR SOURCES FOR YOUR STUDENTS?

You create it once. Your students benefit every day.

BENEFITS FOR YOU (AS AN INSTRUCTOR)

1. CENTRALIZE YOUR KNOWLEDGE

Bring together your lectures, readings, slides, notes and resources in one place.

2. SAVE TIME

Reduce repetitive questions by providing a reliable source that is available 24/7.

3. ENSURE ACCURATE AND CONSISTENT ANSWERS

Students get answers based only on the materials you provide, aligned with your teaching.

4. CUSTOMIZED TO YOUR TEACHING APPROACH

You decide the sources, the focus and how the information is presented.

5. IMPROVE LEARNING OUTCOMES

Students understand better, review more effectively and study with confidence.

6. SCALE YOUR IMPACT

Support more students without increasing your workload.

WHAT STUDENTS CAN DO

- Ask questions in natural language about any topic in the materials.
- Get clear and accurate answers based only on your sources.
- Summarize readings, lectures or complex documents.
- Understand connections between concepts and ideas.
- Prepare for exams, assignments and projects more effectively.
- Access help anytime, anywhere, on any device.

YOU PROVIDE THE BEST RESOURCES. NOTEBOOKLM TURNS THEM INTO A PERSONALIZED LEARNING ASSISTANT FOR YOUR STUDENTS.

YOUR SOURCES → AI ASSISTANT → YOUR STUDENTS

BOTTOM LINE: You create a high-quality, reliable study assistant that empowers your students and enhances their learning experience.

YOU STAY IN CONTROL:
You choose the sources. You define the scope.
You set the standard.

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Asistente Virtual para Preguntas Frecuentes

Shared

+ Create notebook

Settings

Sources

Select all sources

- Strength training in soccer wi...
- Biomechanical Comparison o...
- DOES FLYWHEEL PARADIGM ...
- Eccentric overload difference...
- Enhancing Change-of-Directi...
- Flywheel resistance training i...
- Fundamentos de Fuerza e Ine...

Chat



Asistente Virtual para Preguntas Frecuentes

7 sources · Apr 29, 2026

This review evaluates how various **strength training modalities** influence the physical and physiological capab s of **highly trained soccer players**. The analysis highlights that while **professional athletes** require

Start typing...

7 sources

Studio

These studio outputs give an in-depth visual and audio overview of the notebook topic!

Fundamentos de Fuerza ...
5d ago

NotebookLM can be inaccurate; please double check its responses.

System Boundaries and Realistic Expectations

NotebookLM is a powerful accelerator for synthesis, but it is **not a replacement** for human expertise.

Strengths

- Delivers strictly grounded answers.
- Executes fast synthesis across multiple files.
- Significantly reduces initial reading time.

Limitations

- Outputs are entirely dependent on input quality.
- Risk of oversimplifying deeply nuanced texts.
- Insights are not inherently exhaustive.
- Does not replace the need for critical reading.

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HOW NOTEBOOKLM ENHANCES ACCESSIBILITY AND LEARNING

It transforms **written materials** into alternative formats, making studying **easier** and more **flexible**.

1. STRUCTURED SUMMARIES

It provides concise overviews of academic papers with the **key points** highlight.



BENEFIT:
Get the essence of documents quickly and clearly.

2. CONCEPT MAPS ABOUT DOCUMENTS

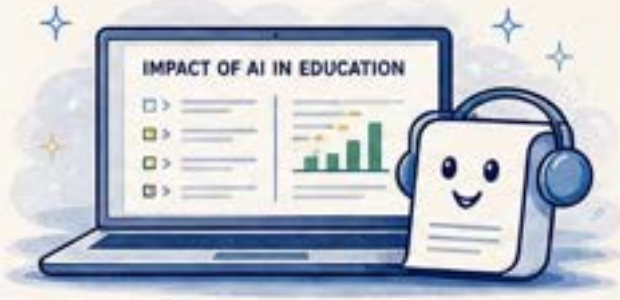
It creates visual representations highlighting the **relationships** between key ideas.



BENEFIT:
Understand how ideas connect and build a deeper understanding.

3. DRAFT SLIDES FROM DOCUMENTS

It analyzes and compares information across **multiple** documents.



BENEFIT:
Create slides with the main concepts and findings ready to present.

KEY IDEA: Multiple formats make studying easier and more adaptable to different **learning styles**.

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Did you know?
Do you find it useful?



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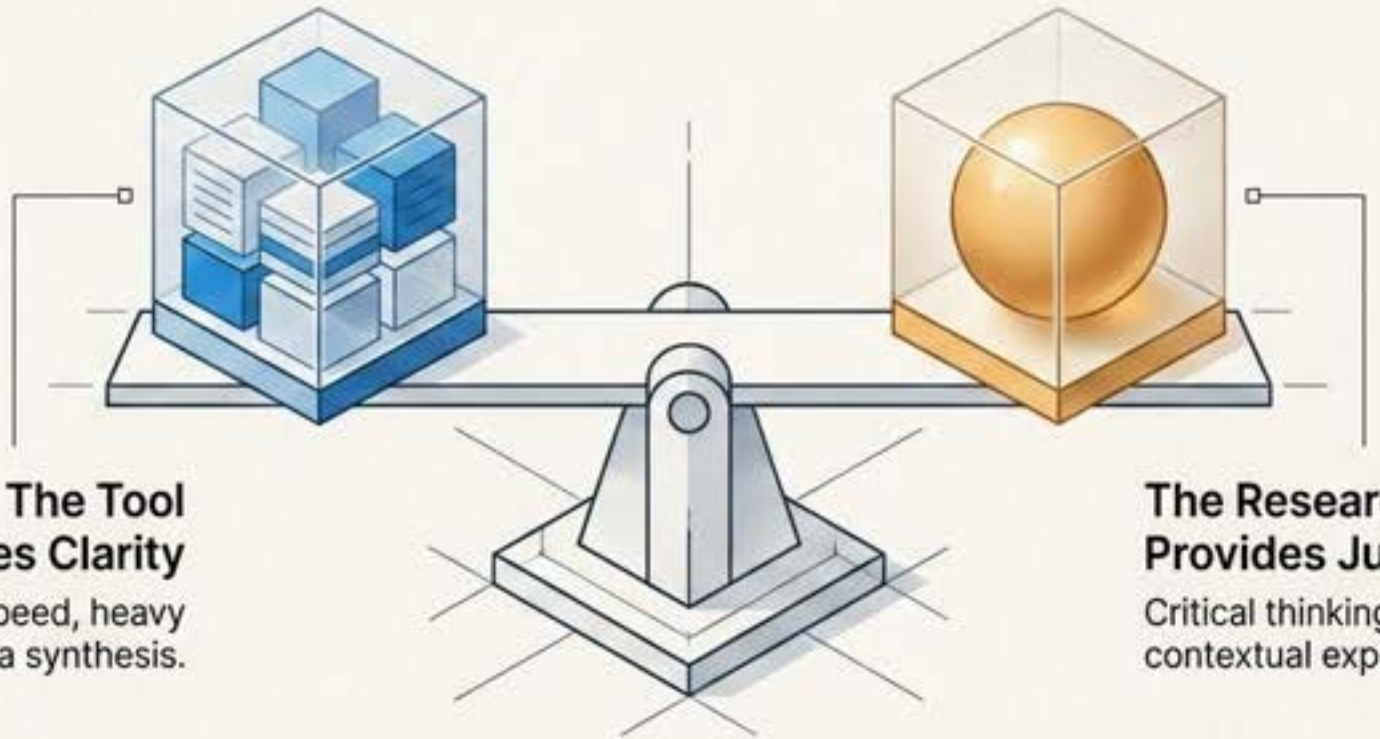
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The Human Element Remains Essential

NotebookLM transforms documents into an interactive knowledge system, but the **final responsibility** rests with the user.



The Tool Gives Clarity

Fast reading speed, heavy lifting, data synthesis.

The Researcher Provides Judgment

Critical thinking, quality control, contextual experience.

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Any questions?



Thank you very much

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AI tools: Perplexity

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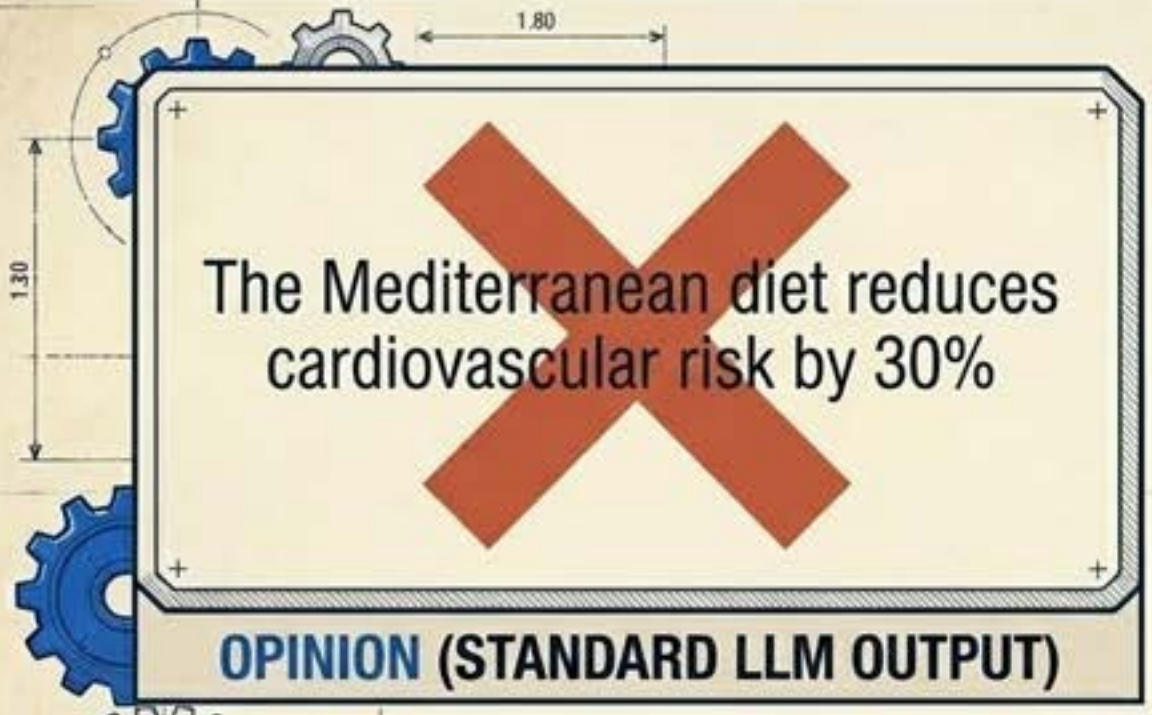
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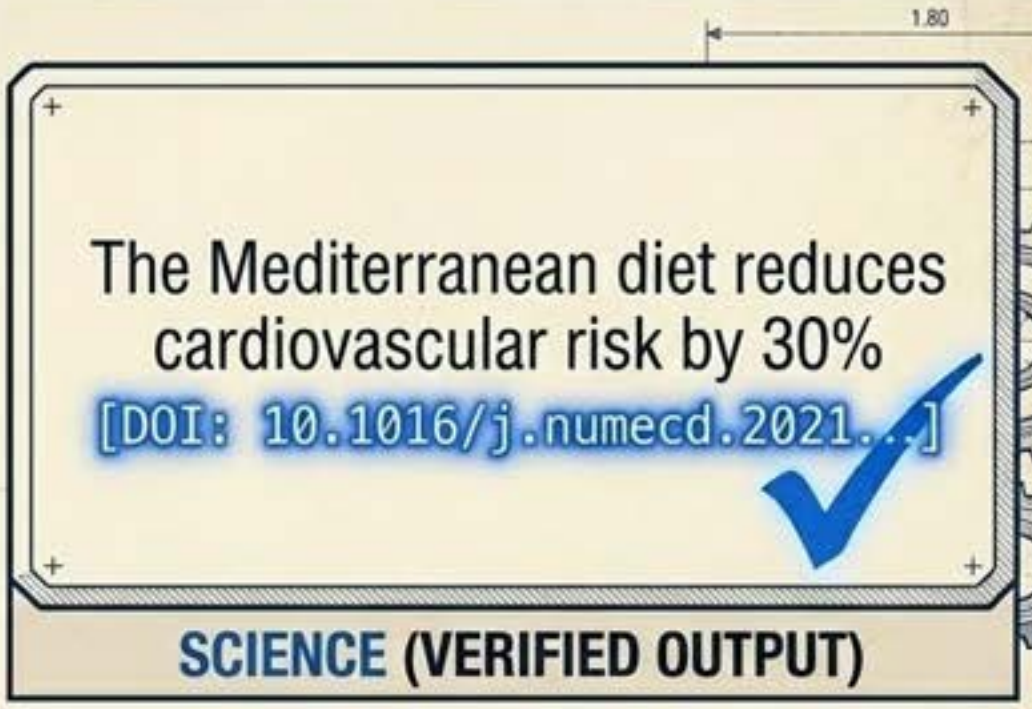
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THE ABSOLUTE STANDARD FOR AI IN ACADEMIA.



OPINION (STANDARD LLM OUTPUT)



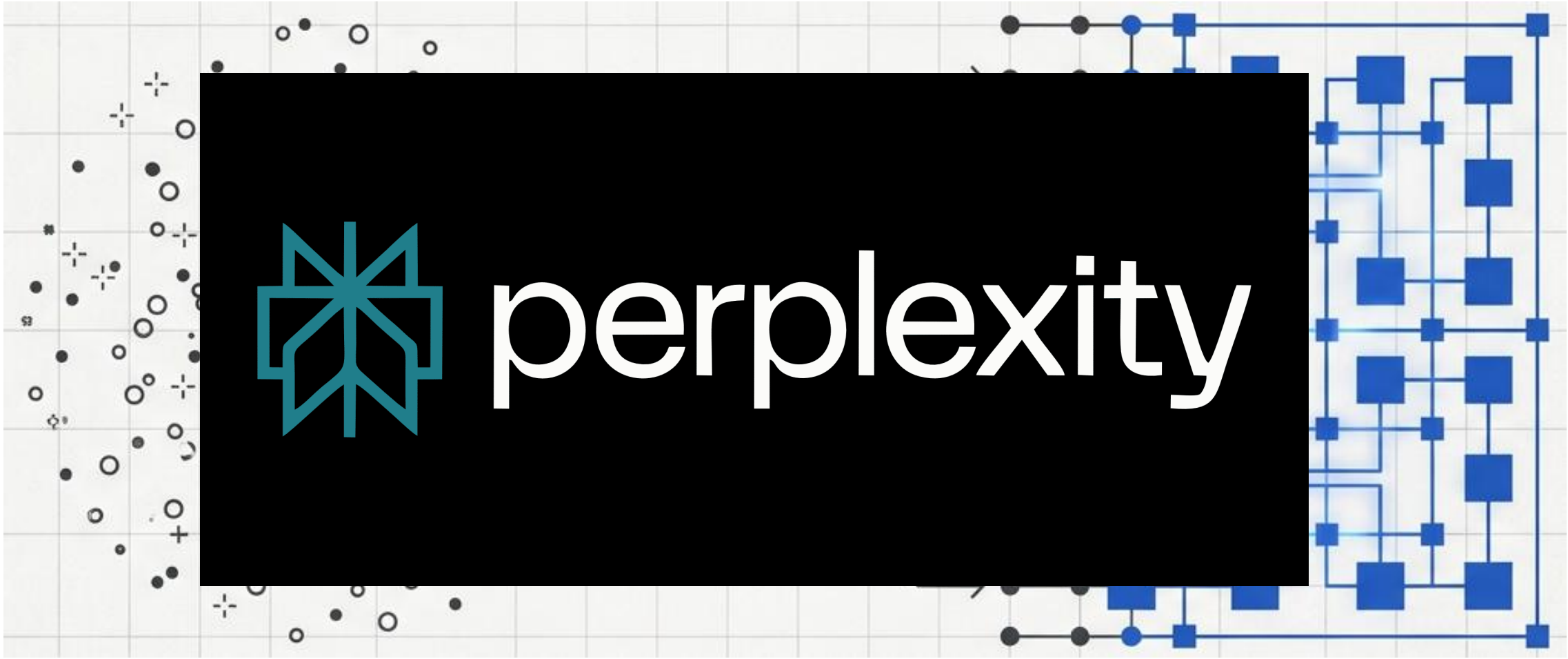
SCIENCE (VERIFIED OUTPUT)

"IF THERE ARE NO CITATIONS, IT IS NOT SCIENCE, IT IS OPINION."

THE TRADITIONAL WORKFLOW REMAINS VALID.
WHAT MUST CHANGE IS THE SPEED AND STRUCTURE OF EXECUTION.

NotebookLM

Academic literature research with Perplexity



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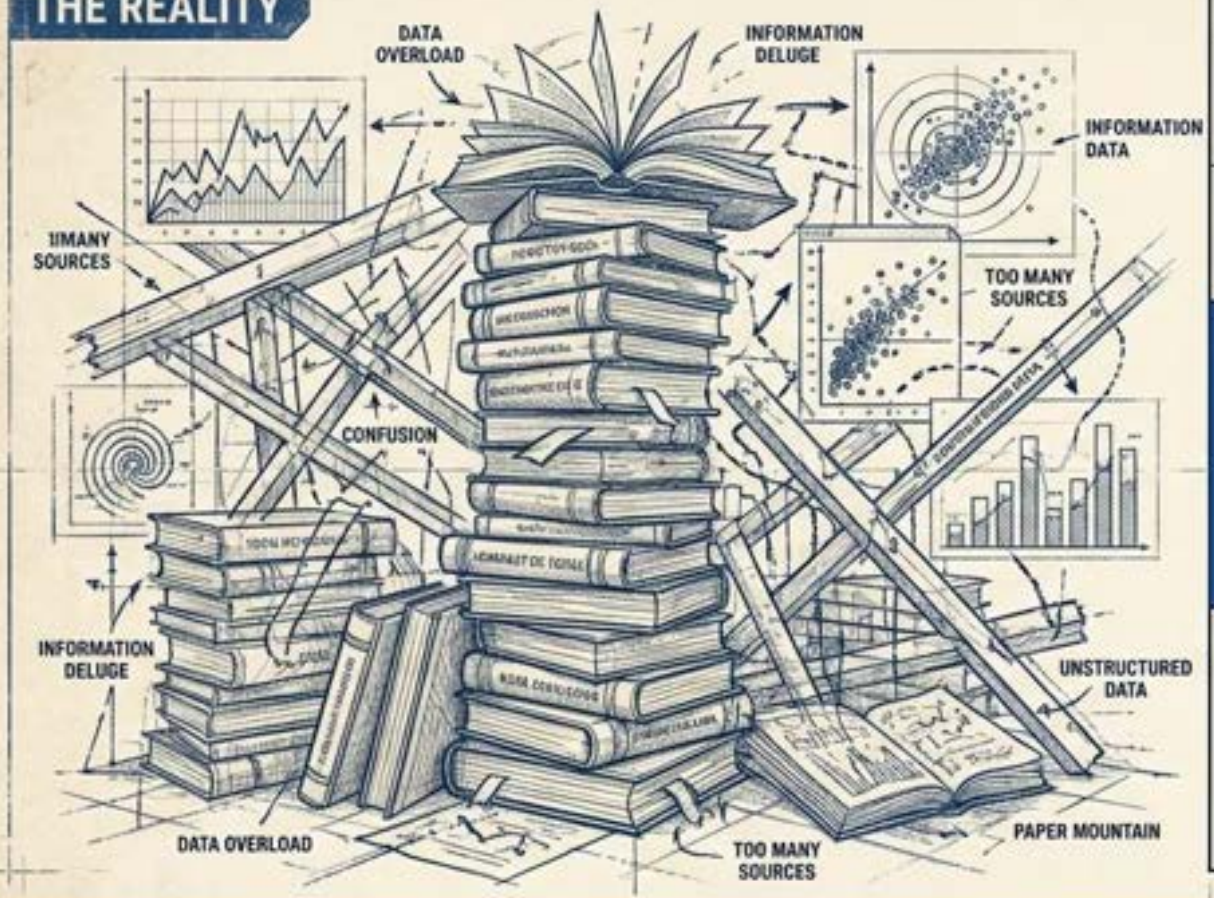
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THE MODERN ACADEMIC BOTTLENECK IS MANAGEMENT, NOT ACCESS.

Academic research today is not limited by access to information, but by the ability to manage it.
There are too many papers, too many sources, and too little time.

THE REALITY

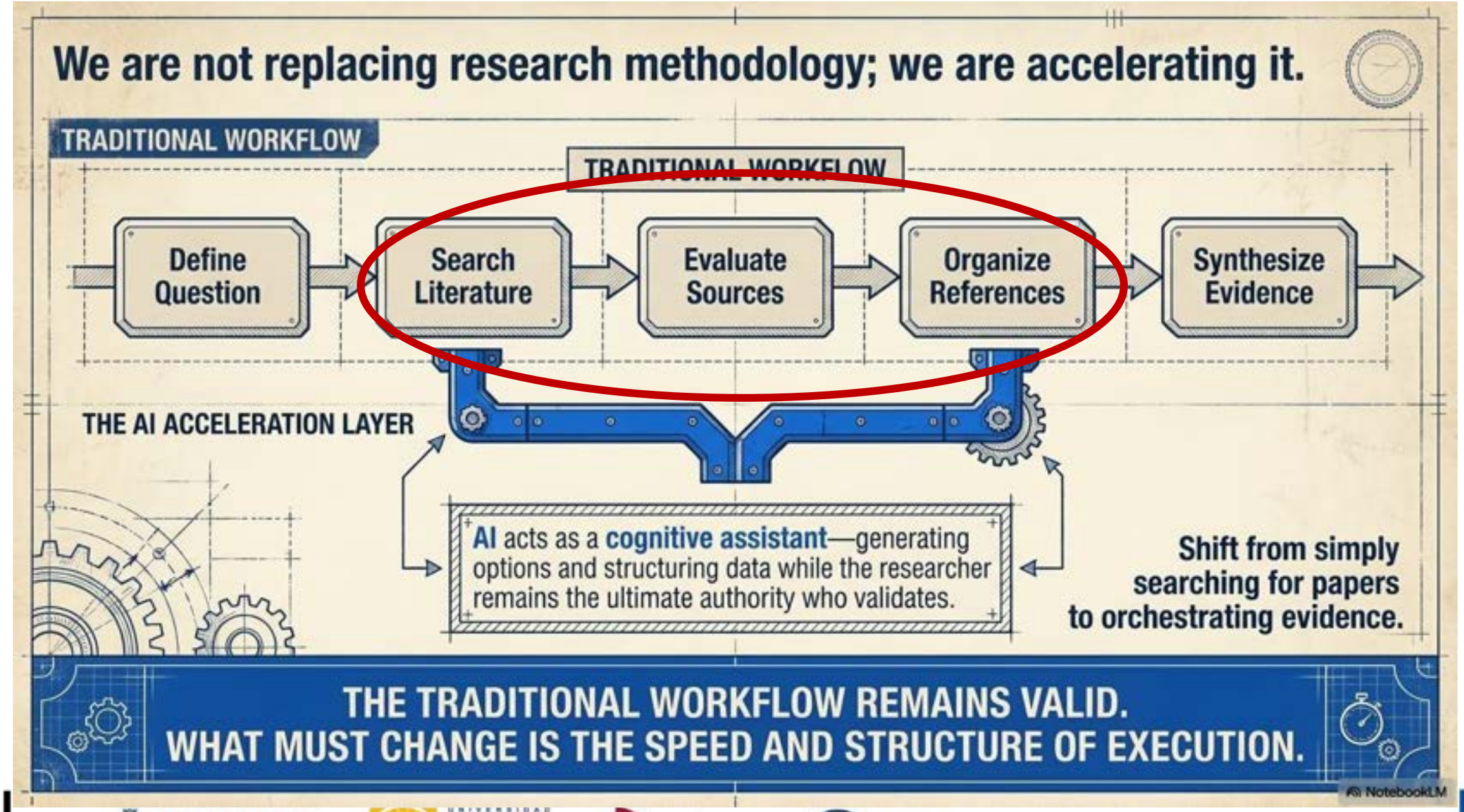


THE BOTTLENECK



THE TRADITIONAL WORKFLOW REMAINS VALID.
WHAT MUST CHANGE IS THE SPEED AND STRUCTURE OF EXECUTION.

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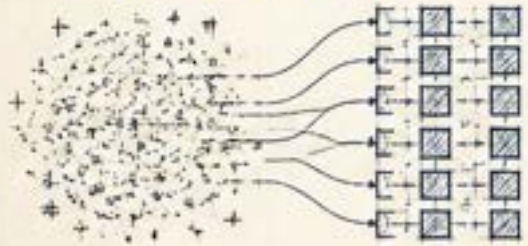
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THE AI-ACCELERATED RESEARCH WORKFLOW

LITERATURE SEARCH & EXPLORATION



CHALLENGE:
Information overload.
Too many sources, low signal.

TOOL:
Perplexity

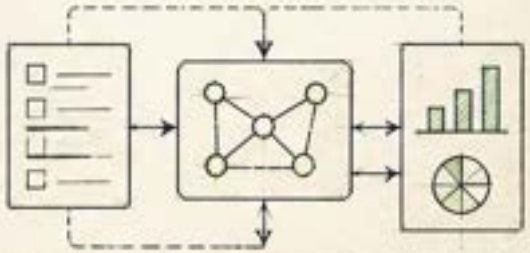
STRUCTURED EVIDENCE EXTRACTION



CHALLENGE:
Unstructured results.
Inconsistent formats.
Difficult comparison.

TOOL:
Perplexity
(with structured prompting)

KNOWLEDGE ORGANIZATION & SYNTHESIS



CHALLENGE:
Connecting ideas.
Building arguments.
Identifying patterns.

TOOL:
AI + Research workflow

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What is Perplexity?

AI-Powered Search Assistant

perplexity



1 Efficient search

Accelerates **search** and **exploration.**

2 Trustworthy answers

Provides **reliable, cited responses.**

3 Knowledge discovery

Helps **uncover topics** and gain a broader understanding.

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Perplexity: AI-Assisted Academic Search

What is Perplexity?

An AI-**powered search engine** that combines web search with large language models to generate structured **answers** with sources.



Why is it useful for researchers?

Efficient literature exploration
Quickly identify key papers, concepts, and debates.

Source-grounded answers
Responses include links to the original sources.

Research orientation
Helps understand the landscape of a topic before deep reading.

Traditional search (Google / databases)	vs.	Perplexity
Many links		✓ Synthesized answer + cited sources
Manual filtering		✓ Exploring unfamiliar topics
Research reading		✓ Finding starting references

When should you use it?

- ✓ **Early stages** of research
- ✓ Exploring unfamiliar topics
- ✓ Finding starting references

⚠ **Perplexity is not a substitute for academic databases.**

It is a tool for rapid exploration and orientation.

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NotebookLM | Perplexity Academic

perplexity.ai/academic

Trabajo

New

Computer

Spaces

Customise

History

No recent threads

perplexity academic

Explore academic papers, journals, and more

Search

Health | Law | Technology | Science | Humanities

Trending Topics





Upgrade plan

Angela Tronco...

24°C Parc. soleado

Buscar

ESP

14:54 04/05/2026

POSITIONING THE TOOLS: WHERE PERPLEXITY FITS IN THE RESEARCH ECOSYSTEM.

	TRADITIONAL DATABASES (Scopus / Web of Science)	STANDARD LLMs (ChatGPT)	HYBRID SEARCH (Perplexity)
Primary Function	Rigid Archival Search	Conversational Generation	**Synthesized Literature Discovery**
Search Mechanism	Exact Keyword Matching	Probabilistic Prediction	**Semantic Search with Live Web Access**
Citation Rigor	Flawless but un-synthesized	High risk of hallucinated citations	**Mandatory grounding in retrieved sources**
Best Used For	Final systematic review validation	Drafting text/brainstorming	**Generating structured, traceable bibliographies**

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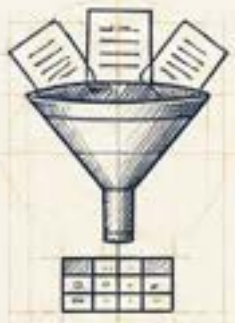
INDEX

1. **PROMPTING AS RESEARCH DESIGN**



- Prompt ≠ question
- Prompt = protocol
- Anatomy of a strong prompt

2. **USE CASES: FROM QUERY TO STRUCTURED EVIDENCE**



- Literature → dataset
- Clinical queries (PICOT)
- Structured outputs

3. **FAILURE MODES: ERRORS, LIMITATIONS & BIAS**



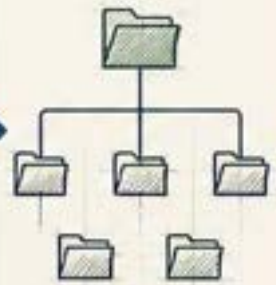
- Vague prompts
- Paywalls
- Bias
- Unstructured outputs

4. **THE VERIFICATION FILTER (SCIENTIFIC VALIDITY)**



- DOI validation
- Journal status
- Access / version
- Citation context

5. **AFTER RESEARCH: CATEGORIZING & CLUSTERING**



- Consolidation
- Deduplication
- Enrichment
- Clustering

6. **FROM DATA TO KNOWLEDGE: SYNTHESIS**



- Summarizing vs synthesizing
- Comparative analysis
- Narrative building

7. **THE RESEARCH ECOSYSTEM: COMPLEMENTARY TOOLS**



- Consensus
- Scite
- Semantic Scholar
- and more

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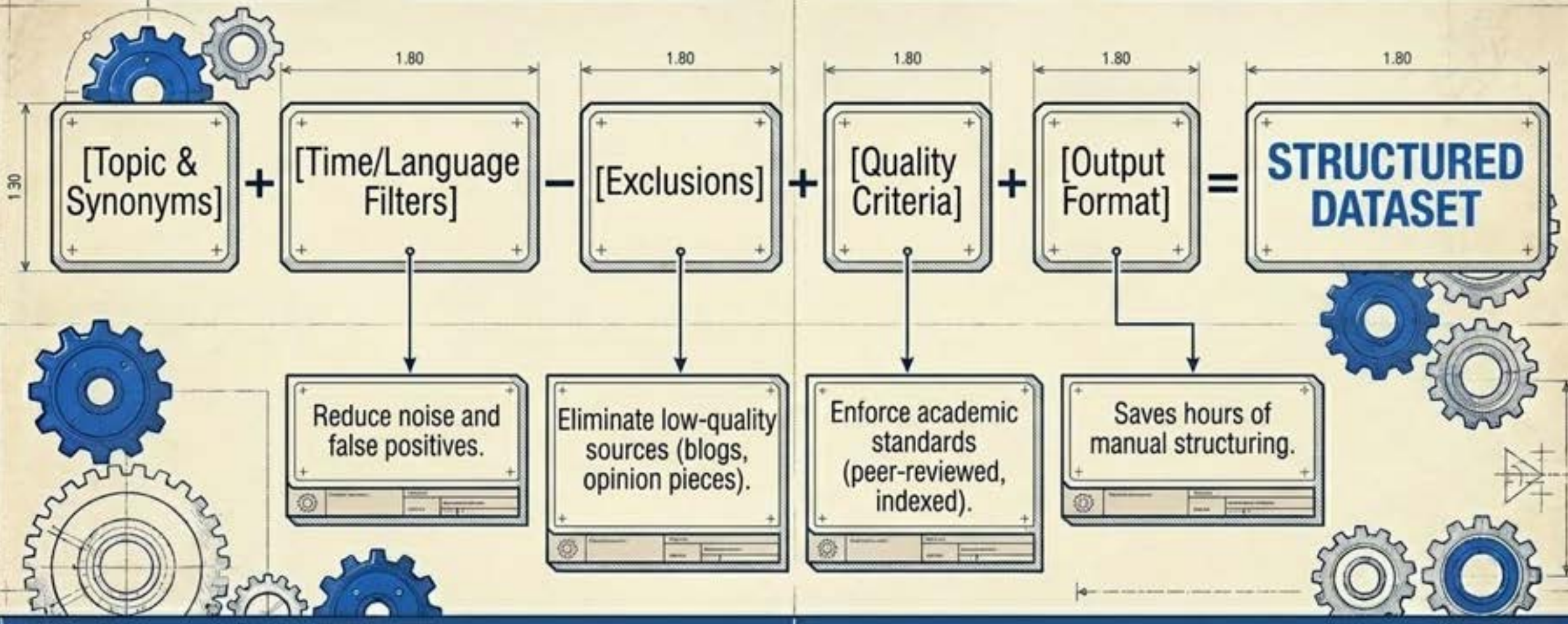
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PROMPTING IS NOT QUESTIONING; IT IS DEFINING A RESEARCH PROTOCOL.

1



THE TRADITIONAL WORKFLOW REMAINS VALID.
WHAT MUST CHANGE IS THE SPEED AND STRUCTURE OF EXECUTION.

NotebookLM

Anatomy of an Academic Prompt.

1

Sets the AI persona to prioritize scholarly databases.

Broadens semantic capture.

Establishes temporal boundaries.

Focus: Academic
Topic: artificial intelligence in higher education (synonyms: learning analytics, AI teaching tools)
Period: 2020–2025
Prioritize: meta-analyses, systematic reviews, empirical studies
Exclusions: blogs, opinion pieces
Output: title | authors | year | journal | study type | main finding | DOI

Forces high-tier evidence.

Shields against anecdotal noise.

Forces structural utility for instant export.

THE TRADITIONAL WORKFLOW REMAINS VALID. WHAT MUST CHANGE IS THE SPEED AND STRUCTURE OF EXECUTION.

NotebookLM

Perplexity

perplexity.ai

UPO | Enlaces interesantes | (103) Correo Web U... | Doctorado | Your Projects - Over... | Crea pósters gratis... | Writefull Revise | Todos los marcadores

Buscar
Computer

Nuevo hilo
Historial
Descubre
Spaces
Finanzas
Más

Reciente

Los hilos recientes y activos aparecerán aquí.

Actualizar plan

Ángela Tronco...

New El ordenador ahora está disponible en Pro Actualizar →

perplexity

Provide academic sources about the impact of artificial intelligence on teaching and learning in higher education published after 2020.

Modelo | Computer

13°C Mayorm. nublado

Buscar

ESP 9:18 14/03/2026

Buscar
Computer
Nuevo hilo
Historial
Descubre
Spaces
Finanzas
Más
Reciente
Provide academic source

Respuesta | Enlaces

Compartir | Descargar Comet

Here are recent peer-reviewed academic sources (post-2020) on the impact of artificial intelligence on teaching and learning in higher education, with brief notes to help you decide what to read.

Systematic reviews and overviews

1. **"AI in higher education: a systematic literature review"** – Frontiers in Education, 2024

   Reviews AI uses in higher education, including impacts on learning processes, assessment, and research practices, and highlights ethical and implementation challenges. frontiersin

2. **"Artificial Intelligence in Higher Education: A Systematic Review of ..."** – IOSR Journal of Research & Method in Education, 2020–2025 sample

   Analyzes 30 empirical studies (2020–2025) focusing on AI's impact on learning outcomes and barriers to effective adoption (e.g., data quality, teacher readiness, ethics). iosrjournals

3. **"Using Artificial Intelligence for Higher Education: An Overview and ..."** – SAGE (Social Sciences journal), 2025

   Provides a bibliometric and thematic overview of AI in higher education, covering student performance, learning analytics, pedagogy, assessment, and student engagement as central clusters. journals.sagepub

Empirical studies on teaching and learning

Solicitar seguimiento
Modelo
Actualizar plan
Ángela Tronco...

Buscar
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Historial
Descubre
Spaces
Finanzas
Más
Reciente
Provide academic source
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Ángela Tronco

Example of how you might cite these (APA style)

- Frontiers in Education paper:
  Author(s). (2024). AI in higher education: A systematic literature review. *Frontiers in Education*. `frontiersin`
- Nature HSS
  Author(s). (
  The dynam

frontiersin
Frontiers | AI in higher education: a systematic literature review
IntroductionThe increasing reliance on technology within higher education necessitates a thorough examination of artificial intelligence's (AI) application i...

ntelligence on higher education:
lications. *Humanities and Social Sciences Co*

If you tell me yo , assessment, academic integrity, student percept is list further and format a tailored bibliography.

10 fuentes

Solicitar seguimiento

Modelo

2

PROMPTS BY DOMAIN

ONE TOOL, MANY CONTEXTS

ADAPT THE STRUCTURE. KEEP THE RIGOR.

CLINICAL / HEALTH

Goal: Answer clinical questions

Use: Evidence for practice, guidelines, interventions

PROMPT EXAMPLE

Focus: Academic

Population: adults with obesity
Intervention: Mediterranean diet
Comparator: low-fat diet
Outcome: weight loss
Time: 6 months

Return as table:
title | year | design | sample size | result | DOI

PICOT structure

EDUCATION

Goal: Explore educational methods, outcomes, trends

Use: Systematic reviews, teaching strategies, tools

PROMPT EXAMPLE

Focus: Academic

Topic: flipped classroom (synonyms: inverted classroom)

Population: higher education

Outcomes: learning outcomes, engagement, satisfaction

Period: 2018–2025

Return as table:
title | authors | year | journal | study type | main finding | DOI

Population + outcomes

SOCIAL SCIENCES

Goal: Understand phenomena, theories, relationships

Use: Literature mapping, conceptual frameworks

PROMPT EXAMPLE

Focus: Academic

Topic: social media and political polarization

Theories: selective exposure, echo chamber

Period: 2015–2025

Return as table:
title | authors | year | theory | method | key finding | DOI

Theories + relationships

NATURAL SCIENCES

Goal: Find studies, data, and technical evidence

Use: Experimental results, mechanisms, materials

PROMPT EXAMPLE

Focus: Academic

Topic: perovskite solar cells (synonyms: PSC)

Outcomes: efficiency, stability, degradation

Period: 2020–2025

Return as table:
title | authors | year | journal | method | key result | DOI

Variables + outcomes

LAW / POLICY

Goal: Identify legal frameworks, policies, case law

Use: Comparative analysis, regulation, impact assessment

PROMPT EXAMPLE

Focus: Academic

Topic: data protection regulations (GDPR)

Context: European Union

Outcomes: compliance, impact, enforcement

Period: 2016–2025

Return as table:
title | authors | year | type | jurisdiction | key finding | DOI

Context + jurisdiction

KEY PRINCIPLES ACROSS ALL DOMAINS

BE SPECIFIC
Define scope, population, variables

APPLY FILTERS
Dates, language, study type, exclusions

DEFINE OUTPUT
Ask for tables, structured formats

PRIORITIZE QUALITY
Peer-reviewed, high quality evidence

ALWAYS VERIFY
Check DOIs, journals, and access

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Use case

Find recent academic studies (2015–2025) about the effects of the Mediterranean diet on overweight or obese adults.

Focus on:
- weight loss
- BMI reduction
- metabolic health (cholesterol, glucose)

Prefer:
- randomized controlled trials
- systematic reviews
- meta-analyses

Compare results with low-fat or standard diets when possible.

Provide a brief explanation of the main findings and include links to the sources.

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Completed 2 steps

Recent RCTs, systematic reviews, and meta-analyses (roughly 2015–2025) generally show that the Mediterranean diet (MedDiet) leads to modest but clinically meaningful weight loss and BMI reduction in overweight/obese adults, often performing similarly to or slightly better than low-fat or "standard" diets, with clearer advantages for metabolic markers such as cholesterol and glucose. Below is a concise overview broken into key domains.

1. Weight loss and BMI reduction

- A 2011 meta-analysis of 16 RCTs (often cited in more recent overviews) still underpins many current interpretations: participants on a MedDiet lost about **1.75 kg more** than those on control diets, with a BMI reduction of about **0.57 kg/m²**.
- When the MedDiet is **energy-restricted and combined with physical activity for >6 months**, the mean excess weight loss reaches roughly **3–4 kg more** than control diets.
- A 2023 randomized trial (ENERGY-MED-PA) in older adults with overweight/obesity and metabolic syndrome found that an **energy-reduced MedDiet plus structured physical activity** reduced fat mass and visceral fat after 3 years, with modest but sustained weight loss compared with ad-libitum MedDiet.

Compared with low-fat diets in earlier meta-analyses, the MedDiet typically produces **similar or slightly greater weight loss** and BMI reduction, with differences often around **2–2.5 kg** in favor of the MedDiet.

- Example meta-analysis conclusions: when compared head-to-head with low-fat diets, MedDiet was associated with a pooled mean difference of about **−2.24 kg** for body weight and **−0.56 kg/m²** for BMI.

Ask a follow-up

Search
Model

PICOT: STRUCTURING CLINICAL QUESTIONS

A FRAMEWORK FOR PRECISION AND REPRODUCIBILITY

P — POPULATION

Who is being studied?

Example: adults with obesity



I — INTERVENTION

What is applied?

Example: Mediterranean diet



C — COMPARATOR

What is the reference?

Example: low-fat diet



O — OUTCOME

What is measured?

Example: weight loss, BMI reduction



T — TIME

Over what period?

Example: ≥ 6 months



PICOT PROMPT (COPY & PASTE INTO PERPLEXITY)

Focus: Academic
Population: [define population]
Intervention: [define intervention]
Comparator: [define comparator]
Outcome: [define outcome]
Time: [define timeframe]
Period: [years]

Prioritize:

- randomized controlled trials
- systematic reviews
- meta-analyses

Return:

title | year | design | sample size | outcome | result | DOI

Ensure sources are peer-reviewed and verifiable.



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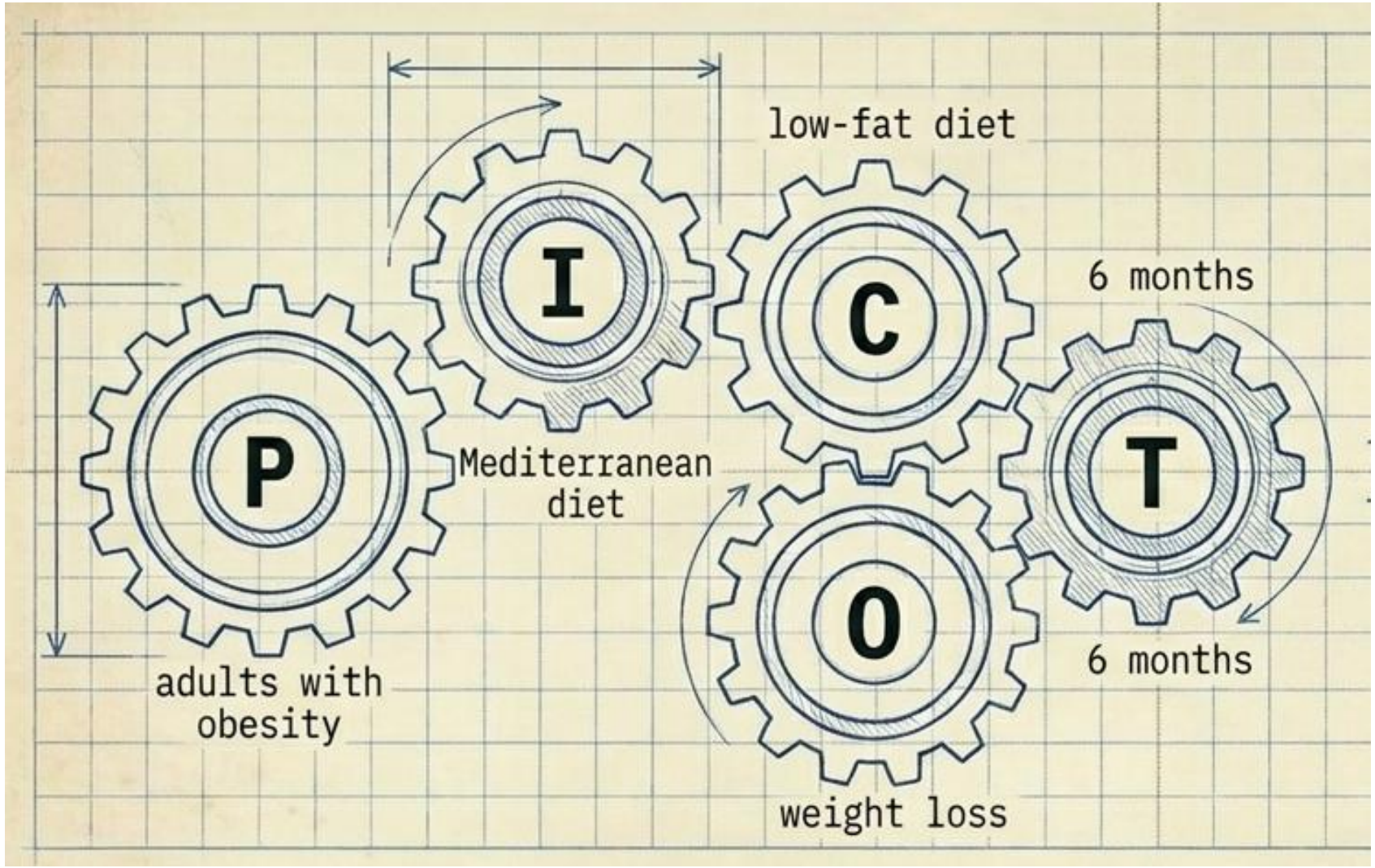
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Use case

Focus: Academic

Search for evidence using PICOT framework:

Population: adults with overweight or obesity
Intervention: Mediterranean diet
Comparator: low-fat diet or standard diet
Outcome: weight loss, BMI reduction, metabolic markers (e.g., cholesterol, glucose)
Time: minimum 6 months follow-up

Period: 2018–2025

Prioritize:
- randomized controlled trials (RCT)
- systematic reviews
- meta-analyses

Language: English

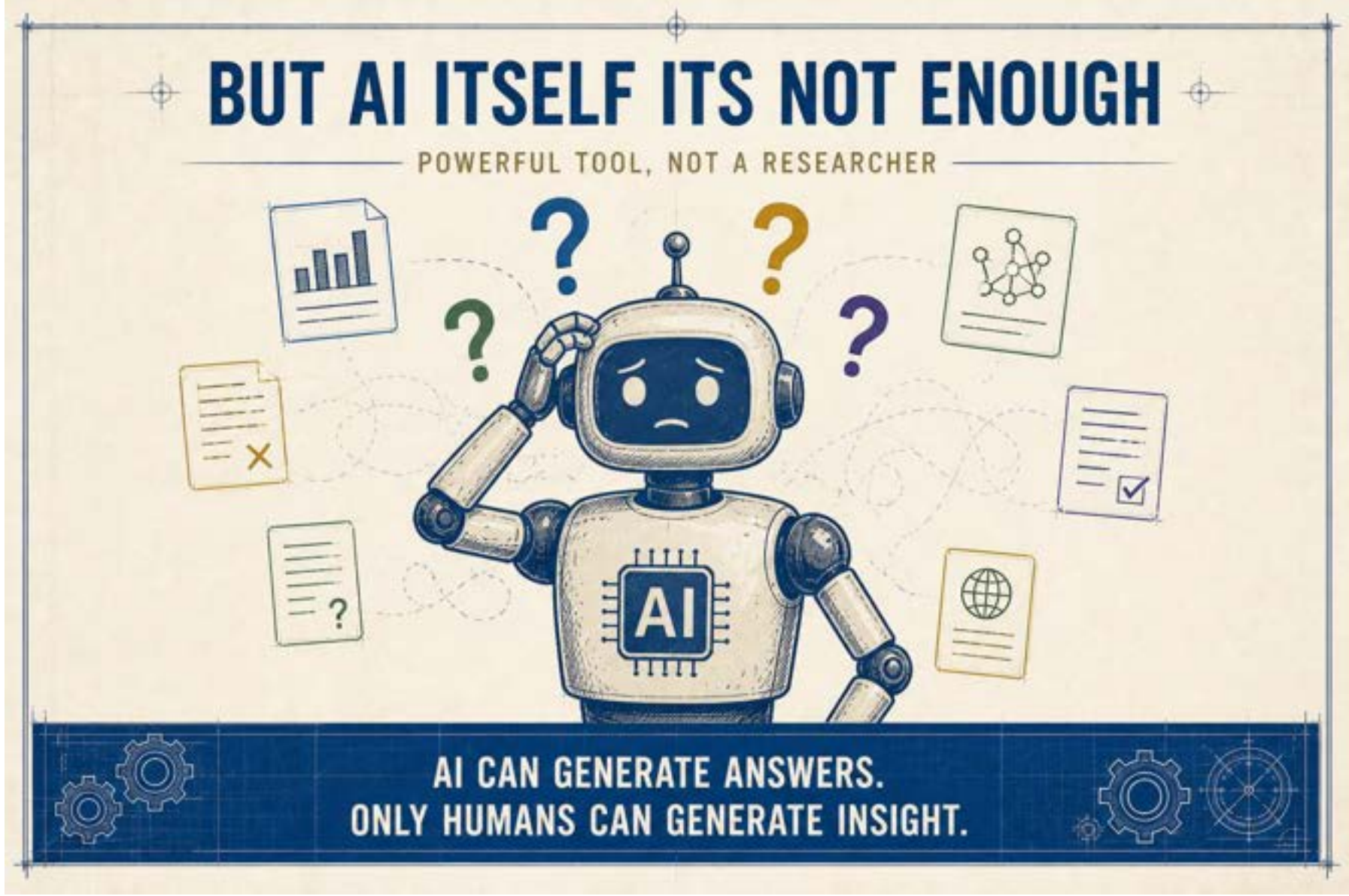
Quality criteria:
- peer-reviewed journals
- indexed sources

Exclusions:
- editorials
- opinion articles
- blogs

Output format:
Return 10–12 studies in a structured table with:
title | authors | year | study design | sample size | outcome measure | main result (1 sentence) | DOI

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Navigating errors, limitations, and blind spots.

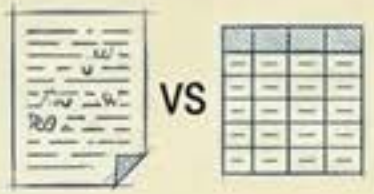
3

Vague Prompts

Garbage in, garbage out. Without constraints, the AI defaults to popular, rather than rigorous, summaries.



Unstructured Output



Asking for a “summary” instead of a “table” traps data in narrative paragraphs, making comparison impossible.

Paywall Blockades

Perplexity has no access to paywalled institutional databases. It is an entry point, not a skeleton key.



Algorithmic Bias



Over-indexing on open-access or highly cited papers at the expense of niche or newly published critical research.

Rule: Never skip the verification phase.

NotebookLM

COMMON BAD PROMPTS IN PERPLEXITY

POORLY FORMULATED PROMPTS OFTEN LEAD TO VAGUE OR UNHELPFUL RESULTS.

TOO GENERAL

Prompts that are too broad give unfocused answers.

BAD EXAMPLE:

"Explain artificial intelligence."



BETTER:

"Explain artificial intelligence." for medical students with reliable academic sources.

NO CONTEXT

Without context, the system does not know what perspective you need.

BAD EXAMPLE:

"Tell me about climate change."



BETTER:

"Provide scholarly sources about climate change policies in the European Union."

NO CONSTRAINTS

Without constraints, results may be outdated or irrelevant.

BAD EXAMPLE:

"What research exists about machine learning in healthcare?"



BETTER:

"Provide recent peer-reviewed articles about machine learning in medical diagnosis published after 2020."

KEY LESSON

GOOD PROMPTS =

TOPIC — What you want to know

+

CONTEXT — The perspective, audience, or focus

+

CONSTRAINTS — Timeframe, source type, quality, scope

=

BETTER ANSWERS — Relevant, accurate, and useful results.

BETTER PROMPTS. BETTER ANSWERS.
BE SPECIFIC. BE CONTEXTUAL. BE CONSTRAINED.

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Buscar
Computer
Nuevo hilo
Historial
Descubre
Spaces
Finanzas
Más

Reciente
give sources about the im
dmae fuentes sobre pinss
Provide academic source

Actualizar plan
Ángela Tronco...

give sources about the importance of reciclyng

Se revisaron 10 fuentes >

Recycling is important because it protects the environment, saves energy and resources, supports the economy, and reduces health risks from poorly managed waste. Here are some reliable sources you can use: friendsoftheearth +5

Official organizations

- **US Environmental Protection Agency (EPA) – "Recycling Basics and Benefits"**

  Explains how recycling conserves natural resources, reduces greenhouse gas emissions (over 193 million metric tons of CO_2 equivalent saved in 2018), saves energy, and cuts pollution. epa
  https://www.epa.gov/recycle/recycling-basics-and-benefits

- **US EPA**

  Shows th... ...ges, and 5.5

Pro Vista previa gratuita de la búsqueda avanzada activada. Saber más

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The Verification Filter ensures scientific validity.

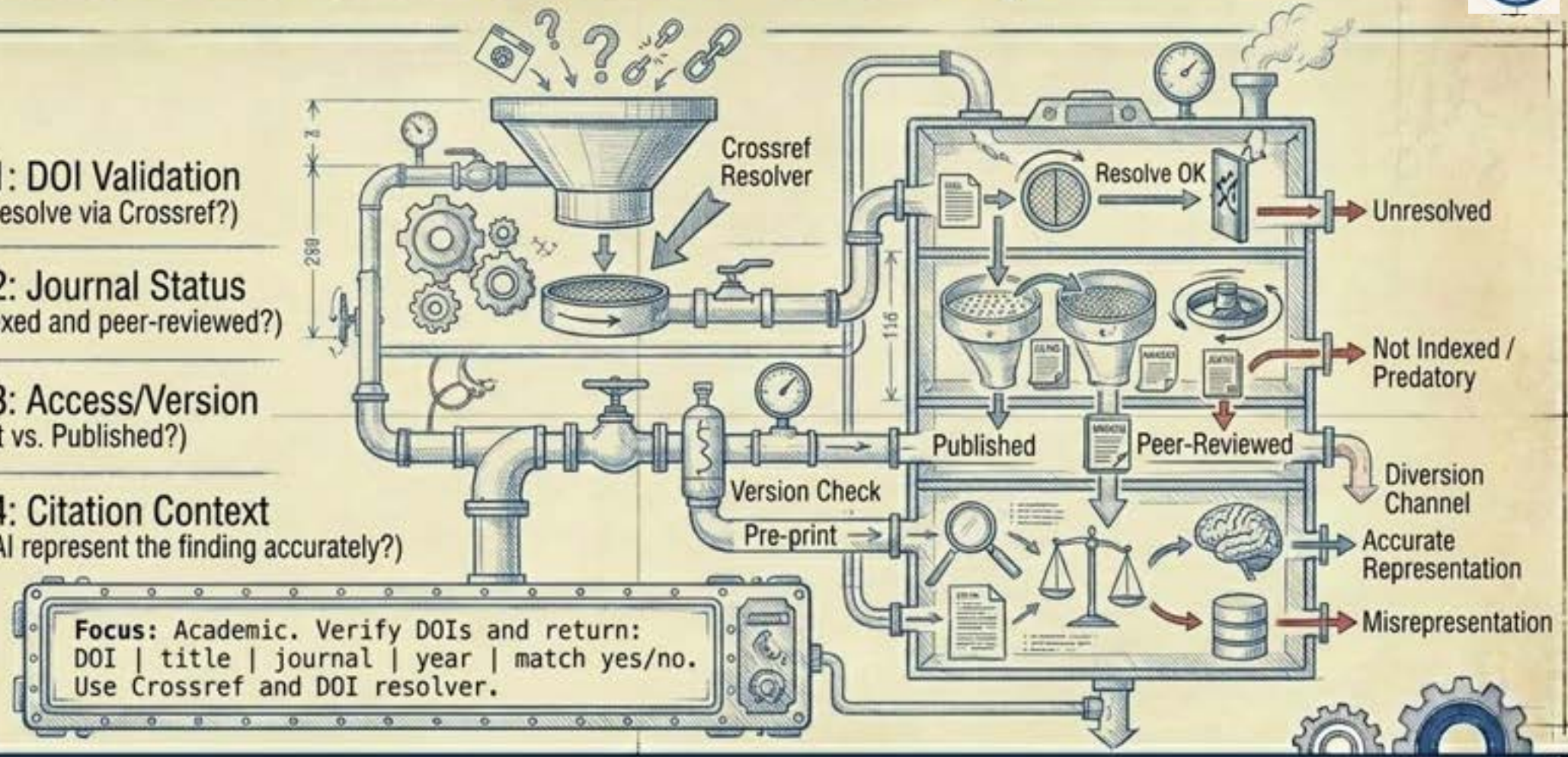
4

Layer 1: DOI Validation
(Does it resolve via Crossref?)

Layer 2: Journal Status
(Is it indexed and peer-reviewed?)

Layer 3: Access/Version
(Pre-print vs. Published?)

Layer 4: Citation Context
(Did the AI represent the finding accurately?)



Only Verified Science exits.
If metadata does not match, the reference is discarded.

NotebookLM

5

YOU HAVE THE SOURCES. WHAT'S NEXT?

PERPLEXITY + YOUR BRAIN = STRUCTURE

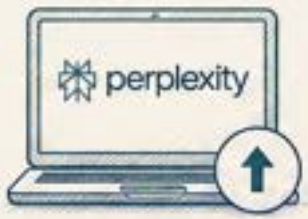
FROM REFERENCES TO KNOWLEDGE

1 COLLECTED THE SOURCES



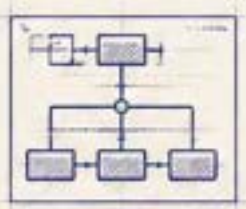
- Studies, reviews, trials
- DOIs and full texts
- Verified and relevant

2 UPLOAD OR PASTE IN PERPLEXITY



- Paste links or text
- Ask for analysis
- Get structured insights

3 PERPLEXITY GENERATES STRUCTURES



- Summaries
- Thematic groups
- Comparisons
- Key findings extraction

4 YOU ANALYZE AND CONNECT



- Interpret patterns
- Detect gaps
- Build your narrative

5 FROM DATA TO KNOWLEDGE



- Write, cite, synthesize
- Build conclusions
- Create impact

USE PERPLEXITY TO...

- SUMMARIZE LONG PAPERS
- CLUSTER BY TOPIC
- COMPARE STUDIES AND OUTCOMES
- EXTRACT DATA AND TRENDS
- FIND GAPS IN EVIDENCE
- EXPLAIN COMPLEX CONCEPTS

PERPLEXITY GIVES YOU STRUCTURE.
YOU GIVE IT MEANING.

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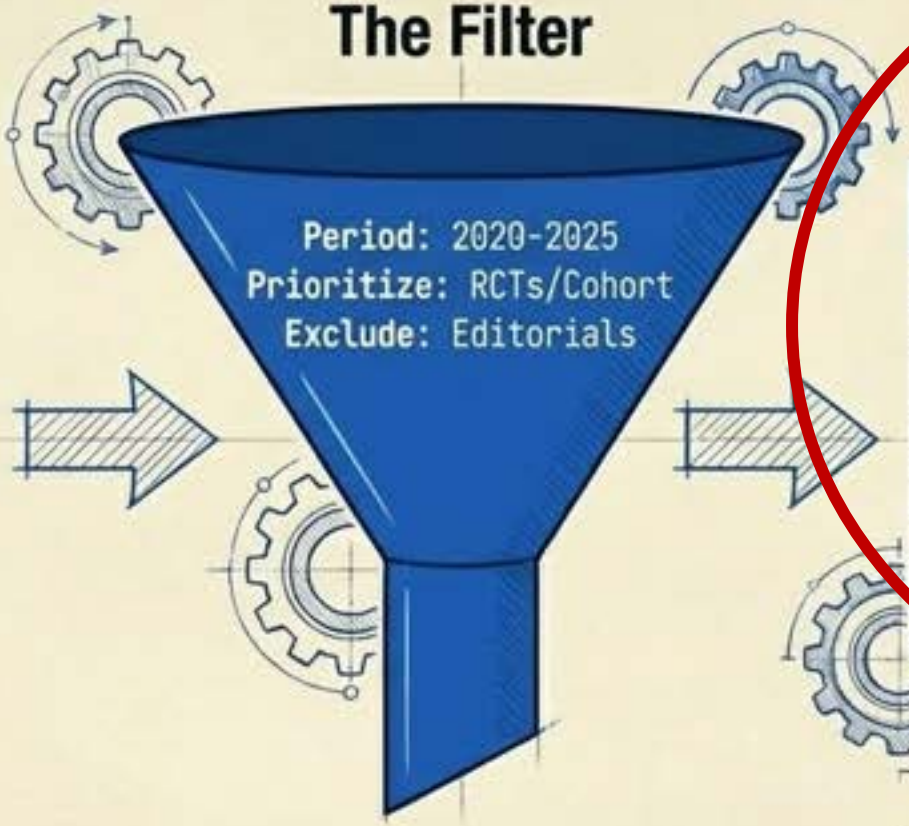
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5

The Scatter



The Filter



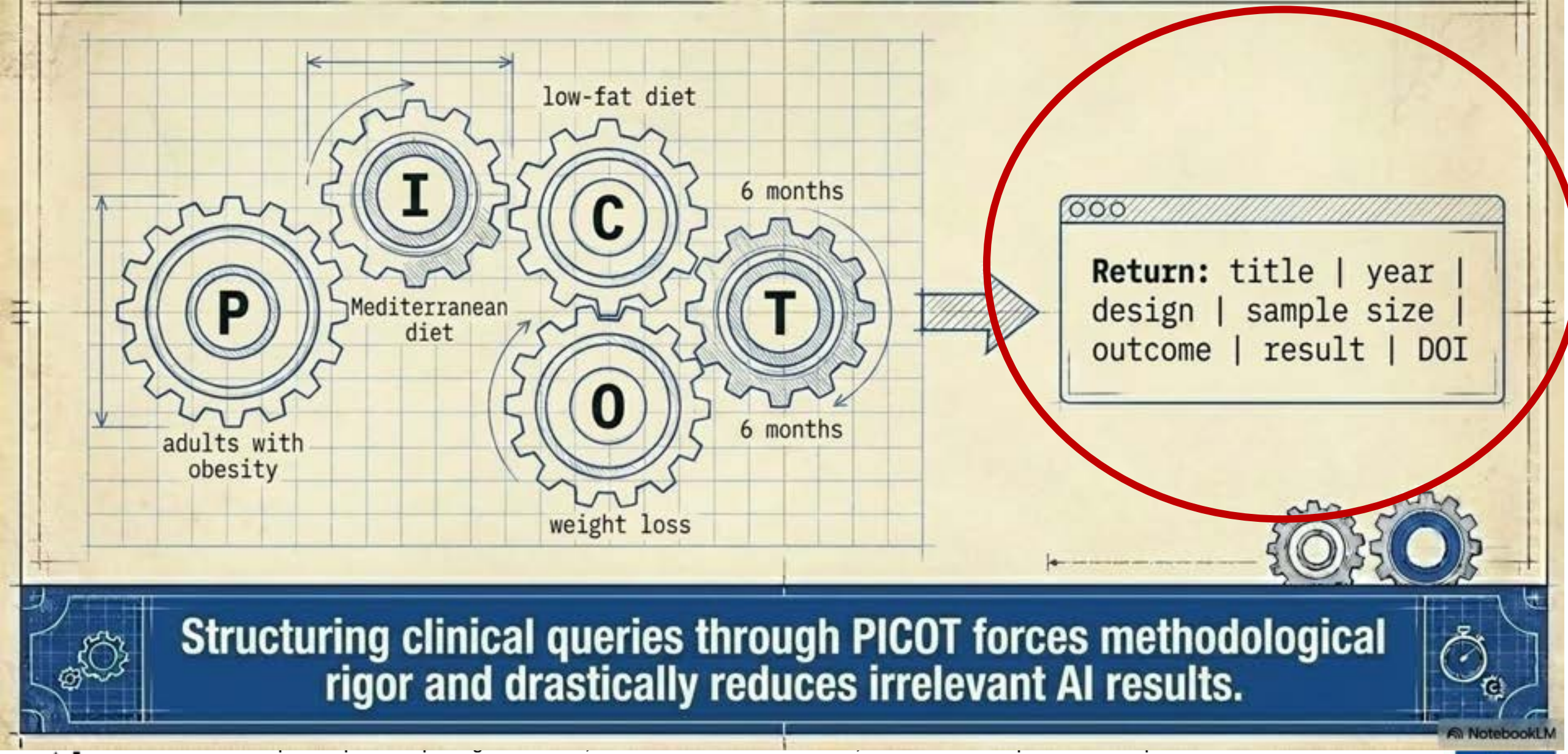
The Structure

Title	Authors	Year	Journal	Study Type	Sample Size	Main Outcome	DOI

This output is ready to be copied directly into Excel or Zotero, bypassing hours of manual data entry.

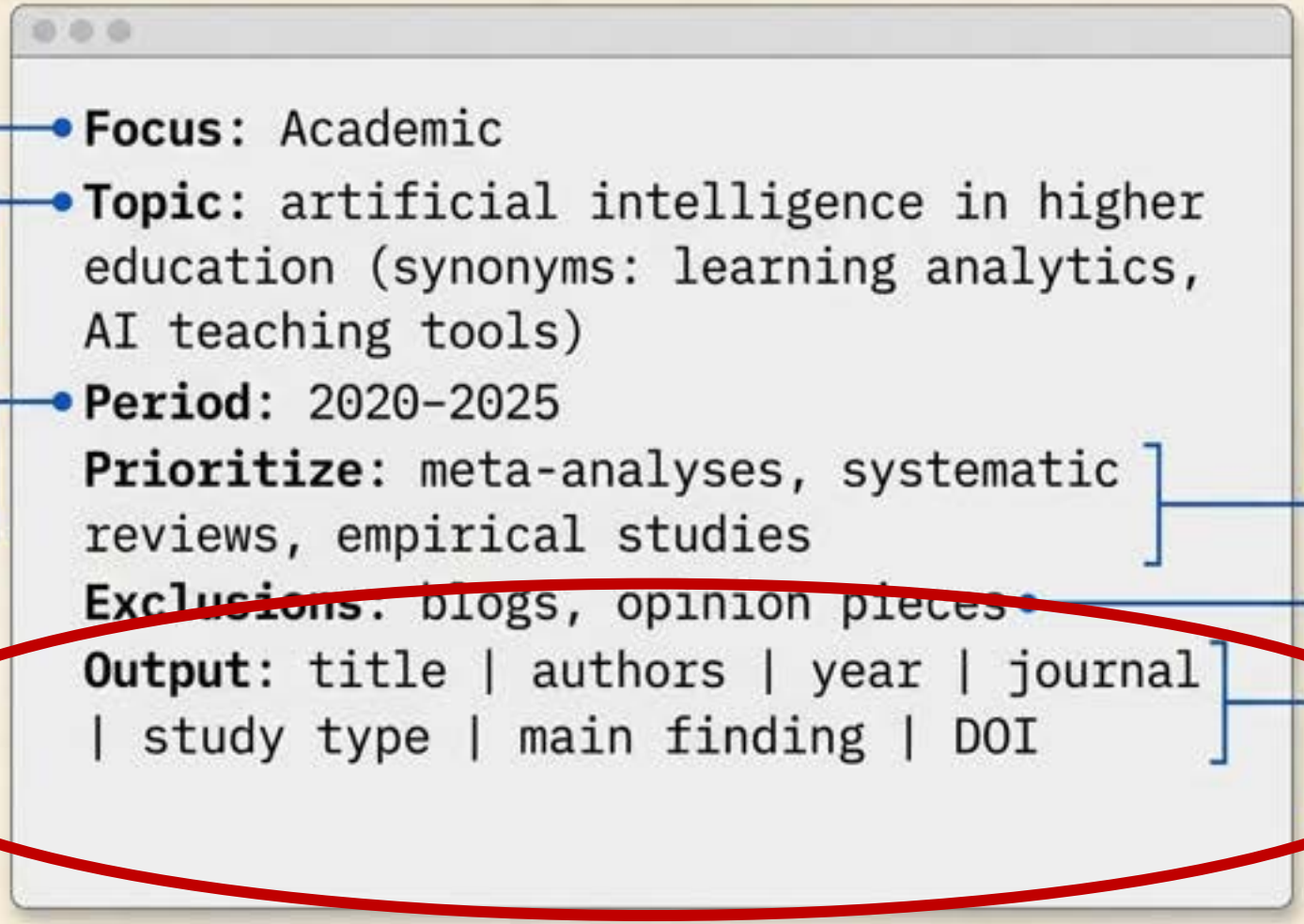
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Anatomy of an Academic Prompt.



Sets the AI persona to prioritize scholarly databases.

Broadens semantic capture.

Establishes temporal boundaries.

Forces high-tier evidence.

Shields against anecdotal noise.

Forces structural utility for instant export.

THE TRADITIONAL WORKFLOW REMAINS VALID. WHAT MUST CHANGE IS THE SPEED AND STRUCTURE OF EXECUTION.

NotebookLM

Answer Links Images

Completed 3 steps

Selected Studies Table

Title	Authors	Year	Study Design	Sample Size	Outcome Measure	Main Result (1 sentence)
The impact of 3 different dietary interventions on overweight or obese adults: A network meta-analysis	Liao T, Su J, Quan T, et al.	2024	Network meta-analysis	5802	BW, BMI, WC	Ketogenic diet rankec highest for reducing body weight, BMI, anc waist circumference compared to low-fat, low-calorie, and Mediterranean diets. pmc.ncbi.nlm.nih
Comparison of weight loss effects among overweight/obese adults: A network meta-analysis of mediterranean, low carbohydrate, and low-fat diets	Akbari M, Vali M, Rezaei S, et al.	2024	Network meta-analysis	1004	Weight loss, body fat	Low-carbohydrate diet showed greater weight loss than Mediterranean diet (MD -2.70 kg) and ranked highest overal for weight loss and body fat reduction. pubmed.ncbi.nlm.nih +1
Effect of a Lifestyle Intervention Program With Energy-Restricted Mediterranean Diet and Exercise on Weight Loss and Cardiovascular Risk Factors:	Salas-Salvadó J, et al.	2019	RCT	~6000 (1-year)	Weight loss, CV risk factors	Energy-restricted Mediterranean diet with exercise led to significant weight loss and improvements in cardiovascular risk factors over 12 months. diabetesjournals

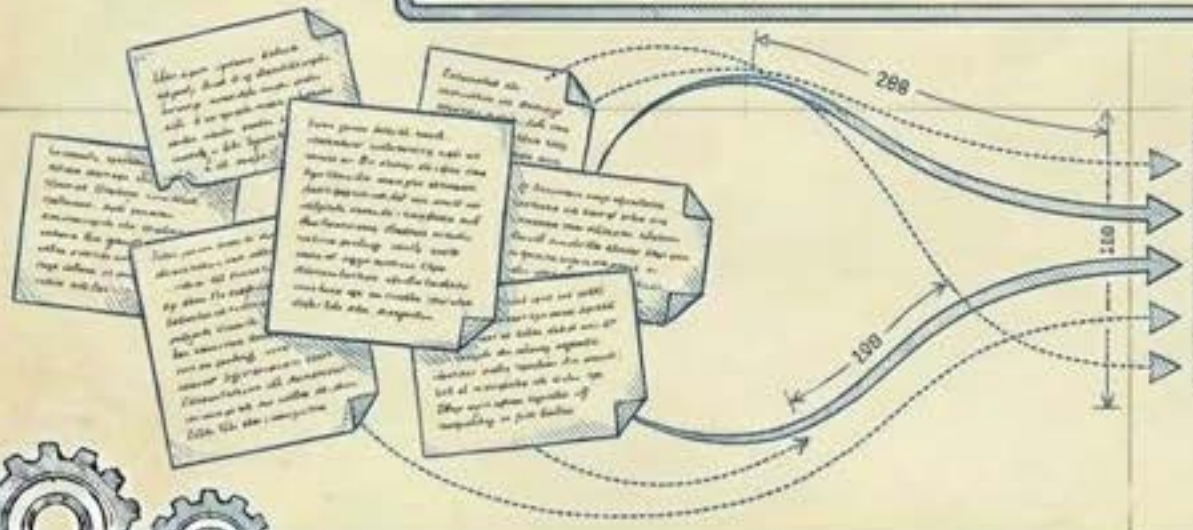
Organization: Transforming a reference list into a comparative dataset.

6

Consolidate → Deduplicate → Enrich Metadata → Group → Compare

The Organizing Prompt:

Focus: Academic.
Create table: title | year | design | sample | result | limitation | DOI



116

title	year	design	sample	result	limitation	DOI
Study 1	2022	Quantitative	n=500	Positive Correlation	Sample Bias	10.1234/doi
Study 2	2022	Quantitative	n=500	Positive Correlation	Sample Bias	10.1234/doi
Study 3	2022	Quantitative	n=500	Positive Correlation	Sample Bias	10.1234/doi
Study 4	2022	Quantitative	n=500	Positive Correlation	Sample Bias	10.1234/doi
Study 5	2022	Quantitative	n=500	Positive Correlation	Sample Bias	10.1234/doi

Structured Data Payload

Comparative Dataset

Rule: A rigorous organization phase is key to actionable comparative analysis.

NotebookLM

Elevating analysis: The difference between summarizing and synthesizing.

6

Summarizing - The Novice Approach

- **Focus:** Single paper at a time.
- **Nature:** Descriptive ("Paper A says X, Paper B says Y").
- **Structure:** Sequential list.

Synthesizing - The Scholar Approach

- **Focus:** Multi-paper integration.
- **Nature:** Thematic and analytical.
- **Structure:** Framework-driven (e.g., IMRaD).

The Synthesis Prompt

Focus: Academic. Summarize DOI in IMRaD format: Objective | Method | Results | Conclusion. Do not invent data.

NotebookLM

The Data-to-Narrative Pipeline.

6

Phase 2: The Structured Dataset

title	year	design	sample	limitation	DOI
Study 1	2022	Quantitative	n=500	Sample Bias	10.1234/doi
Study 2	2022	Quantitative	n=500	Sample Bias	10.1234/doi
Study 3	2022	Quantitative	n=500	Sample Bias	10.1234/doi
Study 4	2022	Quantitative	n=500	Sample Bias	10.1234/doi
Study 5	2022	Quantitative	n=500	Sample Bias	10.1234/doi

Structured Data Payload



Phase 3: The Verification Filter

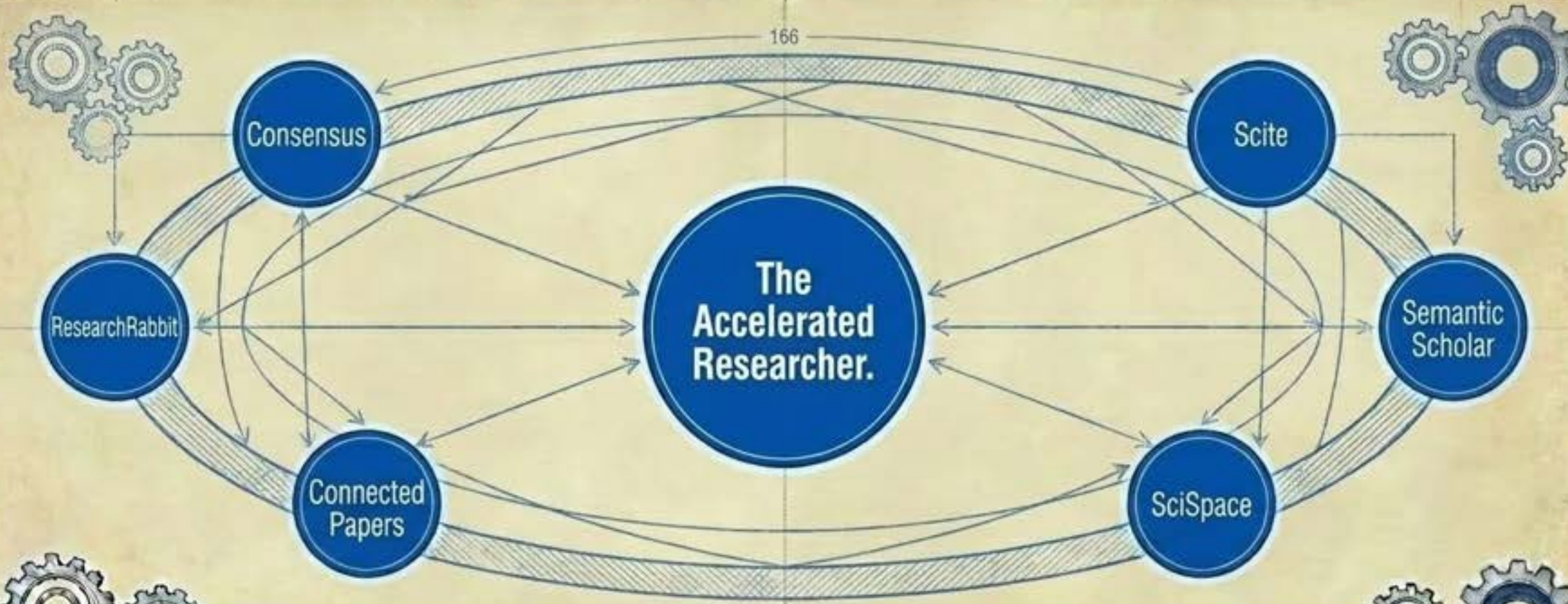
Phase 4: The Narrative Synthesis

Objective	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation.
Method	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation.
Results	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation.
Conclusion	Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation.

Core Message: AI does not write the paper for you. It organizes and verifies the evidence so you can write the paper faster. Every claim remains fully traceable to a verified source.

NotebookLM

The New Academic Reality.



The difference in the future will not be who works harder, but who structures their work better.

AI enhances efficiency and structure, but it amplifies—never replaces—critical human thought.

NotebookLM

7 TOOLS THAT COMPLEMENT PERPLEXITY

A COMPLETE ECOSYSTEM FOR RESEARCH, ANALYSIS AND COMMUNICATION

PERPLEXITY FINDS. THESE TOOLS HELP YOU GO FURTHER.

ZOTERO



Reference manager that organizes, cites and syncs your sources.

USE FOR:

- Save articles
- Organize libraries
- Cite in Word/Docs
- Collaborate

CONNECTED PAPERS



Visual tool that shows how papers are connected and helps you discover more.

USE FOR:

- Explore paper networks
- Find related studies
- Build a strong bibliography

SCITE.AI



Shows how an article has been cited: supports, contradicts or mentions it.

USE FOR:

- Evaluate evidence quality
- Check citation context
- Avoid misleading conclusions

RESEARCH RABBIT



AI-powered tool that finds and organizes papers in a visual map.

USE FOR:

- Discover key papers
- Expand your search
- Organize by topics
- Visualize relationships

ELICIT



AI research assistant that extracts data from papers and summarizes results.

USE FOR:

- Extract study data
- Compare results
- Summarize findings
- Build evidence tables

CHATGPT / CLAUDE



AI assistants for reasoning, writing, explaining and structuring ideas.

USE FOR:

- Refine questions
- Explain complex topics
- Write and improve text
- Brainstorm and outline

HOW THEY WORK TOGETHER

1. FIND
Use Perplexity to find the best sources quickly.

2. SAVE & ORGANIZE
Save in Zotero and organize your references.

3. EXPLORE & VALIDATE
Use Connected Papers, scite.ai and Research Rabbit to expand and evaluate.

4. ANALYZE
Use Elicit to extract data and compare results.

5. WRITE & COMMUNICATE
Use ChatGPT or Claude to write, explain and communicate your findings.

THE POWER OF THE ECOSYSTEM

- Better searches
- More reliable evidence
- More clarity
- Stronger analysis
- Greater impact

PERPLEXITY IS YOUR STARTING POINT.
THESE TOOLS HELP YOU REACH EXCELLENCE.

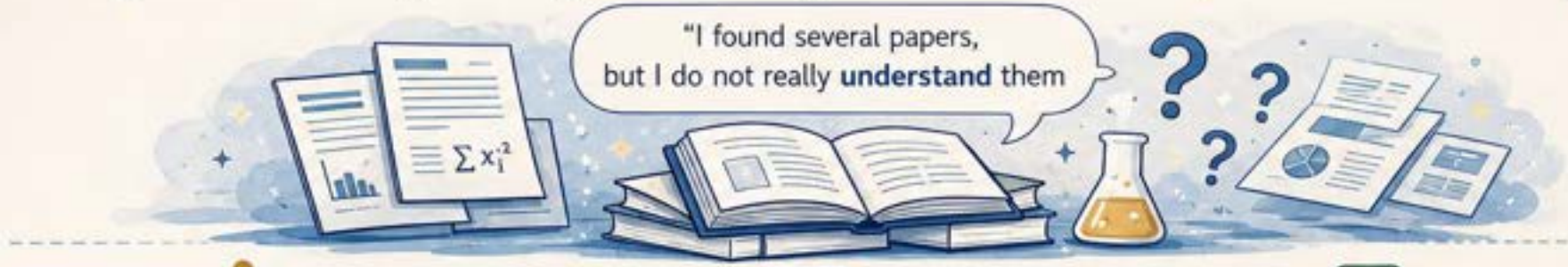
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AFTER IDENTIFYING SOURCES...

UNDERSTANDING THE MATERIAL CAN BE CHALLENGING

The major challenge after collecting sources is **understanding the material.**



1. TECHNICAL LANGUAGE



Academic articles are often written in **highly technical language**.

2. COMPLEX METHODOLOGIES & ANALYSES



They frequently include **complex methodologies** and detailed analyses.

3. SPECIALIZED TERMINOLOGY



Specialized terminology can make **understanding** difficult.



Tools like **NotebookLM** can assist in **interpreting and clarifying** complex academic texts.

Helping students better **understand** the literature they collect.

UNDERSTANDING DEEPENS KNOWLEDGE.
CLARITY TRANSFORMS INFORMATION INTO INSIGHT.

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Did you know?
Do you find it useful?



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IMPORTANT LIMITATIONS OF AI SEARCH

AI SEARCH TOOLS CAN BE VERY USEFUL, BUT THEIR RESULTS MUST ALWAYS BE CRITICALLY EVALUATED.

HALLUCINATED SOURCES

AI systems may generate **fake** or incorrect references.



ALWAYS VERIFY:

- Does the article actually exist?
- Is the source accessible?

OVERSIMPLIFIED SUMMARIES

AI may **simplify** complex research and **omit** important details.



IMPORTANT ELEMENTS THAT MAY BE LOST:

- Research methods
- Experimental design
- Scientific results

BIAS AND SOURCE QUALITY

Not all sources suggested by AI have the same **academic credibility.**



STUDENTS SHOULD CHECK:

- Authors
- Journal or publisher
- Year of publication
- Whether the source is peer-reviewed

AI SEARCH IS A STARTING POINT, NOT A FINAL SOURCE OF TRUTH.
ALWAYS VERIFY SOURCES AND READ THE ORIGINAL PAPERS.

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Any questions?



Thank you very much

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Introduction to AI Tools
AI.Claude

Dr. Hasibe Aysan

Ostim Technical University, Ankara, Türkiye

5 May 2026

Hradec Kralove

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What is Claude?

A large language model built for safety and helpfulness

Definition

A large language model (LLM) trained to understand and generate human language — it reads, writes, reasons, and codes.

Made by Anthropic

Founded 2021 by former OpenAI researchers Dario & Daniela Amodei. Focused on AI safety research.

Core Values (HHH)

Helpful · Harmless · Honest
Trained with a written 'constitution' — not just human feedback.

How it generates text

Claude processes your input as 'tokens' and predicts the most likely next word — one at a time. It can handle up to 200,000 tokens (= 150,000 words) in a single conversation.

Constitutional AI

Unlike models trained only on human feedback, Claude is also trained with a set of written principles. It critiques and revises its own outputs during training — which is why it's consistent and transparent.

The result: a model that explains its reasoning, pushes back on harmful requests, and behaves reliably across topics.

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Claude's History

From research breakthrough to global product



Key Innovation: Constitutional AI — Claude is trained with written ethical principles, not just human ratings. This makes its behavior consistent, transparent, and predictable.

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What Can Claude Do?

Core capabilities across writing, reasoning, code, and more

Writing & Language

Essays, reports, summaries, emails, translations, style adaptation. Works fluently in dozens of languages.

Reading & Analysis

Upload a 100-page PDF and ask any question. Claude finds, synthesizes, and explains relevant content.

Reasoning & Math

Step-by-step problem solving, logic, statistics, word problems — from high school to graduate level.

Coding

Write, debug, and explain code in Python, JavaScript, SQL, Java, C++, and more. Also refactors and reviews.

Research Support

Break down complex topics, compare perspectives, synthesize arguments from multiple sources.

Agentic Tasks

With tools enabled: web search, file management, calendar, email — Claude can complete multi-step workflows.

Context window: up to 200,000 tokens (~150,000 words) — an entire novel in a single conversation.

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Real-World Use Cases

How students, researchers, and professionals use Claude today

For Students

- Explain complex topics ('like I'm 15')
- Get feedback on essays and drafts
- Create quizzes for exam prep
- Language learning & corrections
- Break down research papers

For Researchers

- Summarize 50-page papers in minutes
- Draft methodology / literature sections
- Analyze & interpret data tables
- Compare theoretical perspectives
- Find gaps in existing research

For Professionals

- Business emails & proposals
- Contract review in plain language
- Strategy & SWOT analysis
- Technical documentation
- Client communication drafts

Pro Tip: The more context you give Claude, the better the output. Specify your role, the audience, and what you've already tried.

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How to Access Claude

Free tier, paid plans, API, and integrations

Claude.ai (Web & App)

Free / Pro / Team

Free tier available

Sign up at claude.ai. Free access to Sonnet with limits. Pro plan unlocks Opus, more messages, and Projects.

Anthropic API

claude-sonnet-4-6

For developers

Build apps powered by Claude. Access Haiku (fast), Sonnet, Opus. Pay-per-token pricing with full tool access.

Claude Code

Developer

Terminal tool

Agentic coding assistant. Claude can run code, manage files, and work as a full developer inside your project.

Integrations (2025-26)

Beta

Embedded in your workflow

Claude in Chrome, Excel, PowerPoint, Gmail, Google Calendar. Cowork for desktop task automation.

Current models (2026): Haiku 4.5 (fast) · Sonnet 4.6 (recommended) · Opus 4.6 (most powerful)

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What Claude Cannot Do

Hard limits, technical weaknesses, and ethical boundaries

Hard Limits (by design)

- Weapons of mass destruction (bio, chem, nuclear)
- Sexual content involving minors — zero exceptions
- Functional malware or cyberweapons
- Undermining AI oversight or democratic processes

These are deliberate — Claude holds these lines even when presented with clever arguments for exceptions.

Technical Limitations

Hallucination
Can state false facts confidently — especially for citations and recent events. Always verify.

Knowledge cutoff
Without search tools, knowledge ends ~Aug 2025. It can't browse the internet by default.

No persistent memory

Each session starts fresh. It doesn't remember you unless explicitly told.

No image generation

Can analyze images, but cannot create them.

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Getting the Best Results

Practical prompt engineering for students

01 Be specific

Instead of 'explain AI', try: 'Explain transformer attention for a CS undergrad who knows Python but not ML.'

02 Give context

Tell Claude who you are, what the output is for, and who will read it. More context = better output.

03 Iterate

Don't expect perfection on the first try. Ask it to 'make it shorter', 'add examples', 'change tone'. It remembers the conversation.

04 Break it down

For complex tasks, ask Claude to tackle one piece at a time — outline first, then each section separately.

```
Prompt pattern:  "Act as a [role]. [Task]. Output should be [format]. Audience: [who]. Tone: [formal/casual]."
```

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Key Takeaways

What to remember about Claude

Claude is a safety-first AI

Built with Constitutional AI — it reasons about ethics, not just follows rules.

Multimodal & capable

Reads text, images, code. Context window of 200K tokens means it can handle very long documents.

Verify important facts

Claude can hallucinate. Treat it as a brilliant first draft, not a final source.

Prompt quality matters

Specific, contextual prompts get dramatically better results than vague ones.

Use it ethically

AI assists your thinking — don't outsource your judgment. Always cite AI use where required.

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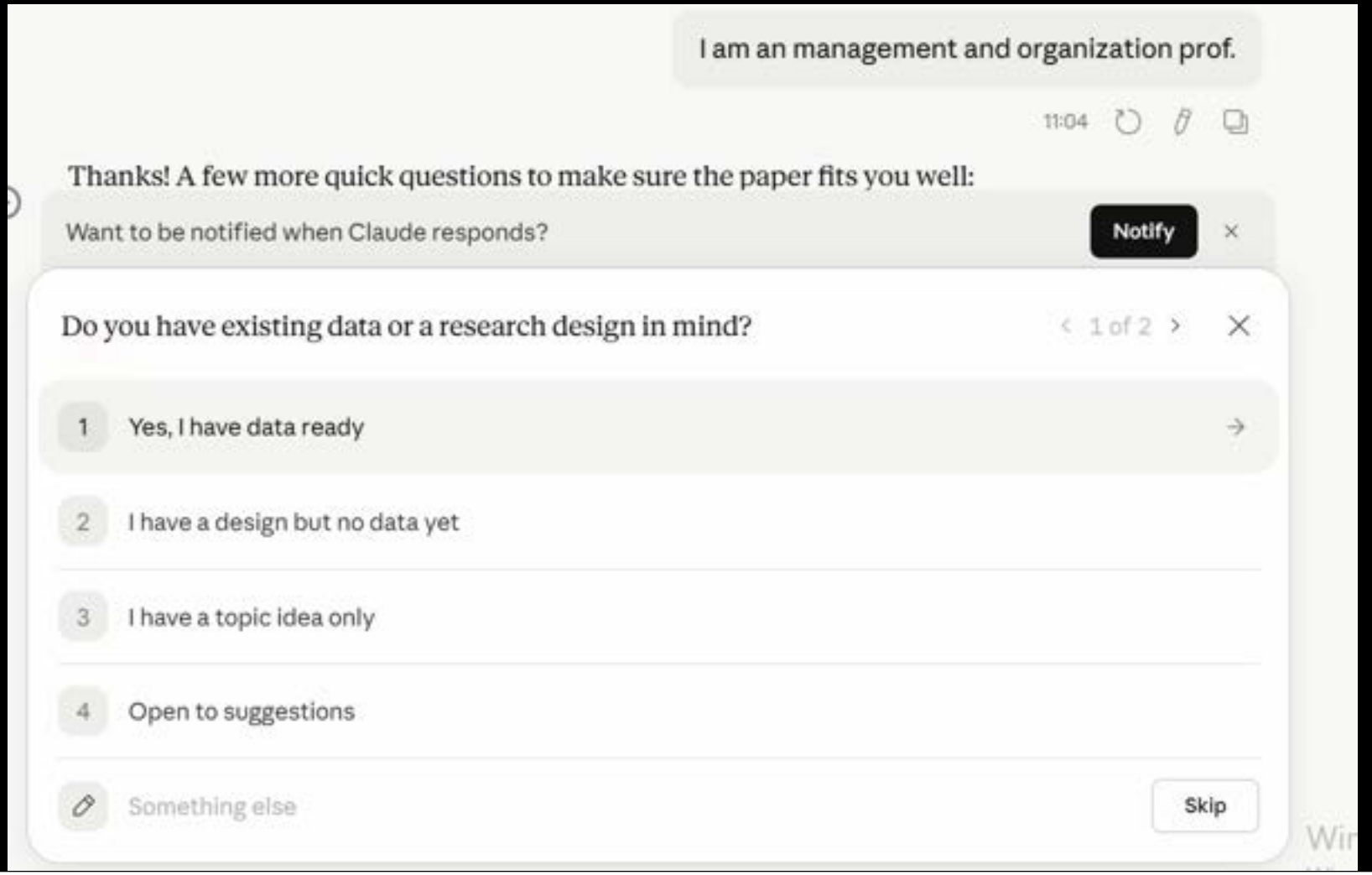
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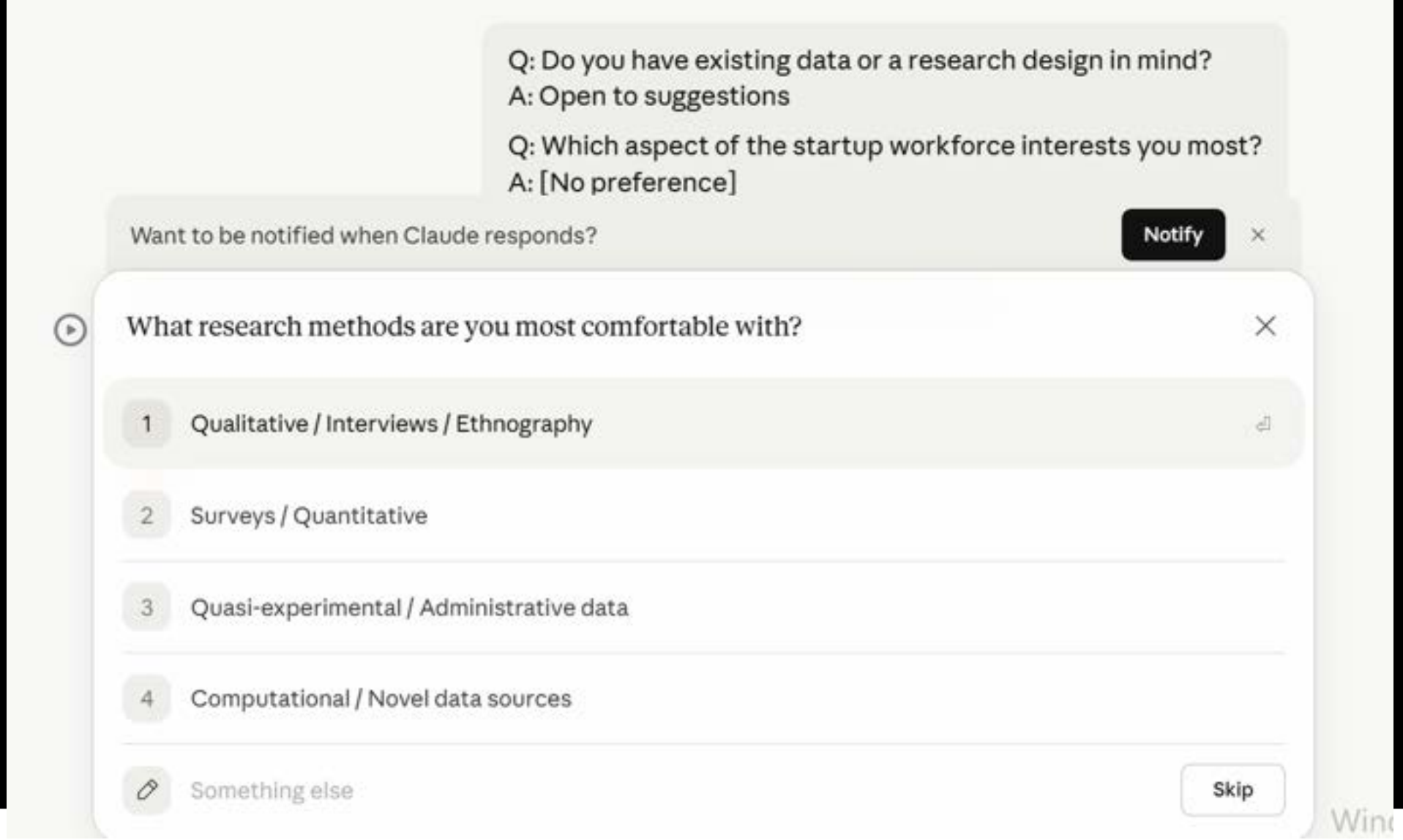
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AI in Higher Education: A Two-Round Interactive Workshop

20 MINUTES ROUND 1: CREATIVE ICEBREAKER



STEP 1: GLOBAL GROUP FORMATION

Participants form 4–5 person teams based on international backgrounds to foster diverse perspectives.



STEP 2: THE "WEIRD AI" CHALLENGE

Teams spend 15 minutes designing the most unconventional or unexpected AI application for education.



STEP 3: PITCH & VOTE

Groups give 1-minute pitches to win the "Most Woird AI Idea" award.

ROUND 2: PROFESSION-BASED DEEP DIVE

STEP 1: RE-GROUPING BY ROLE

Participants reorganize into specialized cohorts for either Academic Research or Administrative Innovation.



ACADEMICS



ADMINISTRATIVE STAFF

STEP 2: TARGETED INNOVATION

ACADEMICS: RESEARCH IDEATION



EXPECTED OUTPUT: Publication title, ides, and potential contribution.

ADMINISTRATIVE STAFF: PROCESS INNOVATION



EXPECTED OUTPUT: Problem definition, AI-based solution, and efficiency gains.

CORE LEARNING OUTCOMES





HANDS-ON AI EXPERIENCE

Participants gain practical experience with AI assisted ideation.



CRITICAL THINKING SKILLS

Develops the ability to evaluate and apply AI solutions critically.



COLLABORATIVE PROBLEM-SOLVING

Foster techniques for effective teamwork in innovation contexts.

NotebookLM

ARTIFICIAL INTELLIGENCE IN MARKETING



REAL-WORLD APPLICATIONS & INSIGHTS FROM GLOBAL BRANDS

Prof. Dr. Elif AKAGÜN

OSTIM TECHNICAL UNIVERSITY



INTRODUCTION TO
AI IN MARKETING

Artificial Intelligence in marketing refers to the use of machine learning, natural language processing, and data analytics to automate decisions, personalize customer experiences, and optimize campaigns. Today, AI adoption in marketing is accelerating at an unprecedented pace over 80% of industry leaders now integrate AI tools into their strategies.

From predictive analytics to chatbots and content generation, AI is fundamentally **transforming how brands connect with audiences**, enabling **real-time personalization** at scale and data-driven decision making that was impossible just years ago.

EXPLORE AIAPPLICATIONS

A BRIEF HISTORY OF **AI IN MARKETING**

01

1950s-1990s: Early Automation

Rule-based systems and basic data processing emerge, laying groundwork for marketing automation and customer databases.

02

2000s-2010s: Machine Learning Era

Breakthrough algorithms enable predictive analytics, recommendation engines, and programmatic advertising at scale.

03

2015-Present: NLP & Computer Vision

Deep learning powers chatbots, sentiment analysis, visual search, and generative AI for content creation.





"AI is transforming marketing from art to science."







Benefits of AI in Marketing

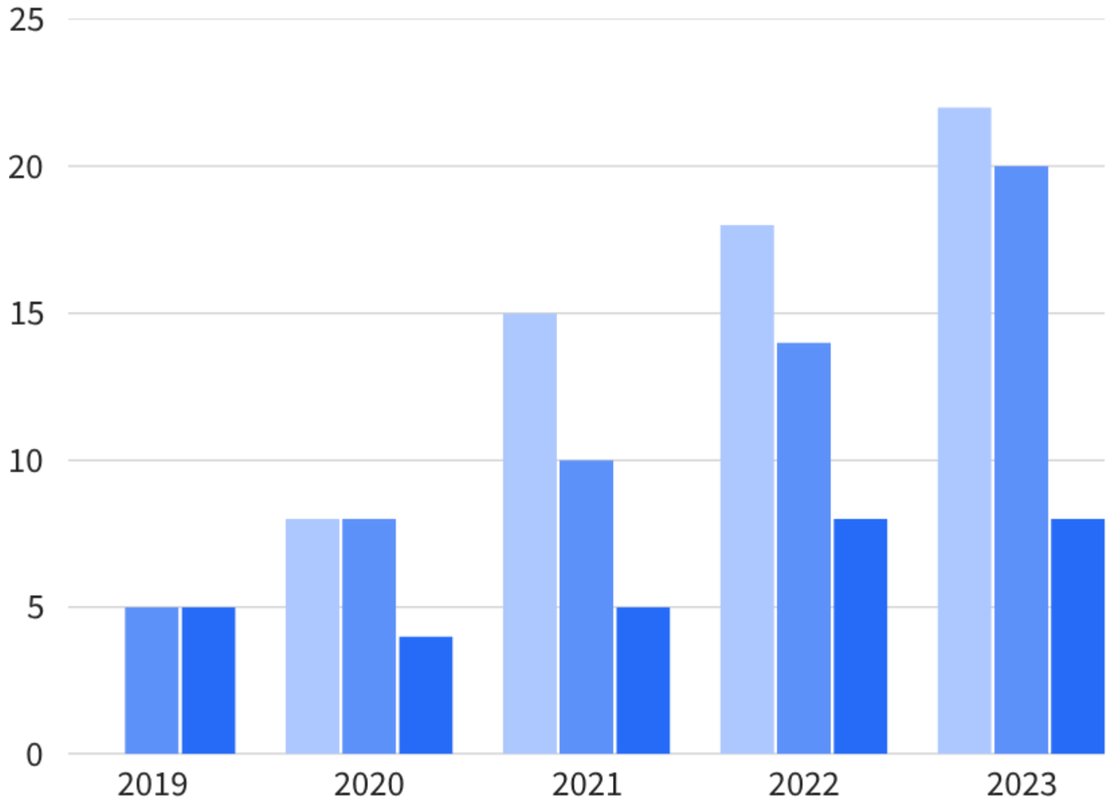
AI transforms marketing by enabling brands to deliver the right message to the right person at the right time, driving measurable results.

AI BENEFITS SUMMARY

01 **Enhanced Personalization**: AI analyzes customer behavior and preferences to deliver tailored content, recommendations, and experiences that resonate with individual users.

02 **Increased Efficiency & Automation:** AI automates repetitive tasks like email campaigns, ad optimization, and content creation, freeing marketers to focus on strategy.

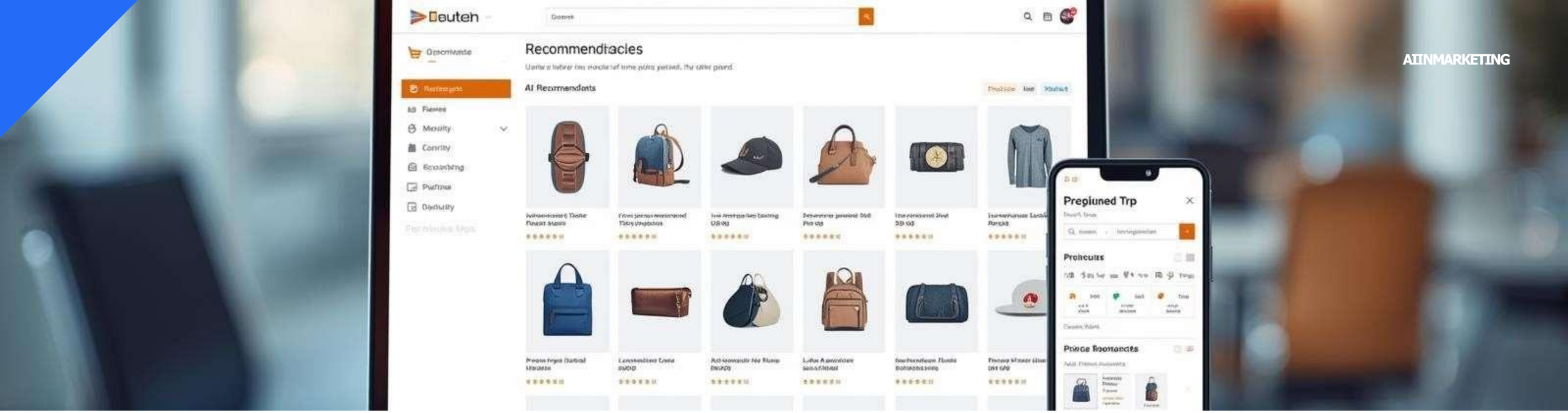
03 **Data-Driven Decisions & Scalability:** AI processes vast datasets in real-time, enabling smarter decisions and campaigns that adapt and scale across markets.



MEASURABLE RESULTS
ACHIEVED

The data speaks for itself: AI-powered marketing delivers transformative results across industries. Netflix achieved 75% of content views driven by AI recommendations. Amazon's recommendation engine accounts for 35% of total revenue. Starbucks saw a 30% increase in automated customer query handling. Sephora reported 20% higher campaign success rates. H&M experienced 25% increase in online conversions. KLM reduced call center load by 40%. Adidas achieved 15-20% lift in email open rates.

VIEWFULL REPORT



PERSONALIZED MARKETING

AMAZON'S RECOMMENDATION ENGINE

Amazon's AI-powered recommendation engine uses sophisticated machine learning algorithms to analyze customer browsing history, purchase patterns, and behavioral data in real-time. This personalization technology drives 35% of Amazon's total revenue, delivering highly relevant product suggestions that dramatically increase conversion rates. The system continuously learns from millions of customer interactions, creating an ever-improving shopping experience that builds loyalty and drives repeat purchases.

35% REVENUE DRIVEN BY AI



PERSONALIZED STREAMING SUGGESTIONS – NETFLIX

Netflix leverages deep learning algorithms to analyze user viewing patterns and predict content preferences with remarkable accuracy. The platform's AI recommendation engine processes billions of data points including watch history, ratings, browsing behavior, and even time of day to deliver hyper-personalized suggestions. This sophisticated system drives 75% of all content viewed on the platform, significantly reducing subscriber churn while dramatically increasing user engagement and satisfaction.

75 % AI-DRIVEN VIEWS

COCA-COLA



AI-DRIVEN CONTENT CREATION

Generative AI Technology

Coca-Cola leverages generative AI for automated copywriting and visual content creation. Their AI systems generate ad variations, test creative concepts, and optimize messaging across global markets, enabling faster campaign rollouts with higher engagement rates

Key Results & Benefits

Implementation has delivered 50% faster campaign production cycles and 25% higher engagement rates. Benefits include significant cost efficiency through automated content generation, enhanced creative experimentation, and the ability to scale personalized messaging across diverse audiences.

AUTOMATED AD GENERATION

01

Programmatic advertising with real-time bidding algorithms that automatically purchase ad space and optimize placement across digital channels.

02

Dynamic ad creatives automatically tailored per audience segment, delivering personalized messaging based on user behavior and preferences.

03

Significantly improved ROI on ad spend through precision targeting, scalability, and reduced manual intervention in campaign management.





"AI enables us to reach the right athlete with the right message at the right moment."



SOCIAL MEDIA MANAGEMENT

STARBUCKS' AI CHATBOT

Starbucks revolutionized customer engagement with their NLP-powered chatbot, enabling seamless social media interactions and order facilitation. The AI technology processes natural language queries to understand customer intent, handle common questions, and guide users through the ordering process. This implementation achieved a remarkable 30% increase in customer queries handled automatically, providing 24/7 customer service while strengthening brand engagement and loyalty.

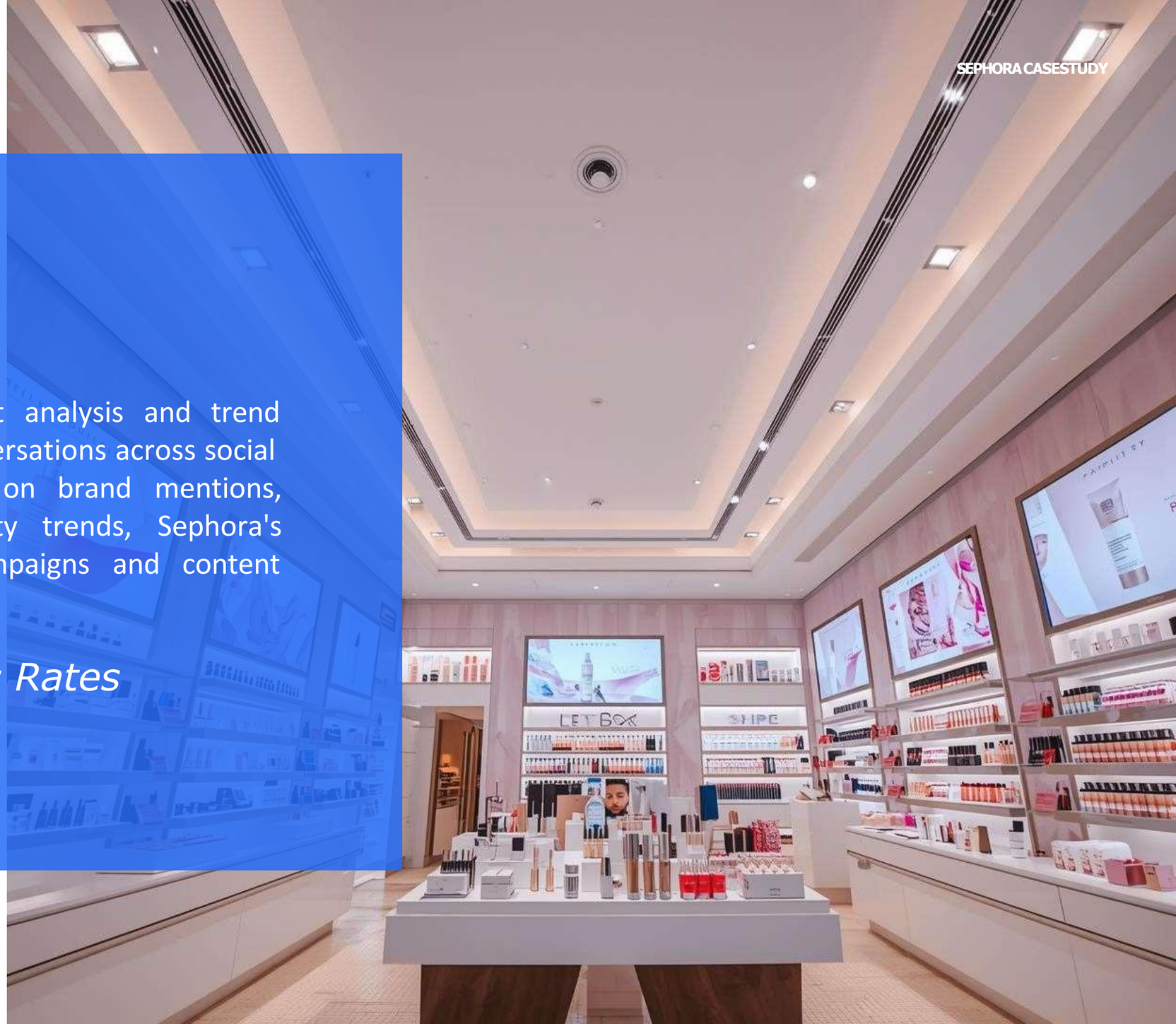
30% AUTOMATED QUERY HANDLING

SOCIAL MEDIA ANALYTICS

Sephora leverages AI-powered sentiment analysis and trend prediction tools to monitor customer conversations across social platforms. By analyzing real-time data on brand mentions, product feedback, and emerging beauty trends, Sephora's marketing team can rapidly adjust campaigns and content strategies to resonate with their audience.

Increase in Campaign Success Rates

20%



AI-POWERED AUDIENCE TARGETING

SPOTIFY CASE STUDY

TRADITIONAL

BASIC SEGMENTS

Broad demographic targeting based on age, gender, and location. Limited personalization with static audience segments and generalized messaging approaches.

AI TARGETING

+40% AD RELEVANCE

Behavioral and preference-based micro-segmentation using machine learning algorithms that analyze listening habits, mood patterns, and contextual data for precise targeting.

RESULTS

+25% RETENTION

Higher engagement rates, optimized ad spend, increased user retention, and better conversion through personalized audio ads that match listener context and preferences.

AI EMAIL MARKETING

ADIDAS

01

Predictive Analytics
AI determines optimal send times for each customer based on engagement patterns and behavior history

02

Dynamic Content
Automated email campaigns with personalized product recommendations and tailored messaging

03

Proven Results
15%-20% lift in open rates and click-through rates driving increased sales and retention





"AI-powered email personalization transforms customer engagement into measurable revenue."



AI-ASSISTED APP DEVELOPMENT

STARBUCKS MOBILE APP

Starbucks leverages AI to deliver personalized offers and predictive ordering through its mobile app. The AI analyzes purchase history, location data, and time of day to suggest relevant products and promotions. AI-driven UX adjustments optimize push notifications and interface elements based on user behavior patterns. This intelligent approach has significantly increased app engagement and driven measurable sales growth, creating a seamless and personalized customer experience.

ENHANCED USER EXPERIENCE



AI-GENERATED VISUAL CONTENT

CANVA'S DESIGN TOOLS

Canva leverages generative AI to revolutionize design workflows for marketers. Their Magic Design and Magic Edit tools use AI to automatically generate layouts, remove backgrounds, and enhance images instantly. Text-to-image generation allows marketers to create custom visuals from simple prompts. Results show significantly faster content creation tasks that took hours now take minutes. Benefits include democratized design accessibility for non-designers and a major creativity boost for marketing teams.

EXPLORE CANVA AI FEATURES

AI VIDEO CREATION

L'ORÉAL

01

AI-powered automated video editing tools that analyze footage and create polished marketing content with minimal human intervention.

02

Personalized video ads dynamically generated based on individual user profiles, preferences, and browsing behavior for targeted campaigns.

03

Results: Higher video engagement rates with cost-effective production, enabling scalable personalized content at reduced costs.





"AI enables beauty brands to create thousands of personalized video experiences."

CHATBOTS



KLM ROYAL DUTCH AIRLINES

NLP-Powered Multilingual Chatbots

KLM's AI chatbot "BlueBot" uses advanced Natural Language Processing to handle customer inquiries in multiple languages. The system manages booking support, flight status updates, and travel queries automatically, providing instant responses 24/7 across social media and messaging platforms.

Measurable Impact & Results

The implementation achieved a remarkable 40% reduction in call center load, enabling human agents to focus on complex issues. Customers receive faster response times and consistent service quality, significantly improving satisfaction scores and operational efficiency.

OPPORTUNITY

H&M's AI-powered virtual assistants deliver personalized product recommendations to online shoppers, analyzing browsing behavior, purchase history, and style preferences to suggest relevant items in real-time, transforming the digital shopping experience.

Increase in Online Conversion Rates

25%



REAL-TIME MARKETING

WITH AI – UNILEVER'S CAMPAIGNS



Dynamic Campaign Optimization



Unilever leverages real-time data analytics and automated content adjustments to optimize marketing campaigns during live events. Their AI systems continuously monitor consumer engagement, social media trends, and market signals to dynamically adjust messaging, creative assets, and targeting parameters. This agile approach has delivered measurable results: higher engagement rates during product launches and significant sales uplift during promotional periods. **The technology enables Unilever to respond instantly to market conditions, maximizing campaign effectiveness while reducing wasted ad spend.**

Disney and AI in Marketing

1. Contextual advertising: Disney's Magic Words

AI helps Disney match advertising to scene mood, imagery, and context



What it does

- Analyzes scenes across Disney+ and Hulu using AI and machine learning.
- Tags content with metadata such as mood, imagery, brands, and thematic cues.
- Lets advertisers place messages in moments that feel emotionally consistent with the content.
- Shifts advertising from basic demographic targeting to context-sensitive storytelling.

Marketing value: stronger brand-content congruence and more emotionally relevant ad placements.

Core idea

- Right ad
- Right moment
- Right emotional tone



Sources: Reuters (2024); The Walt Disney Company Tech & Data Showcase (2024).

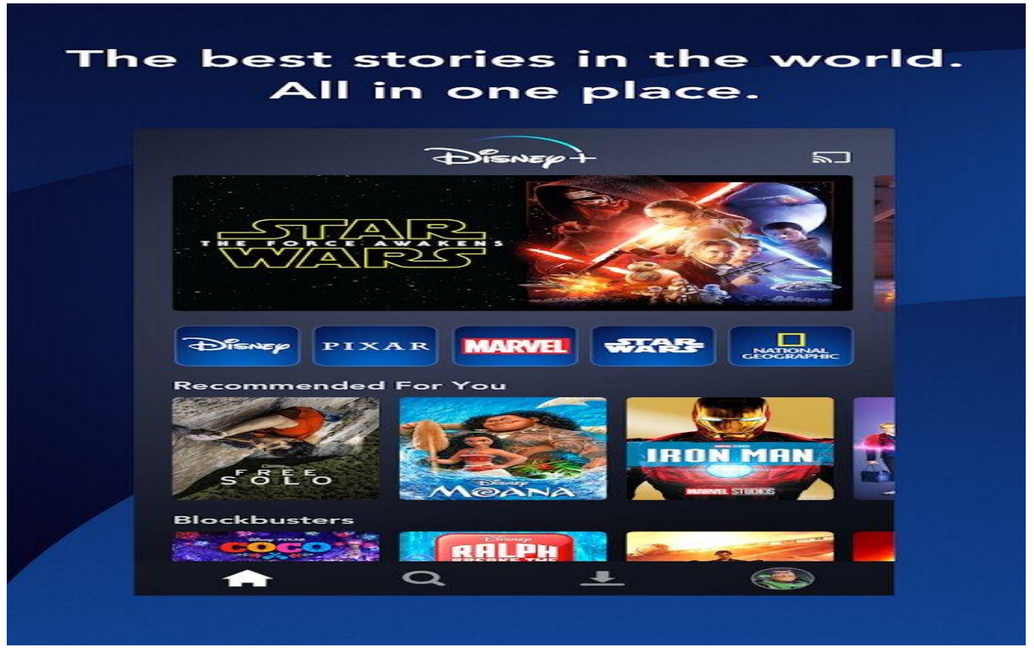
Disney and AI in Marketing

2. Audience targeting and personalization

Disney combines ad-tech segmentation with platform-level recommendations.

Disney Select + Audience Graph

- Uses AI-supported segmentation and lookalike modeling.
- Supports sequential messaging and reduces repetitive ad exposure.
- Expands Disney advertising beyond inventory selling into audience intelligence.



Disney+ personalization

- Recommendation systems help users discover relevant content faster.
- Personalized discovery increases viewing time, engagement, and retention.
- It also creates stronger cross-promotion across Disney franchises and platform services.

AI supports both advertiser relevance and viewer relevance.

Sources: Streaming Media CES coverage (2025); Disney advertising materials; Disney+ product interface examples.

Disney and AI in Marketing

3. Generative AI for planning, creation, and fan engagement

Disney is extending AI from targeting into creative production and brand interaction.

Campaign tools

- Disney Compass adds AI-powered summaries and campaign learnings.
- New tools help advertisers plan, generate, and optimize CTV-ready creative.
- The objective is to shorten production time and scale creative variation.

Adaptive **Scaled** **Fast**

Fan-facing potential

- Disney's 2025 OpenAI agreement positioned licensed characters for fan-inspired short-form AI content.
- This expands marketing from one-way communication toward co-creation and participatory branding.
- Strategic upside: stronger engagement, shareable branded content, and new digital touchpoints.



AI becomes part of the Disney brand experience, not just the media-buying workflow.

Sources: The Walt Disney Company (2026); OpenAI-Disney agreement announcement (2025).

Disney and AI in Marketing

4. Strategic takeaways

Why Disney is a strong case study for AI in marketing

1. Data-rich ecosystem

Disney combines streaming, advertising, franchise assets, and audience data in one ecosystem.

2. Story-led targeting

Its AI tools try to preserve narrative fit by matching brand messages to content context and tone.

3. Personalization loop

Recommendation systems improve discovery while ad-tech tools improve campaign relevance.

4. Next step

Generative AI pushes Disney toward faster creative production and more interactive fan participation.

Disney demonstrates how AI can support targeting, personalization, creative efficiency, and engagement at the same time.

With great power comes great responsibility. AI in marketing demands our commitment to privacy, fairness, and transparency.

Ethical Considerations in AI Marketing

FUTURE TRENDS IN AI MARKETING

01

Hyper-Personalization via AI: Real-time individual customer journeys powered by deep learning, delivering unique experiences at scale.

02

AI-Powered Voice & Visual Search: Natural language and image recognition transforming how consumers discover products and services.

03

Advanced Predictive Analytics: AI forecasting customer behavior, market trends, and campaign performance with unprecedented accuracy.





"The future of marketing is AI and AR/VR integration creating immersive brand experiences."

CHALLENGES & OPPORTUNITIES AHEAD



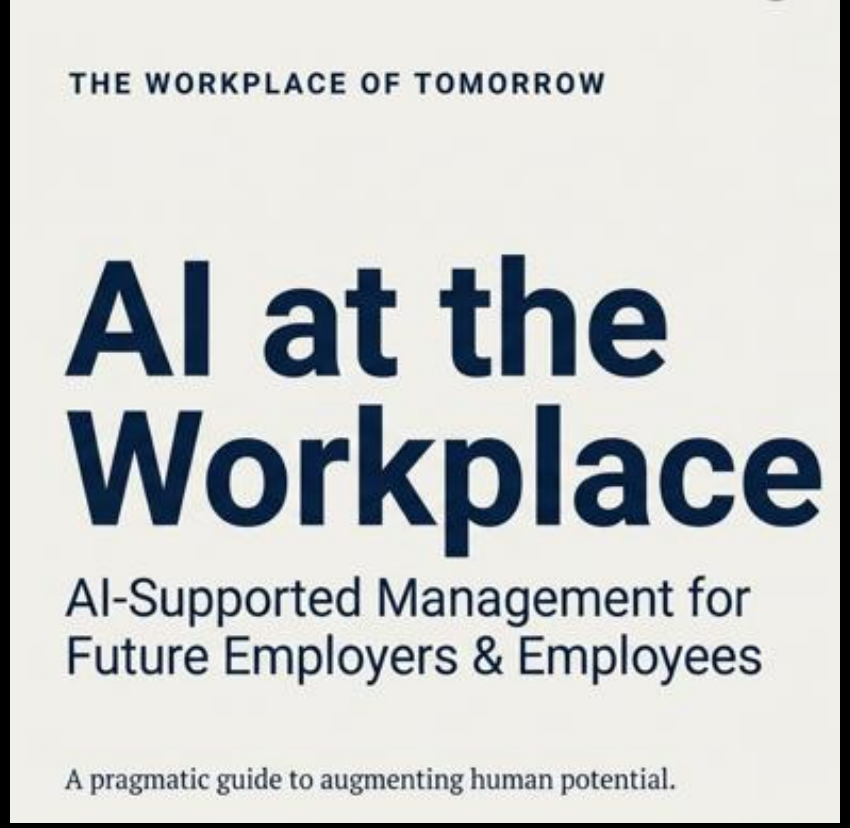
- **Balancing Automation with Human Creativity**: While AI excels at data processing and optimization, the most successful campaigns blend algorithmic efficiency with human intuition, storytelling, and emotional intelligence. Brands must find the sweet spot where AI handles repetitive tasks while creatives focus on strategy and innovation.
- **Data Privacy Regulations Impact**: GDPR, CCPA, and emerging global regulations require marketers to rethink data collection practices. AI systems must be designed with privacy-by-design principles, ensuring compliance while still delivering personalized experiences.
- **Continuous AI Model Training:** AI models require ongoing refinement as consumer behaviors evolve. Organizations must invest in data infrastructure, talent, and processes to keep their AI systems accurate, unbiased, and effective over time.





QUESTIONS? LET'S DISCUSS THE FUTURE OF AI IN MARKETING TOGETHER.

AI 4 UNI



AI at the Workplaces

Dr. Hasibe Aysan

Ostim Technical University, Ankara, Türkiye

6 May 2026

Hradec Kralove

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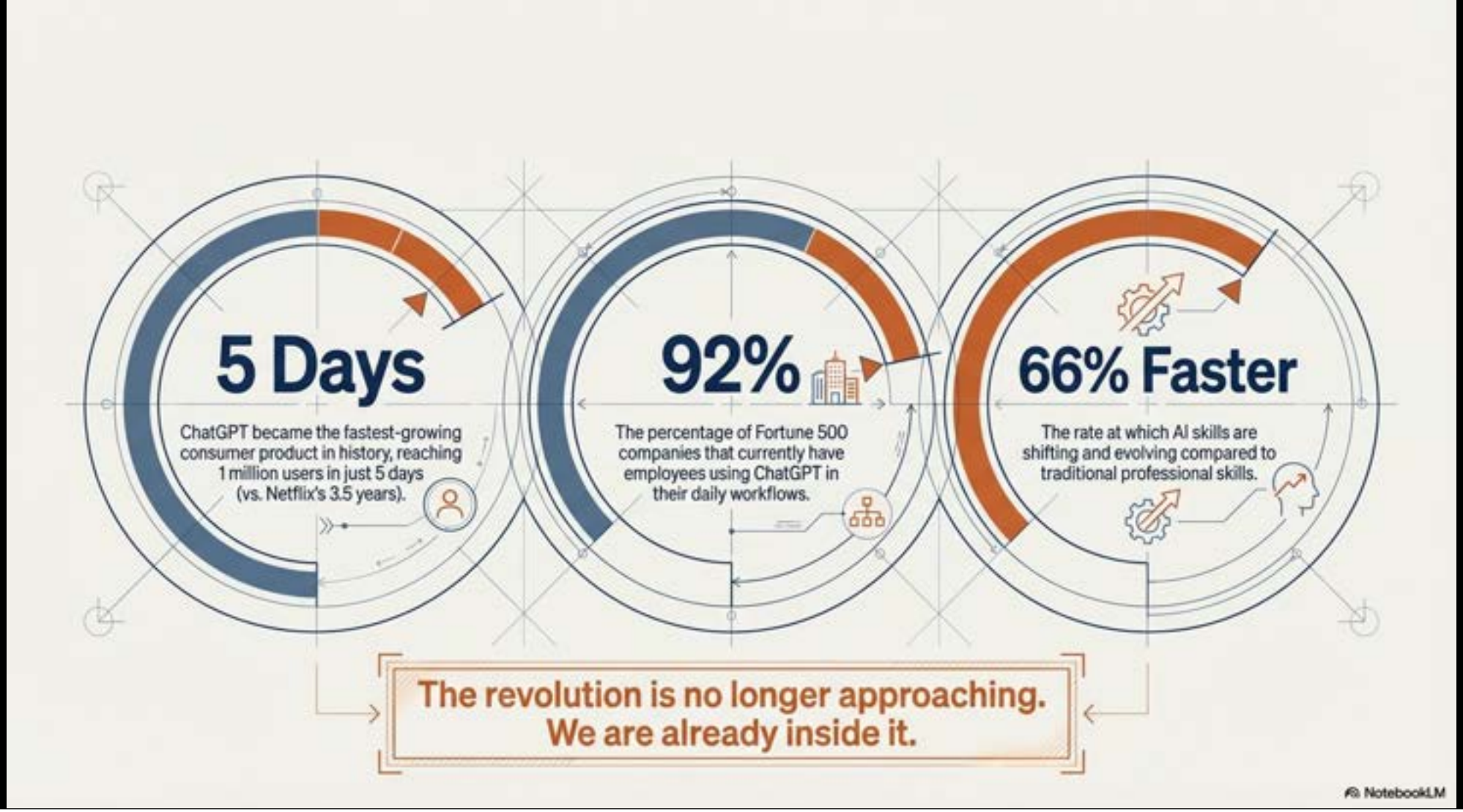
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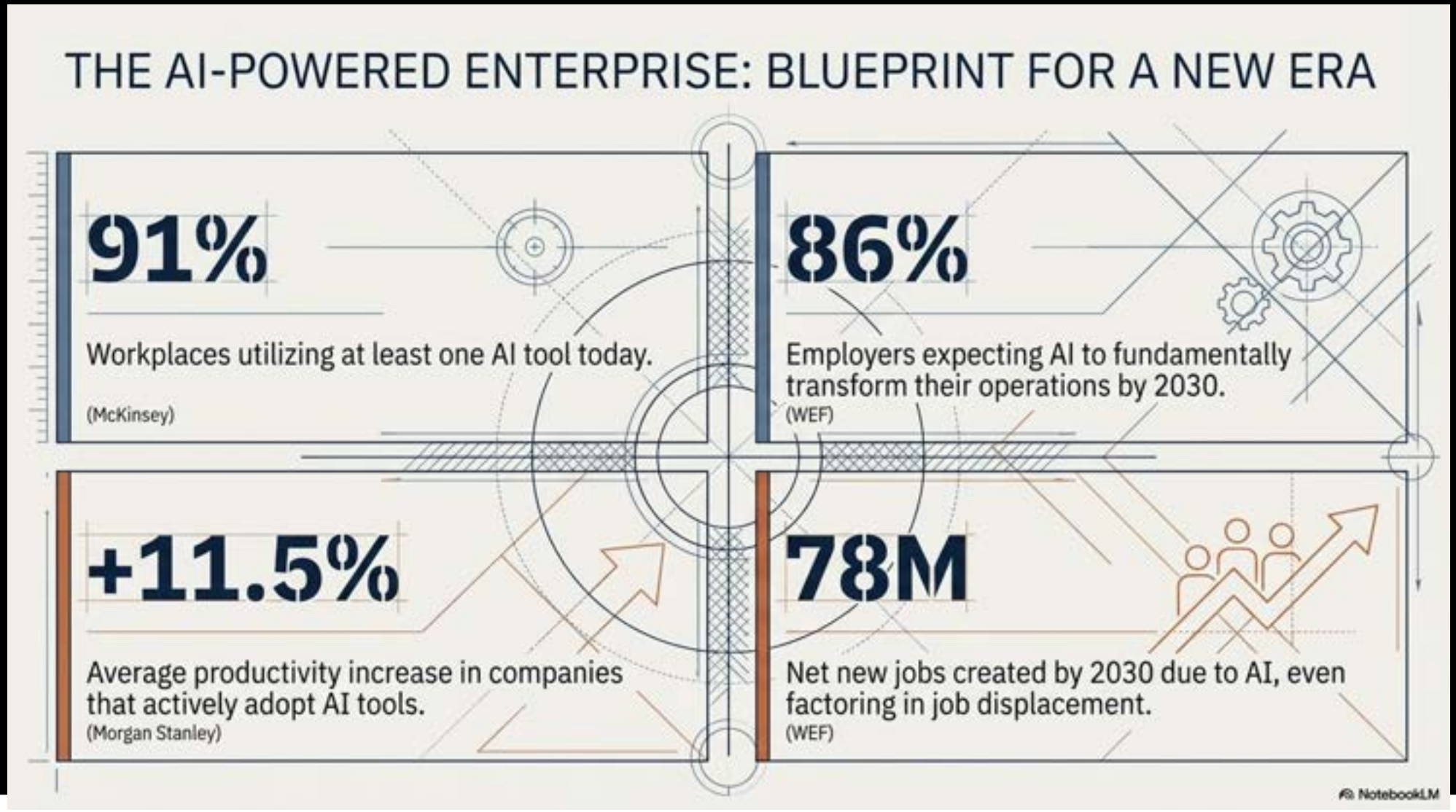
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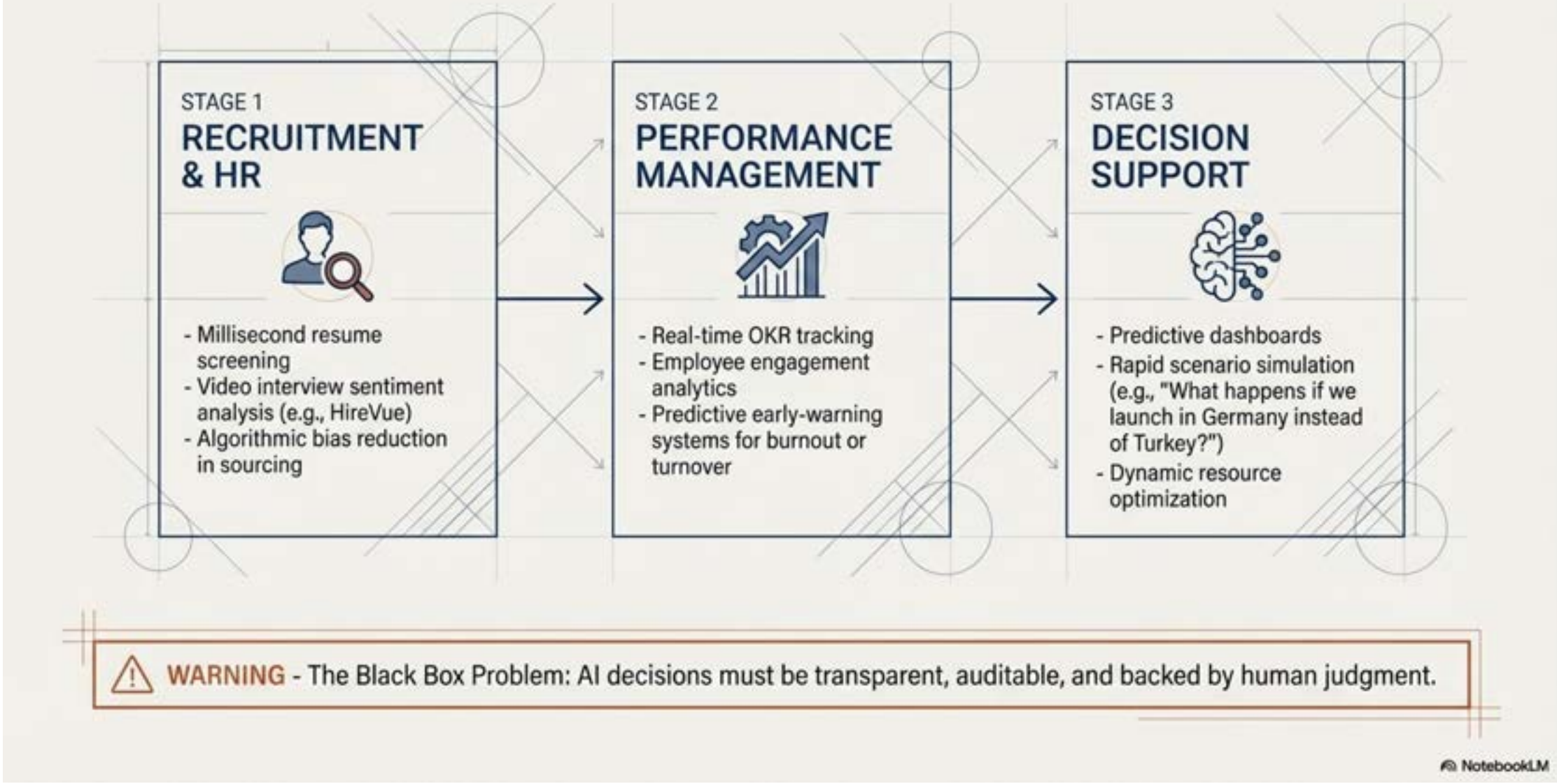
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AI-Powered Management: The Manager's Perspective

SECTION 04 • 8 min

Recruitment & Hiring

- Resume screening in seconds
- Video interview analysis (HireVue)
- Bias reduction algorithms
- Employer brand analytics

Performance Management

- Real-time OKR tracking
- Employee engagement analytics
- Personalized development plans
- Early warning systems

Decision Support

- Predictive analytics dashboards
- Scenario simulation
- Risk assessment models
- Resource optimization

⚠ ETHICAL NOTE: AI decisions must be transparent, auditable, and backed by human judgment. 'Black box' decisions create legal and ethical risk.

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AI Ethics: Key Concerns for Discussion

What managers and employees need to understand

Privacy & Surveillance

AI can monitor employee behavior. Where's the line? GDPR compliance is mandatory.

Algorithmic Bias

Bias in training data transfers to AI decisions. Diversity auditing is essential.

Job Displacement

Some roles will transform while new ones emerge. Continuous learning is the only security.

Transparency

Employees have the right to know what data AI uses to make decisions about them.

Discussion: "If an AI system decided to fire you, would you accept the decision? Why or why not?"

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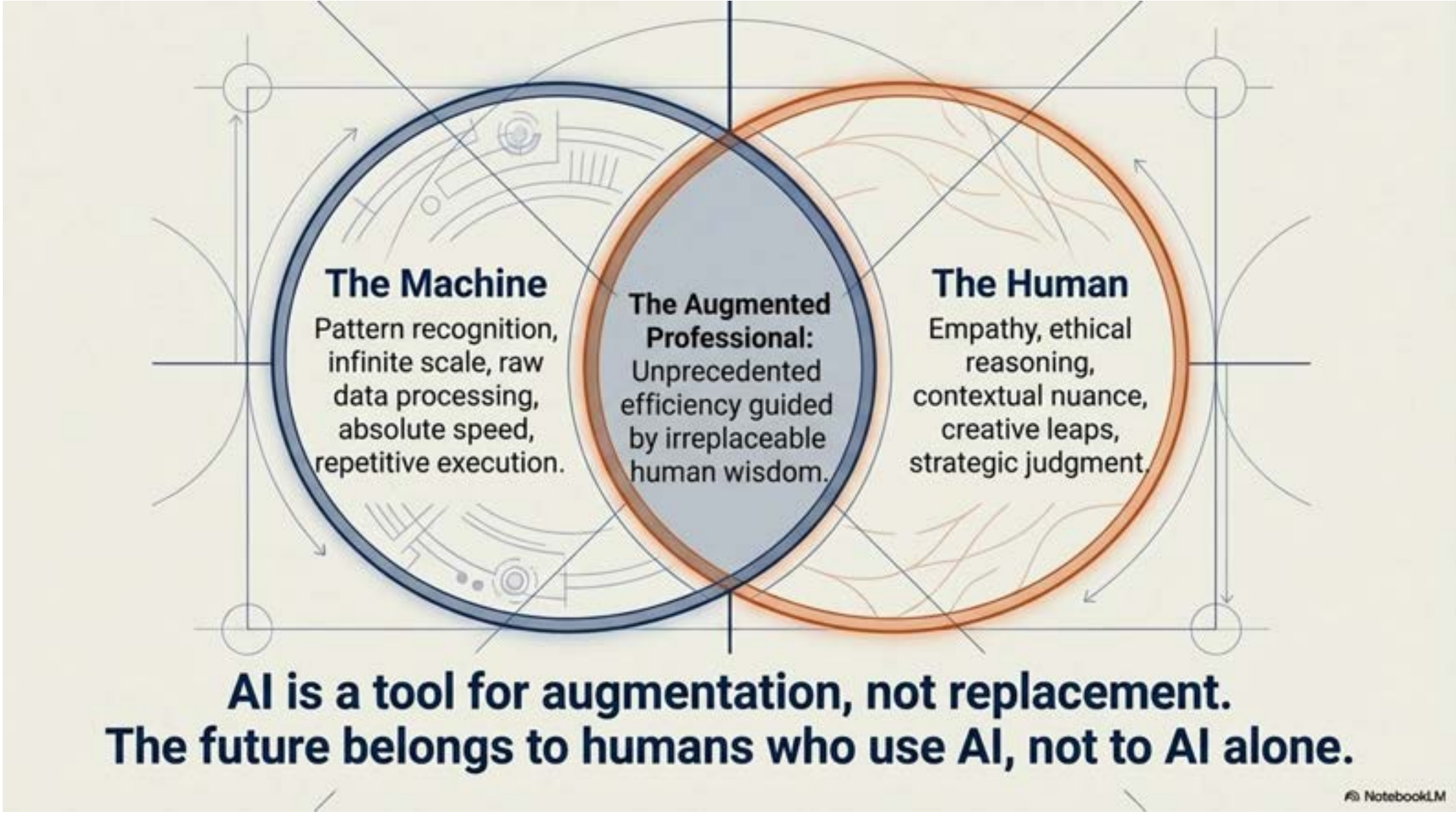
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THE REALITY

59%

59% of the global workforce requires reskilling by 2030 (Over 1 billion people).

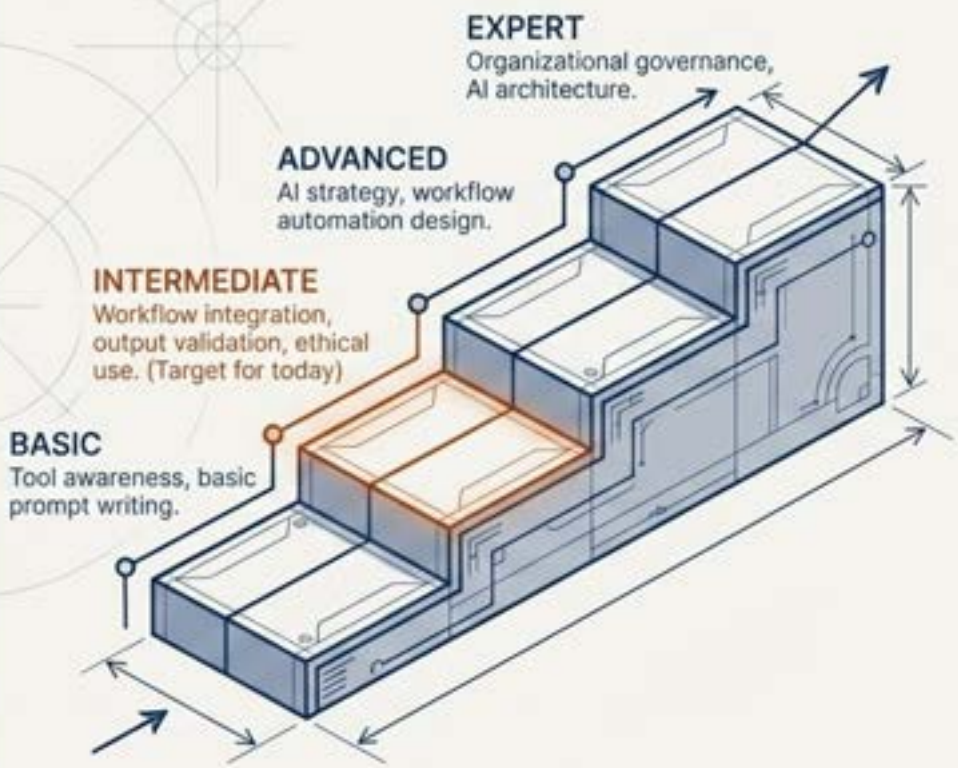
63%

63% of employers report that the skills gap is actively hindering growth.

39%

39% of core job skills will fundamentally change in the next 5 years.

THE AI LITERACY STAIRCASE



NotebookLM

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Future Skills & Career Readiness

SECTION 05 • 10 min

THE SKILLS GAP — BY THE NUMBERS

59% of global workforce needs reskilling by 2030

63% of employers say skills gaps block business growth

39% of core job skills will change by 2030

77% of companies plan to reskill employees for AI

Source: WEF Future of Jobs Report 2025

AI LITERACY FRAMEWORK

FOUNDATIONAL

AI awareness, prompt writing, basic tool usage

INTERMEDIATE

Integrate AI into workflows, validate outputs, ethical use

ADVANCED

AI strategy, automation design, model evaluation

EXPERT

AI governance, architecture design, org transformation

✅ Career Readiness Checklist → see next slide

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This Week

- Open a free ChatGPT or Claude account.
- Execute exactly one real-world task using AI (draft an email, summarize a PDF).
- Explore the free 'AI for Everyone' course on Coursera.

This Month

- Integrate one AI tool into a daily habit.
- Add 'AI Tools' to your LinkedIn skills profile (algorithms favor this).
- Define your personal ethical boundaries for AI use.

This Year

- Complete a formal AI certification.
- Build a small portfolio project using AI automation.
- Mentor a colleague or peer on AI tips.

Curated Free Resources:

Google AI Essentials | Microsoft AI Skills | DeepLearning.AI | Elements of AI (University of Helsinki)

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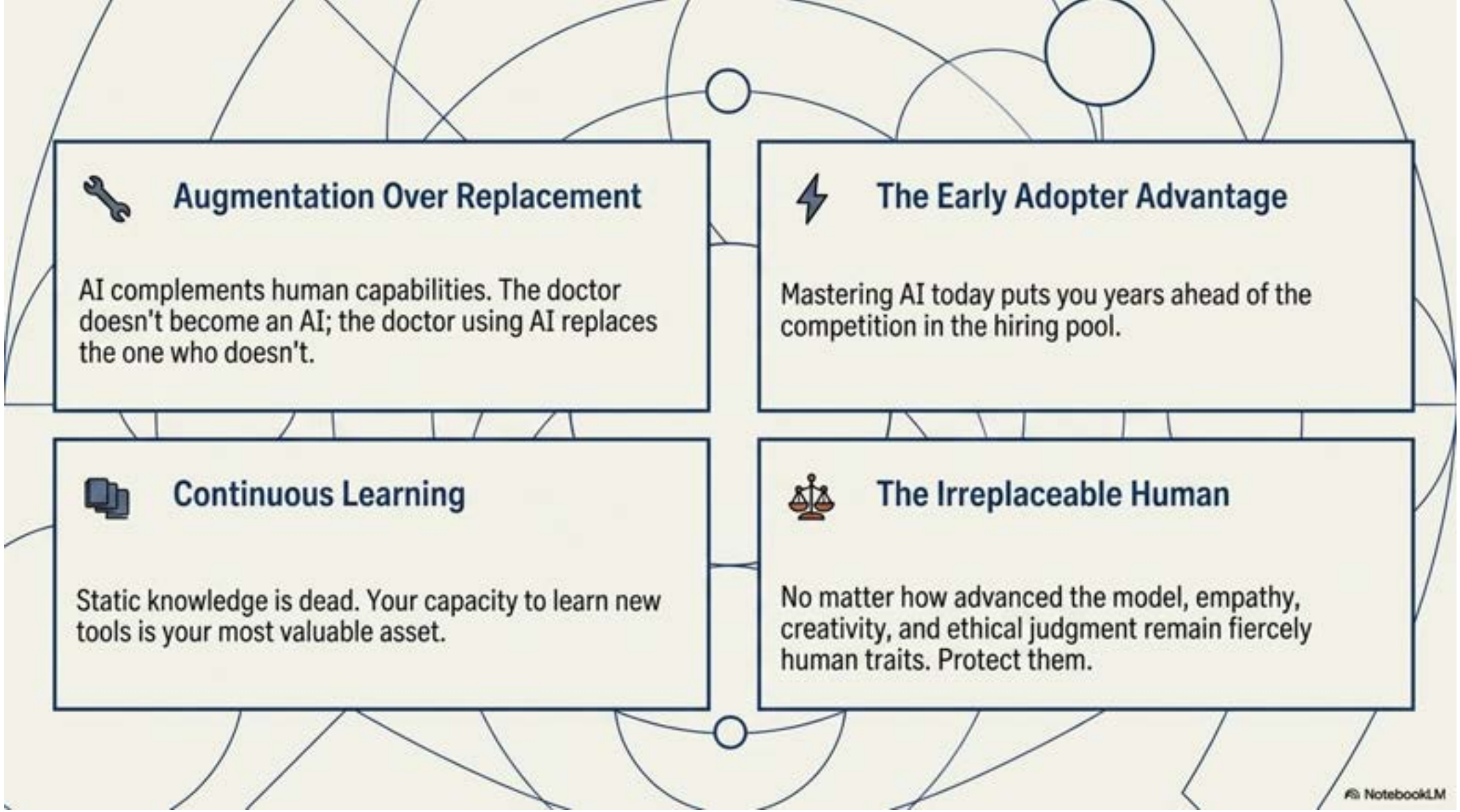
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Case Study Spotlight

Real-world AI impact

JPMorgan Chase

COIN program reviews 12,000 commercial credit agreements in seconds — a task that previously took 360,000 hours/year of lawyer time.

360,000 hrs saved

Amazon

AI-powered demand forecasting reduced inventory costs by 25%, while recommendation engines drive 35% of total revenue.

35% revenue from AI

Mayo Clinic

AI detects irregular heart rhythms from normal ECGs, identifying patients at risk of heart failure up to 10 years in advance.

10-year early detection

Netflix

AI-driven content recommendations and production decisions save an estimated $1 billion annually in customer retention.

$1B saved per year

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AI Tools Every Employee Should Know

SECTION 03 • 10 min

📋 FOR DAILY PRODUCTIVITY

ChatGPT / Claude
Writing, research, coding, summarizing — FREE

Microsoft Copilot
Word, Excel, Teams integration — WORK

Notion AI
Smart note-taking & organization — FREE

Grammarly
Grammar, tone & writing quality — FREE

Otter.ai
Meeting transcription & summaries — FREE

🎯 FOR CAREER DEVELOPMENT

LinkedIn AI Features
Profile optimization, job matching — FREE

Coursera / edX AI
Personalized learning paths — FREE

Kickresume
AI-powered CV & cover letter builder — FREE

GitHub Copilot
AI coding assistant for developers — STUDENT

Beautiful.ai
AI-powered presentation design — FREE

⚡ TIP: Just 1–2 hours of weekly AI practice creates a significant competitive edge within 6 months.

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THE 2026 AI WORKPLACE ECOSYSTEM: A STRATEGIC BLUEPRINT

CORE TECHNOLOGIES



Agentic AI: The Decision-Maker

Unlike traditional AI that only analyzes. AI agents automate complex, high-value workflows in finance, HR, and IT by making autonomous decisions and interacting with other agents.

Natural Language Processing (NLP)



The foundational tech for understanding and processing human language, powering everything from real-time customer support bots to sentiment analysis in marketing.



Robotic Process Automation (RPA)

The workhorce of efficiency. RPA automates repetitive, high-volume digital tasks like invoice processing, form filling, and report generation to eliminate "boring" work.

GOVERNANCE PILLAR



The 5 Ps Governance Framework

A comprehensive model for CAIOs focusing on People (Interdisciplinary teams), Priorities (risk triaging), Processes (audit trails), Platforms (monitoring), and Progress (maturity metrics).



GLOBAL TURNOVER PENALTY

The cost of non-compliance under the EU AI Act for "unacceptable rick" violations, making governance a matter of business continuity rather than just a "nice-to-have".

EU AI Act Risk Tiers



WORKFORCE PILLAR



SKILLS DISRUPTION BY 2027

According to the World Economic Forum, nearly half of current workforce skills will be disrupted, making AI and data literacy the chief requirements for future employees.

The Rise of the AI Generalist

As agents handle specialized mid-tier work, demand is surging for generalists who can oversee AI "collaborators" and align their outputs with high-level business goals.

The 3-Layer AI Literacy Framework



KEY PRODUCTIVITY TOOLS



Microsoft Copilot

The primary workplace integration topl, embedding AI directly into Word, Excel, Teams, and Gmail for seamless document and workflow assistance.



Otter.ai

An essential meeting tool that provides automatic real-time transcription, speaker identification, and AI generated summaries with action items.



Fireflies.ai

An AI meeting assistant specifically for groups that records, transcribes, and creates a searchable archive of all project decisions.



Perplexity.ai

A research-focused engine that provides real-time web search with source citations, effectively replacing standard seatch for academic and business data.

AI IS A PRODUCTIVITY MULTIPLIER, NOT A REPLACEMENT.

The future of work belongs to those who treat AI as a collaborative partner to expand what people are able to do.

NotebookLM

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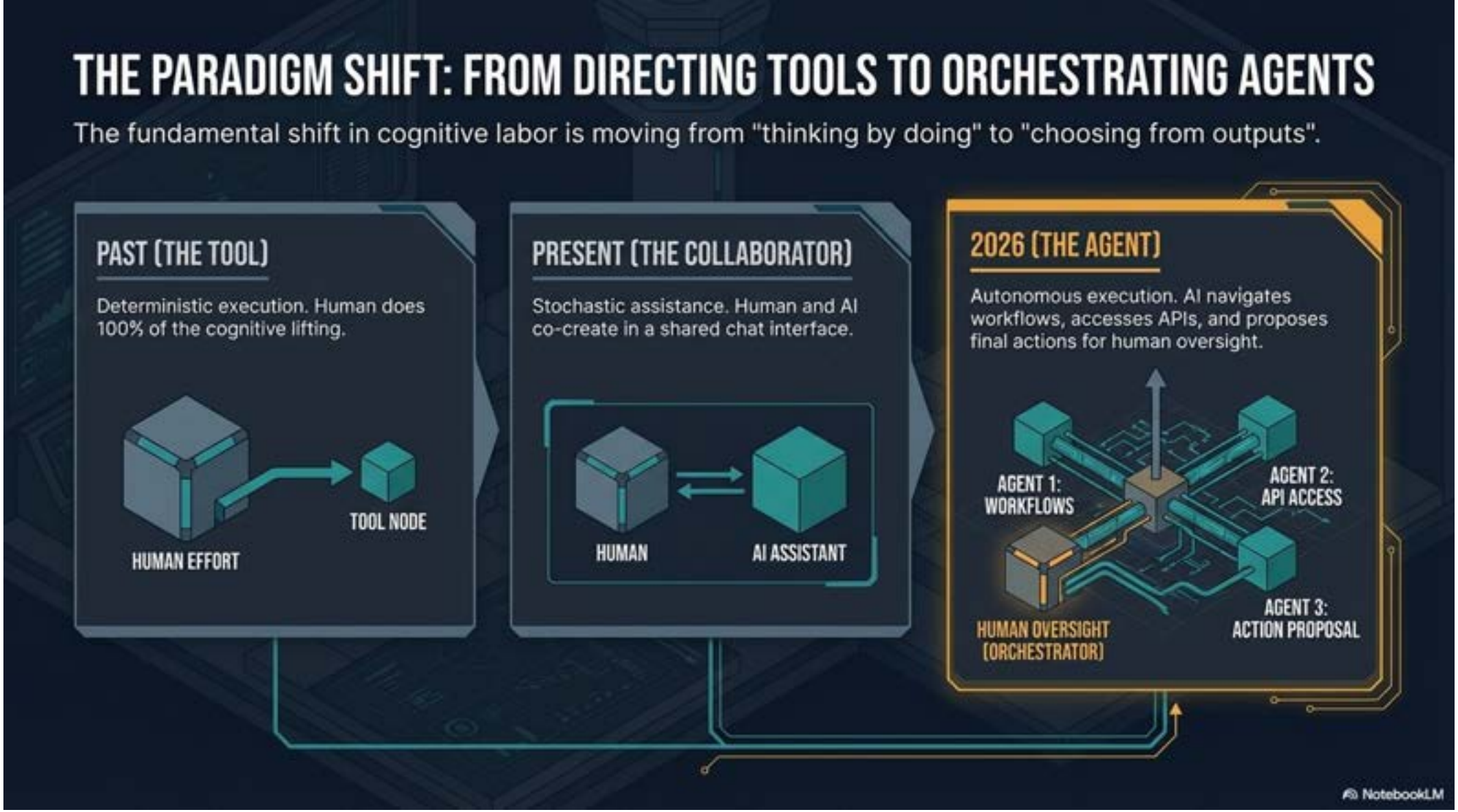
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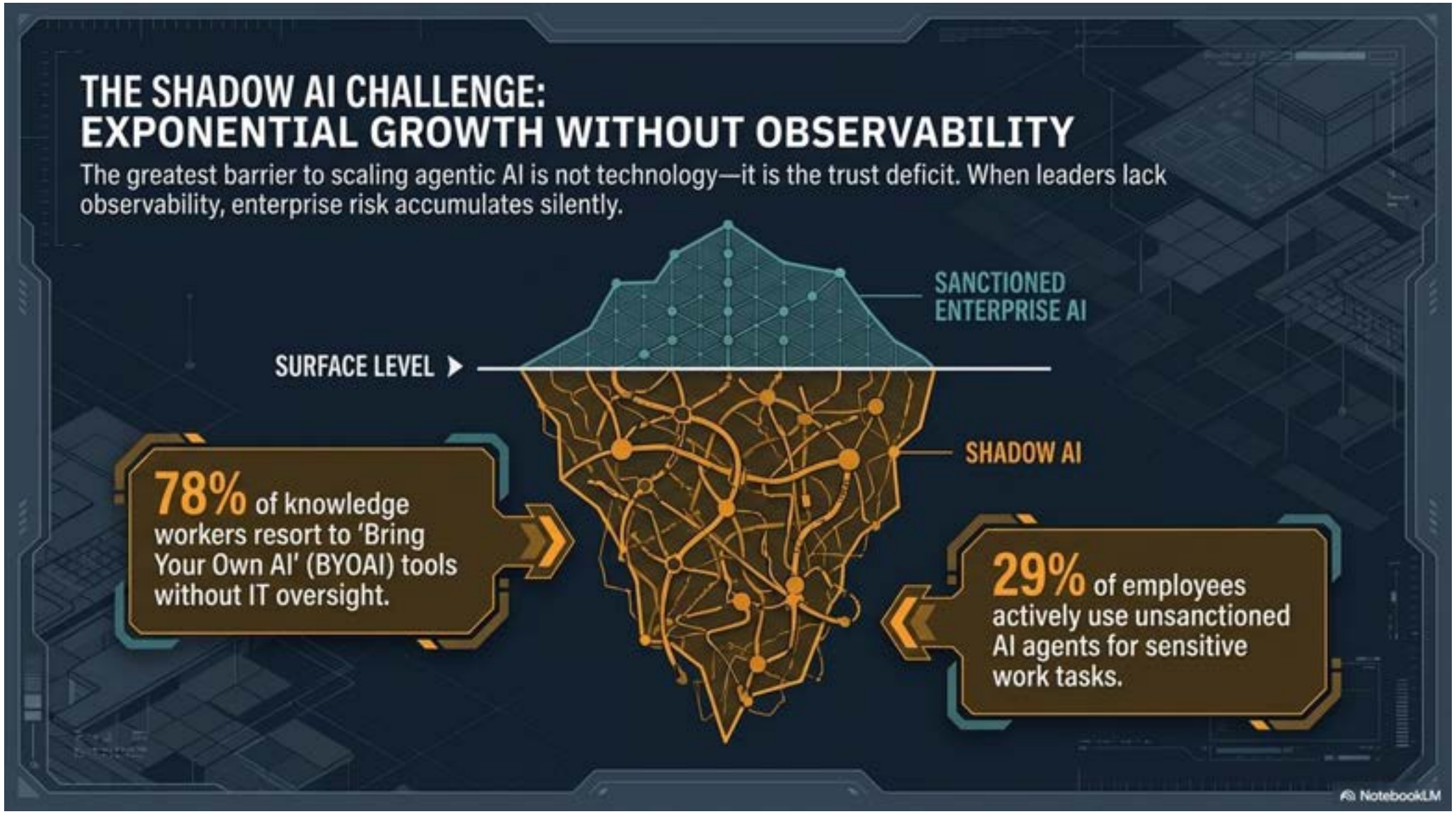
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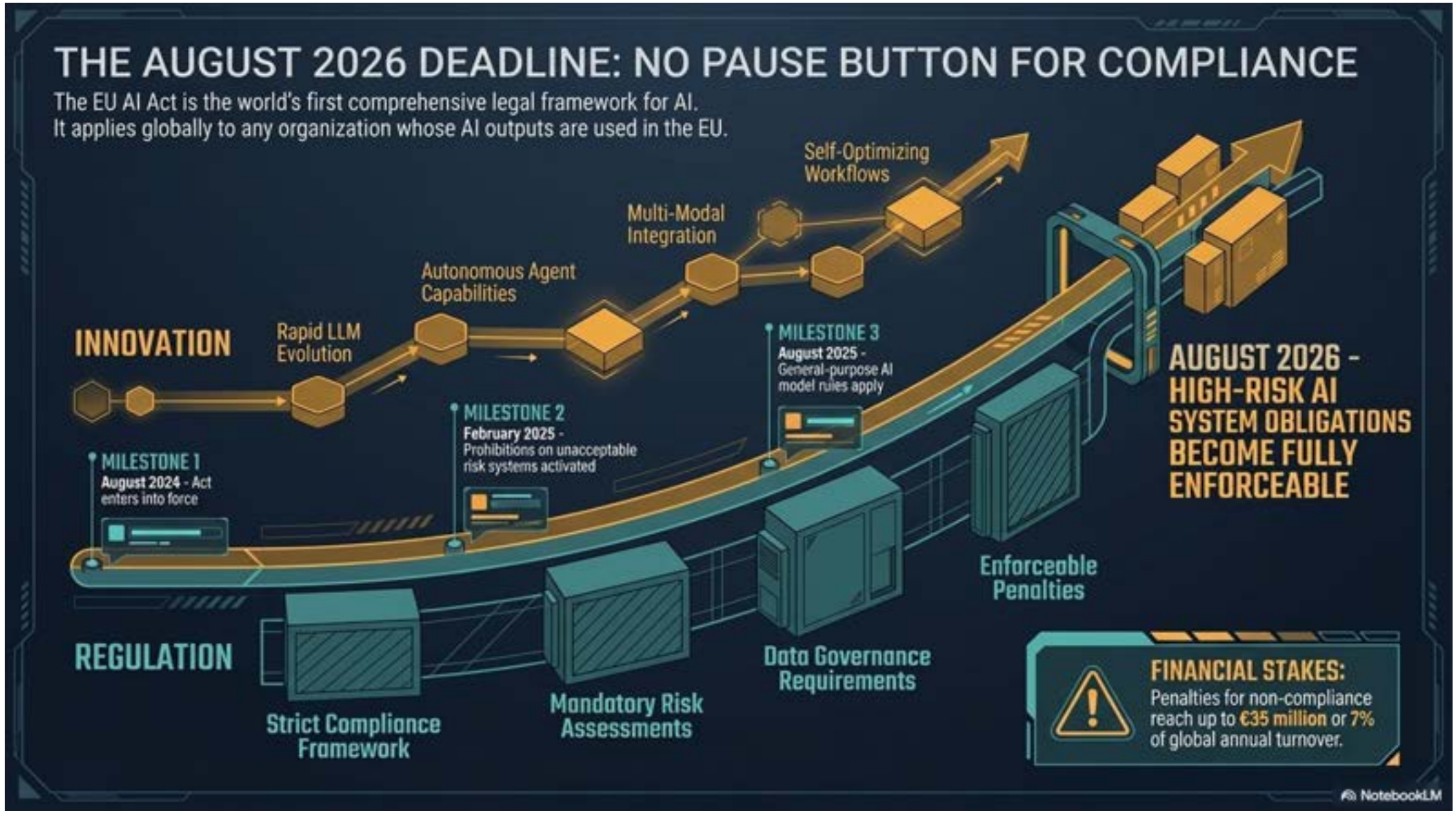
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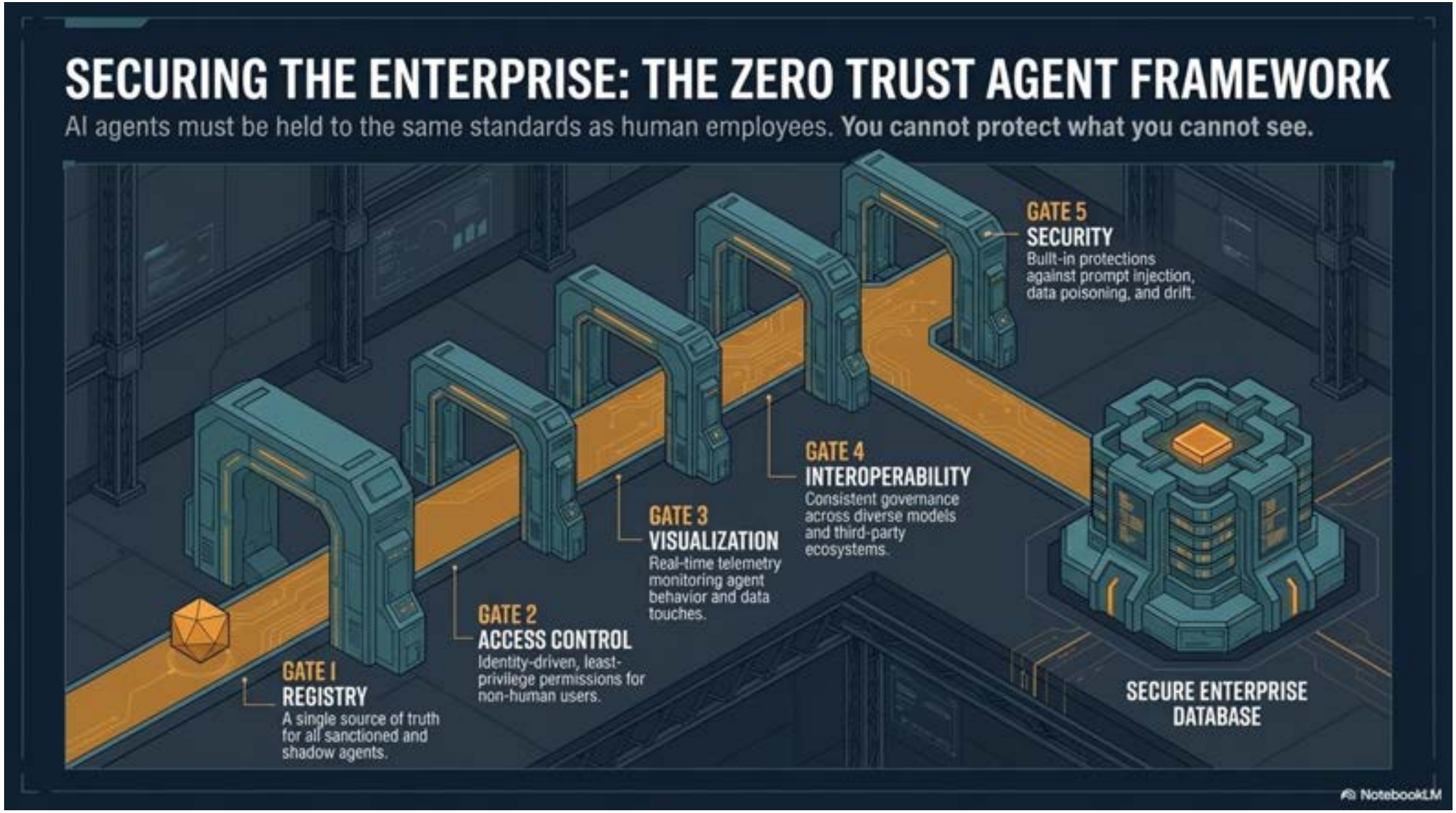
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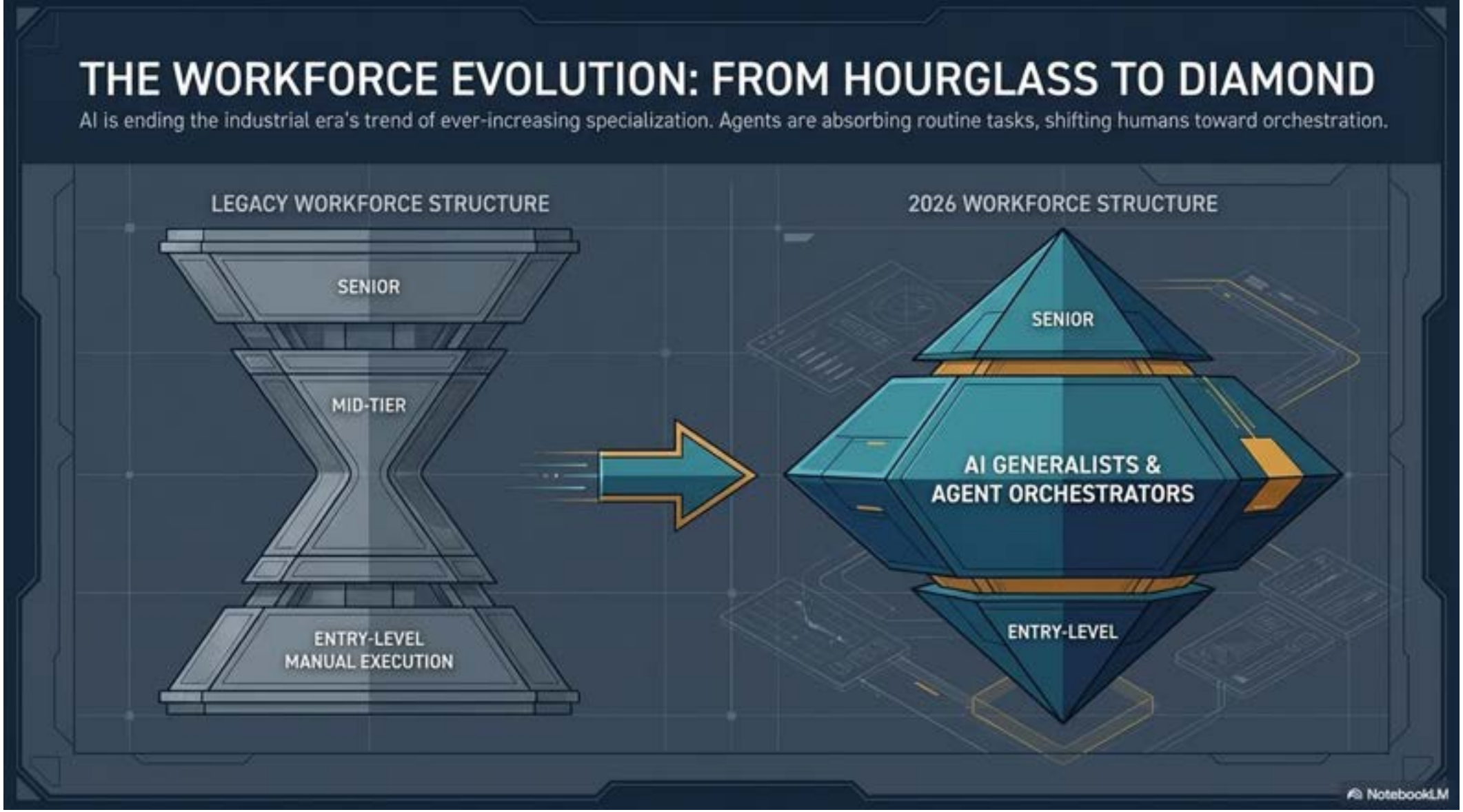
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Defining the 2026 AI Generalist: A New Professional DNA

Dimension	Legacy Knowledge Worker	2026 AI Generalist
Core Function	Deep specialist; manual task execution.	Broad context-provider; agent orchestrator.
Execution Style	Direct coding, drafting, calculating.	'Vibe coding', prompt architecture, iterative steering.
Quality Control	Proofreading own work.	Critical evaluation and auditing of AI outputs.
Value Creation	Output volume and specialized knowledge.	Judgment, strategy, and cross-functional synthesis.

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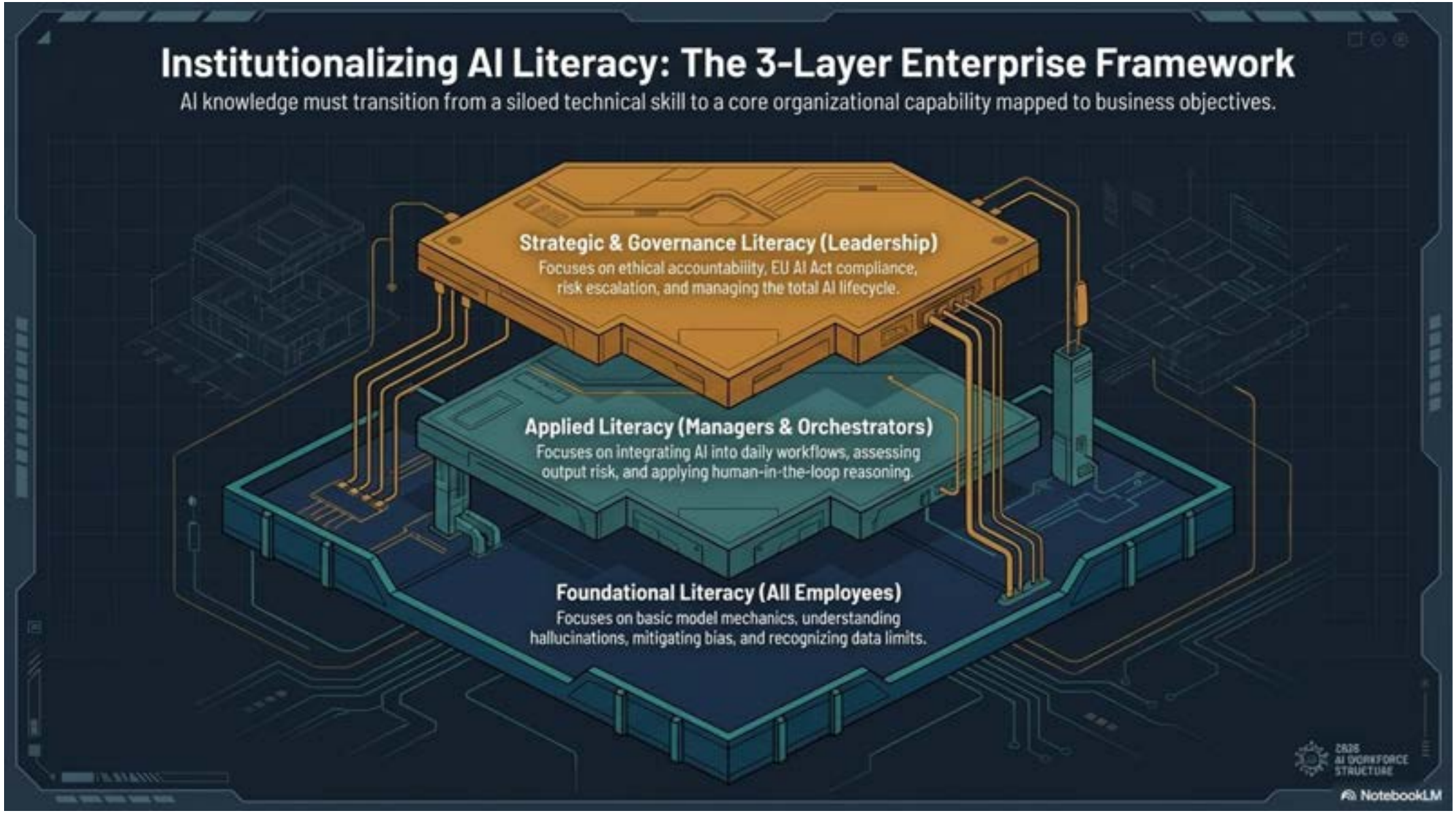
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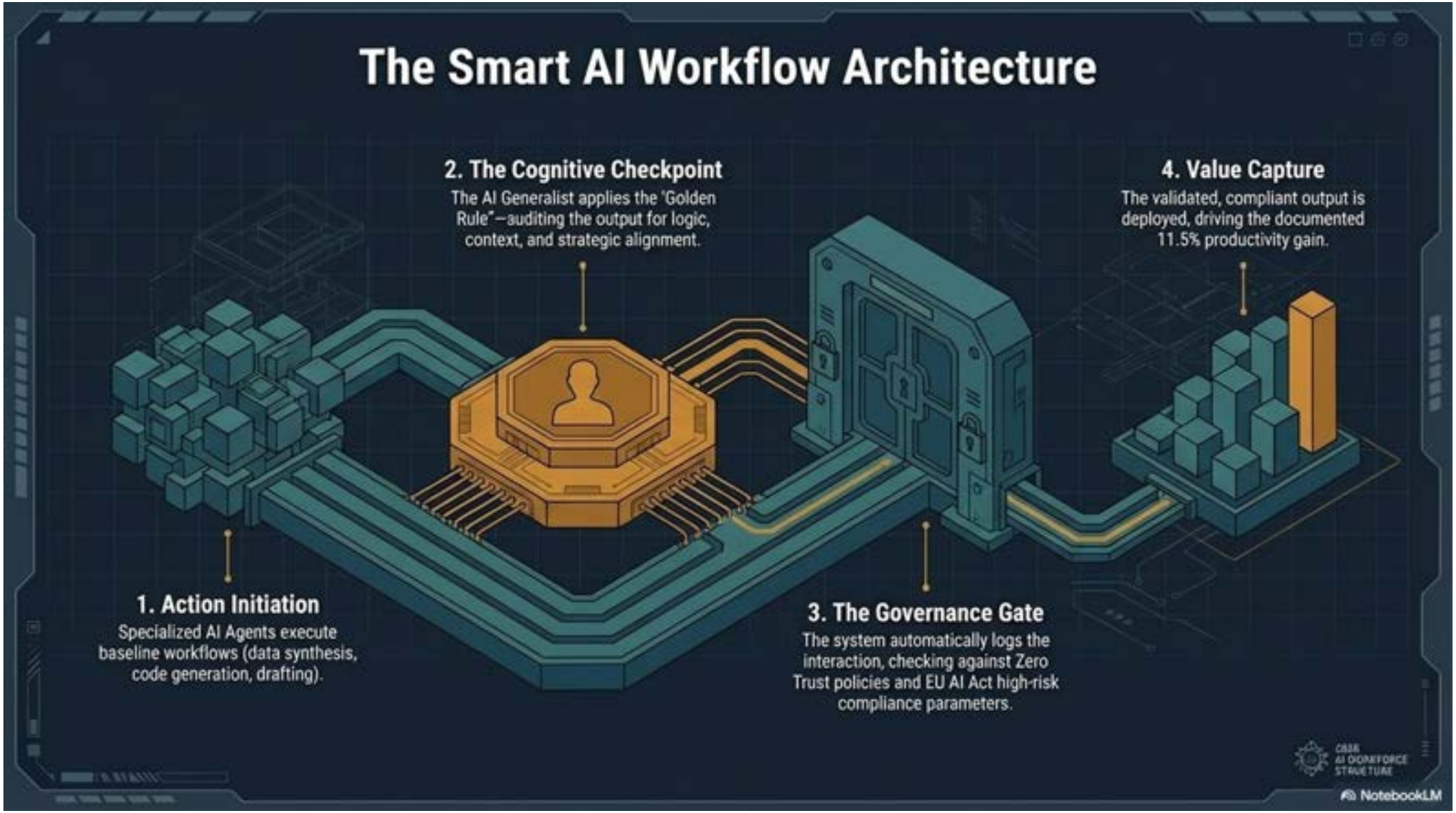
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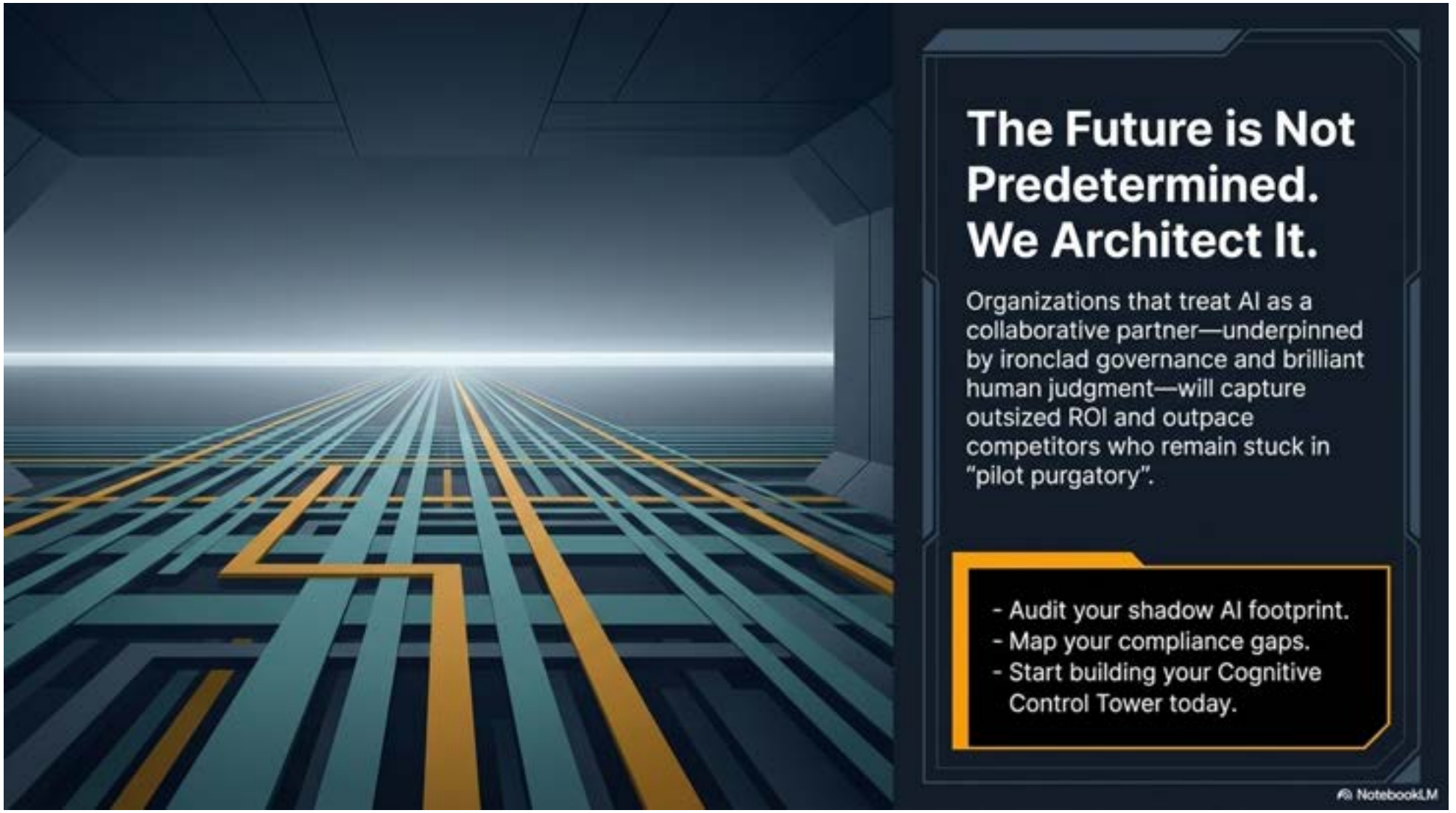
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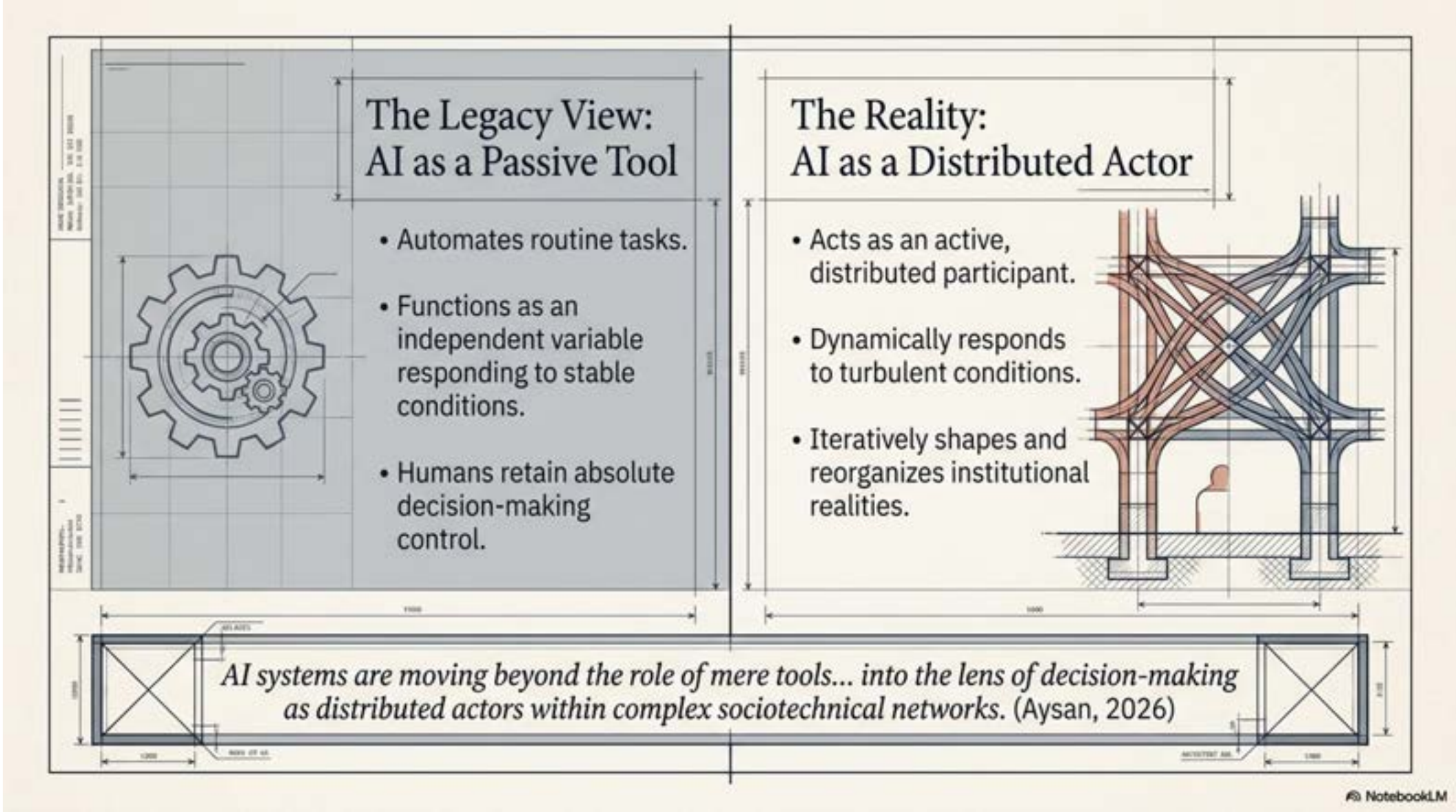
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The Distributed Sociotechnical Agency Model (DSAM)

Distributed Agency Dynamics

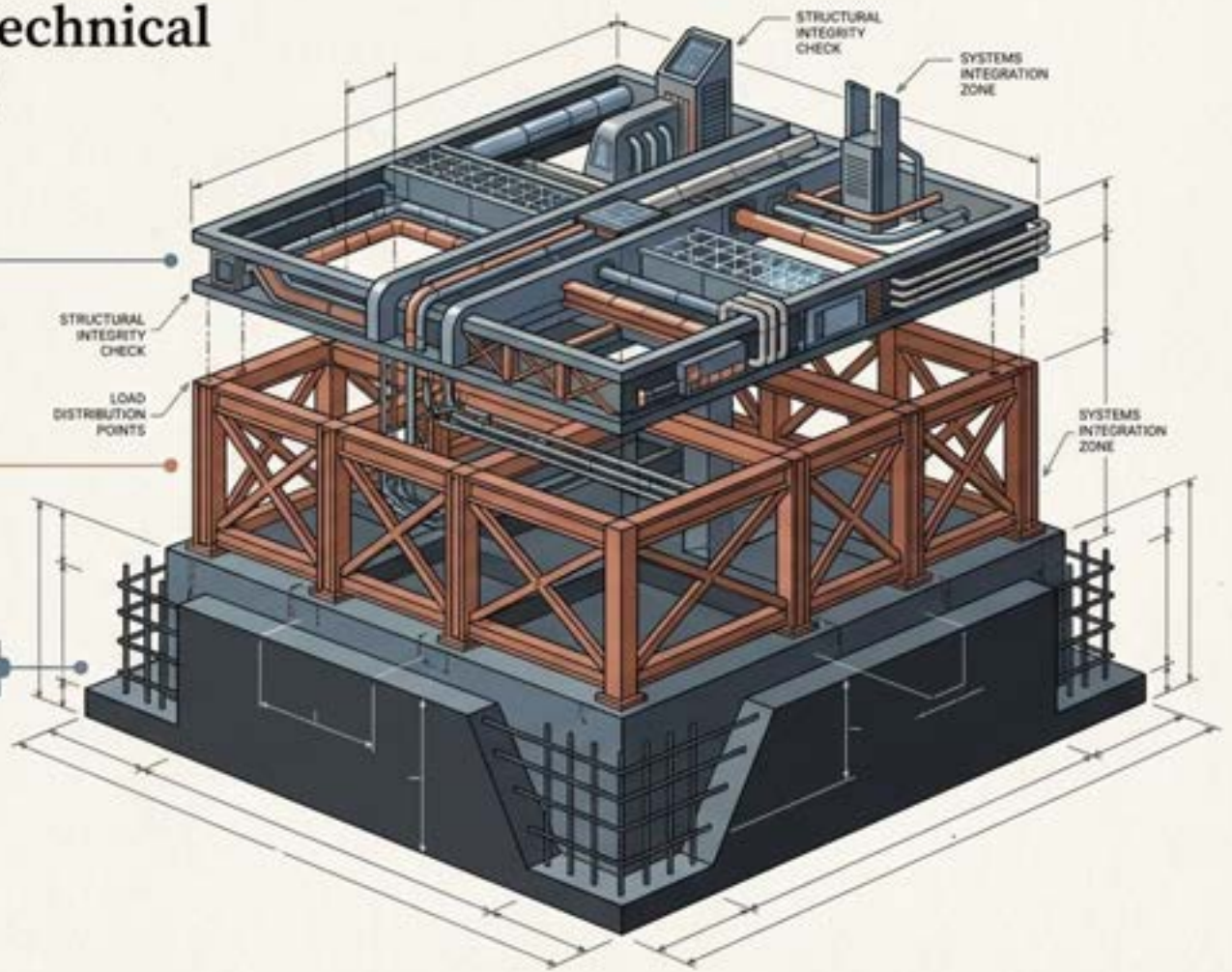
Human-AI collaborative decisions and embedded infrastructure.

Dynamic Relational Processes

Fluid departmental boundaries, power redistribution, and shifting roles.

Ethical-Justice Alignment Mechanism

Transparency protocols, bias detection, and stakeholder inclusion.



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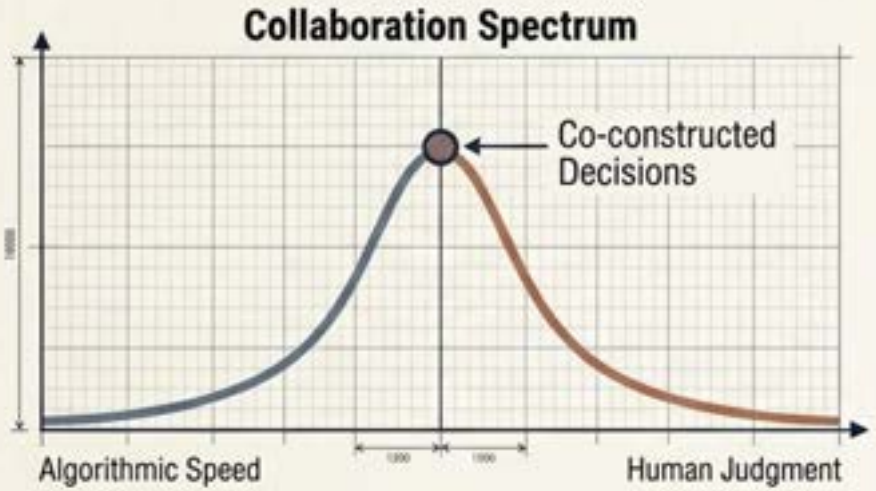
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Agency must be distributed between algorithms and human expertise.



AI interacts with digital infrastructure to co-construct decisions, but its autonomous capacity is fundamentally limited in academic contexts. Agency must be shared, not outsourced.

The Chatbot Reality Check

In multidisciplinary higher education tests, **AI cannot operate without oversight.**

GPT-4 scored an average of **'C'**, while Bard and Bing Chat scored an **'F'** average in simulating academic responses (Rudolph et al., 2023).

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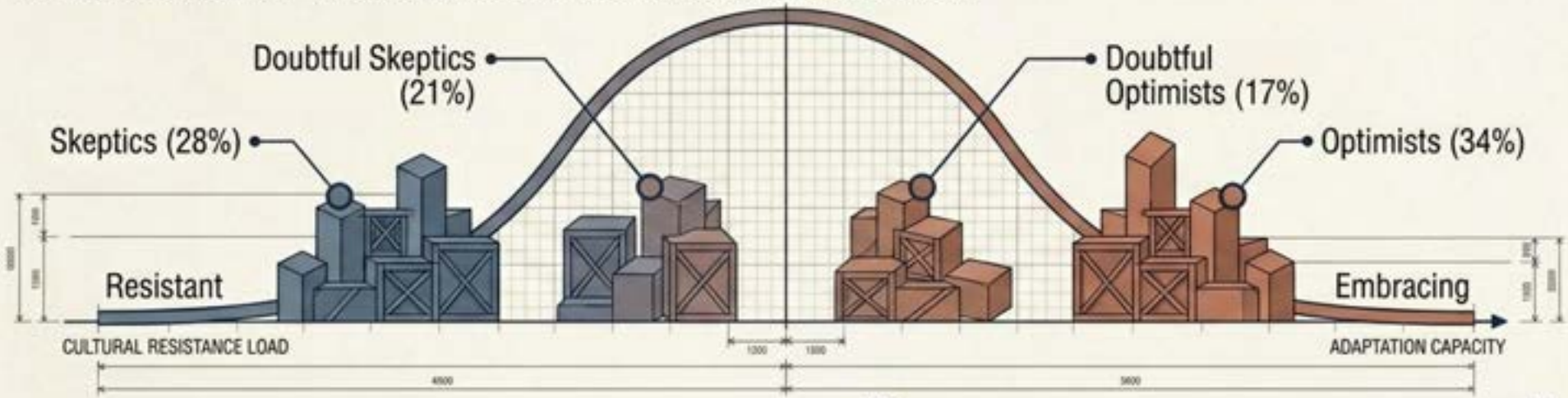
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Technical implementation succeeds or fails on human readiness.

Integrating AI blurs traditional boundaries—merging IT with academic affairs—and redistributes institutional power. This requires a profound cultural adaptation.



Organizational readiness is deeply fragmented. Analysis of 1,437 employees reveals four distinct adaptation profiles. (Rudko et al., 2021)

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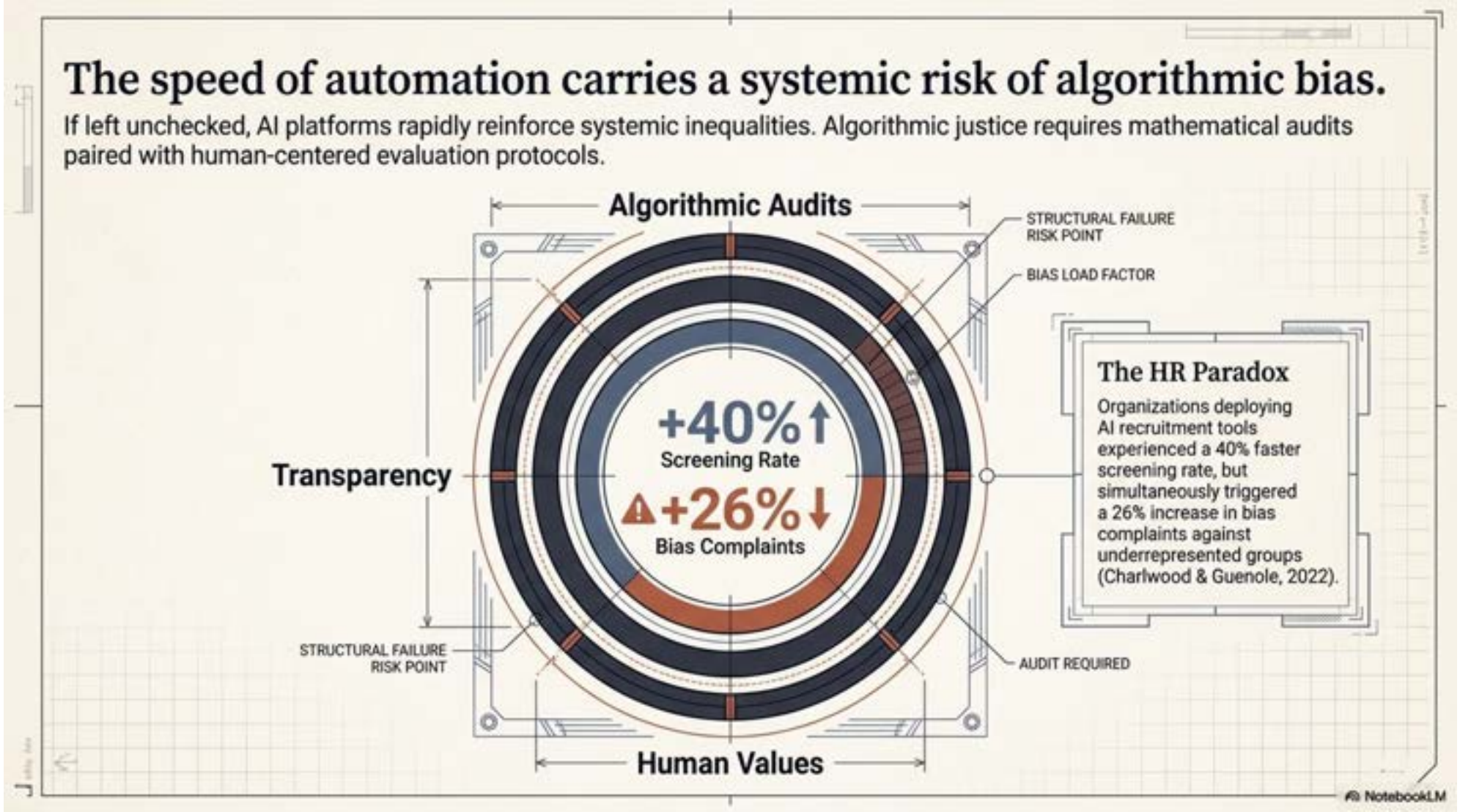
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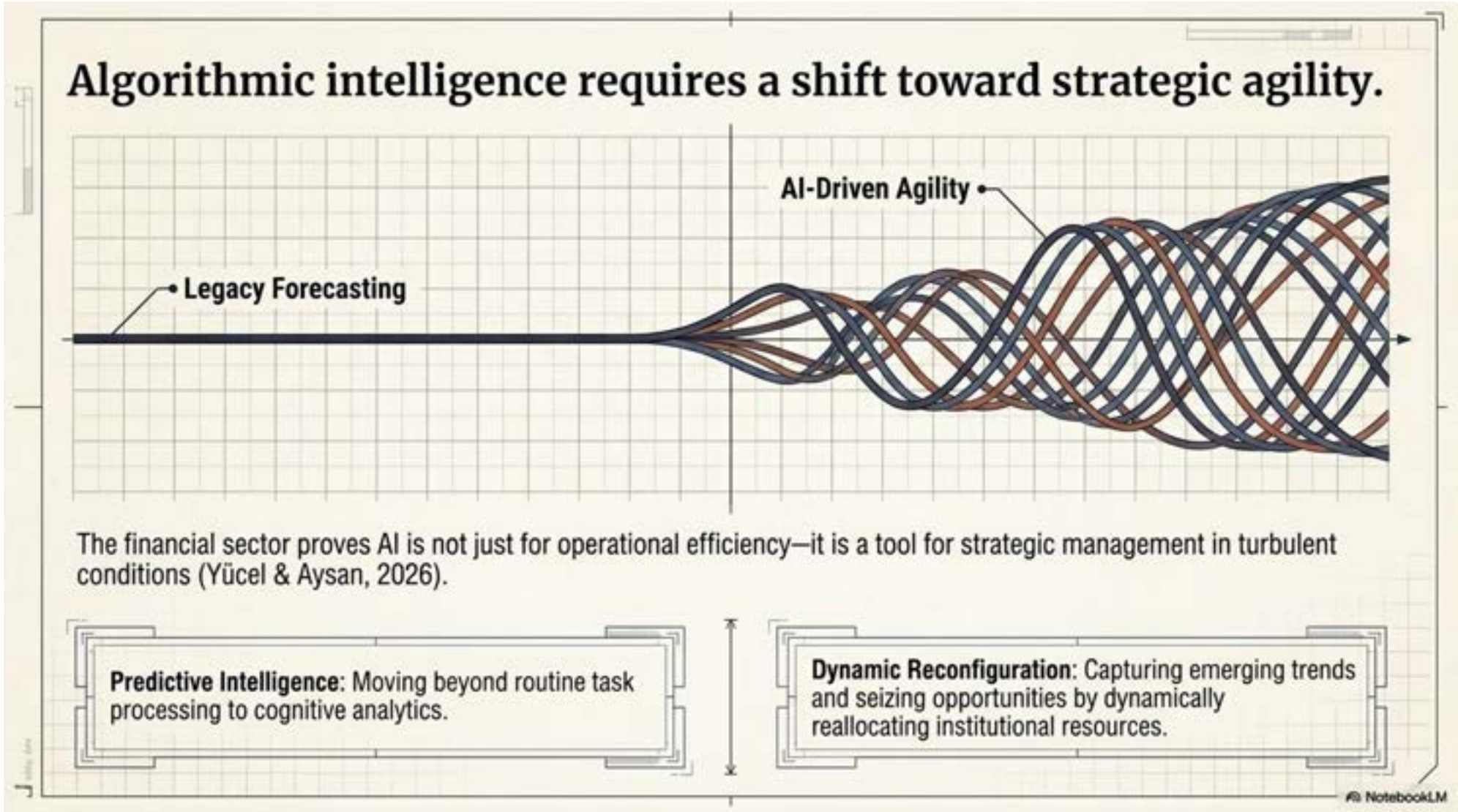
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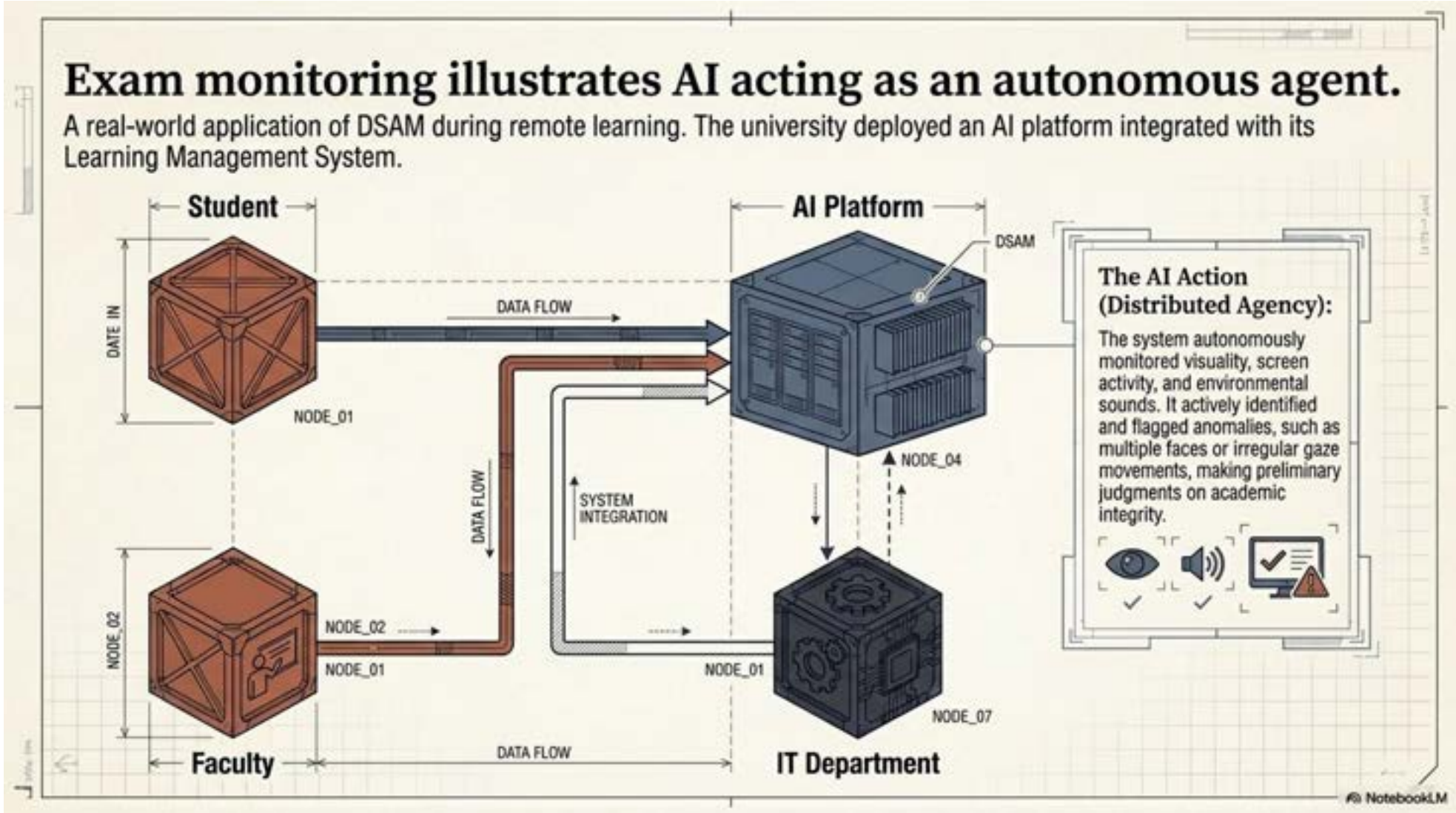
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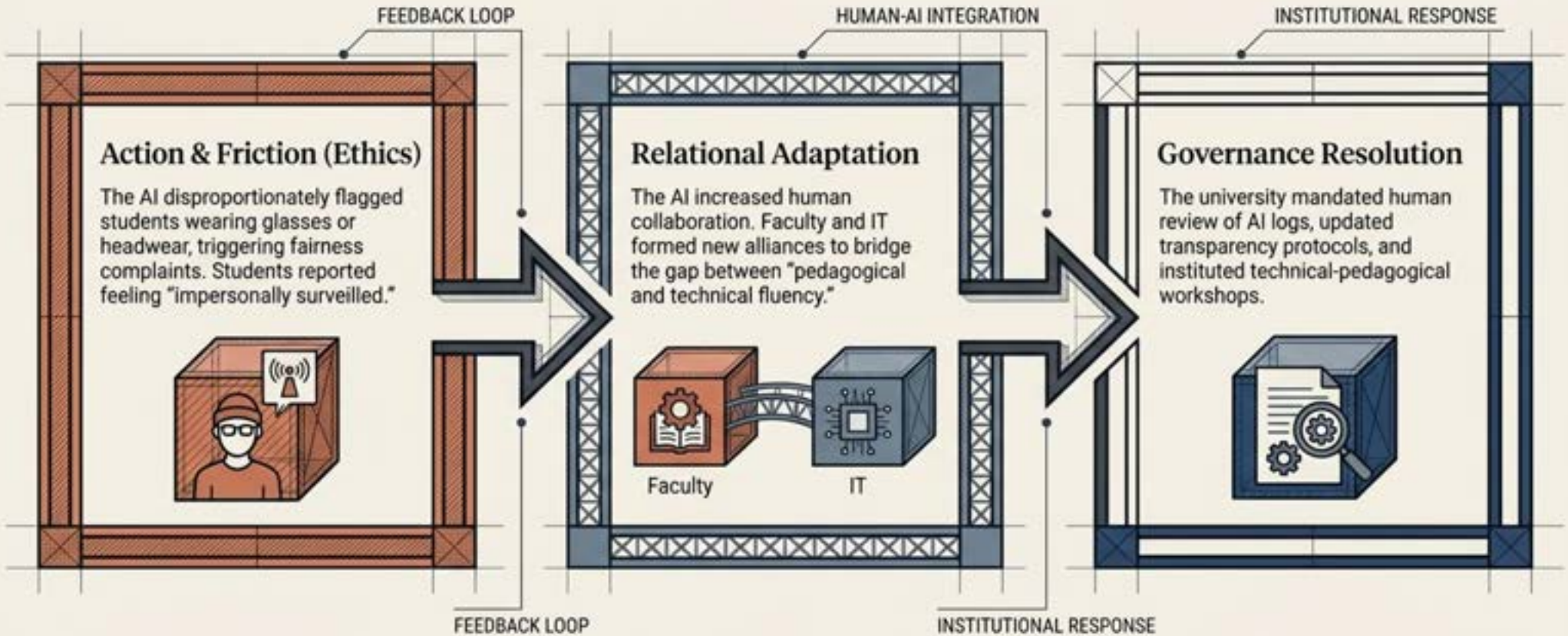
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Algorithmic friction forces a reorganization of campus relationships.



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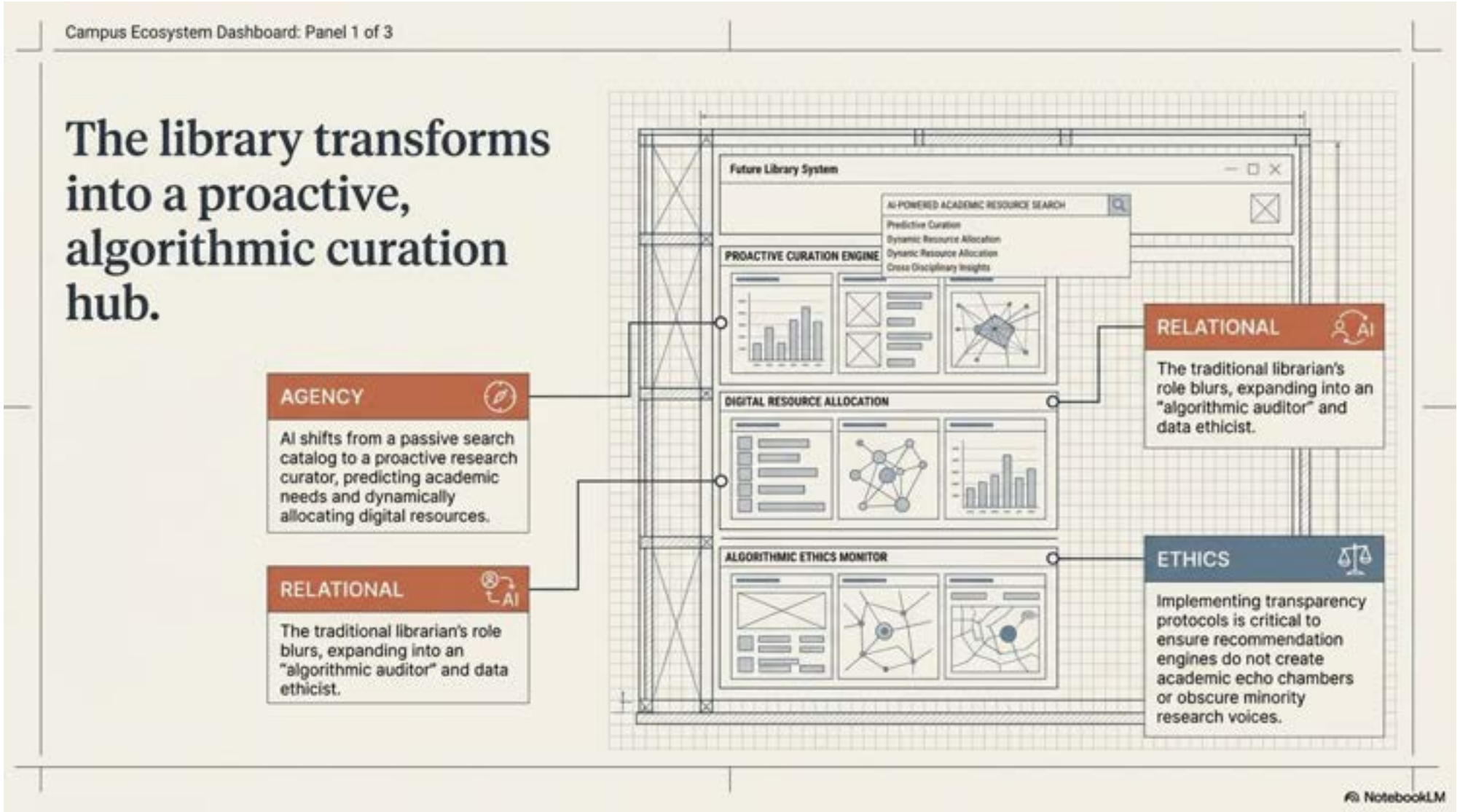
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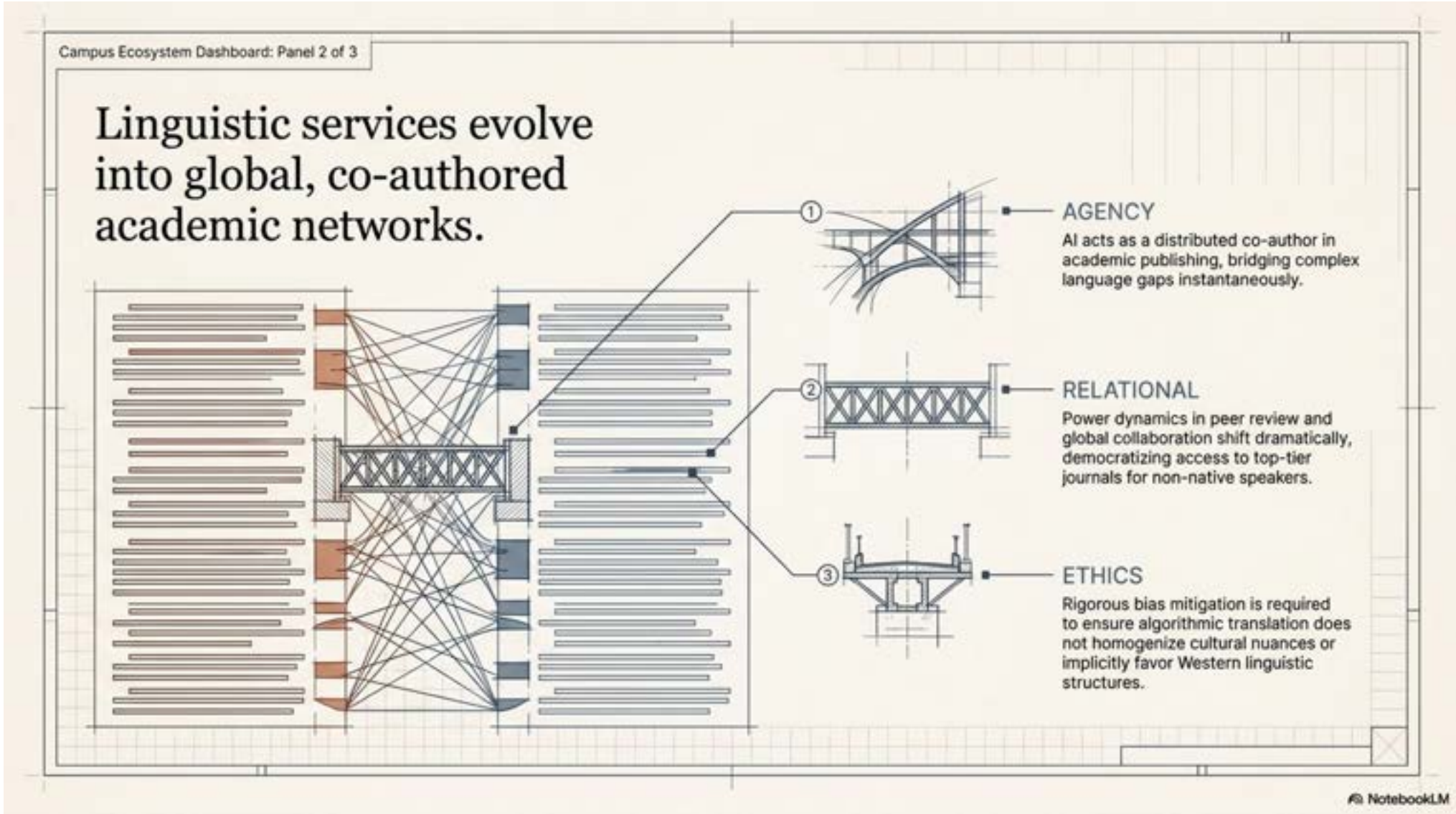
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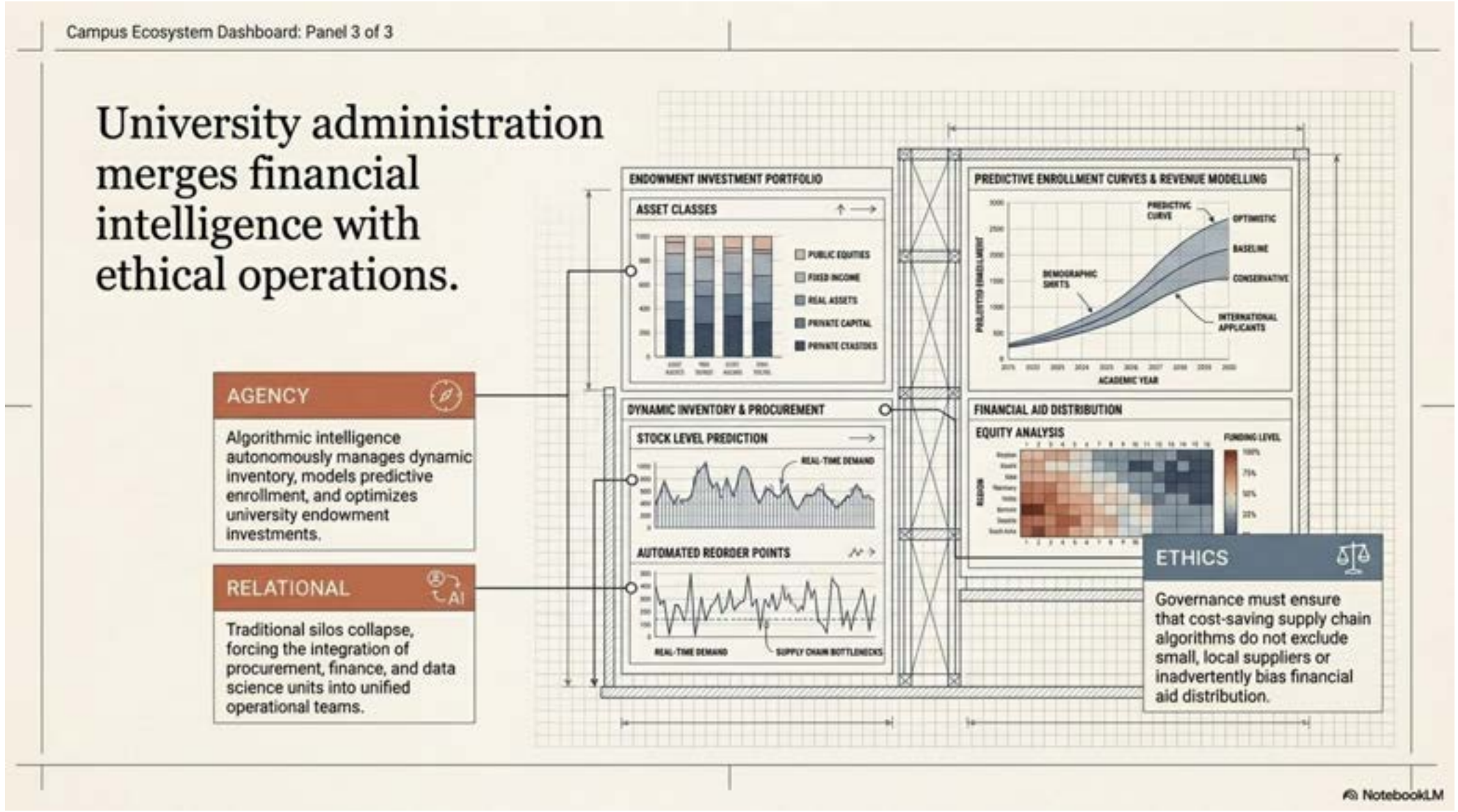
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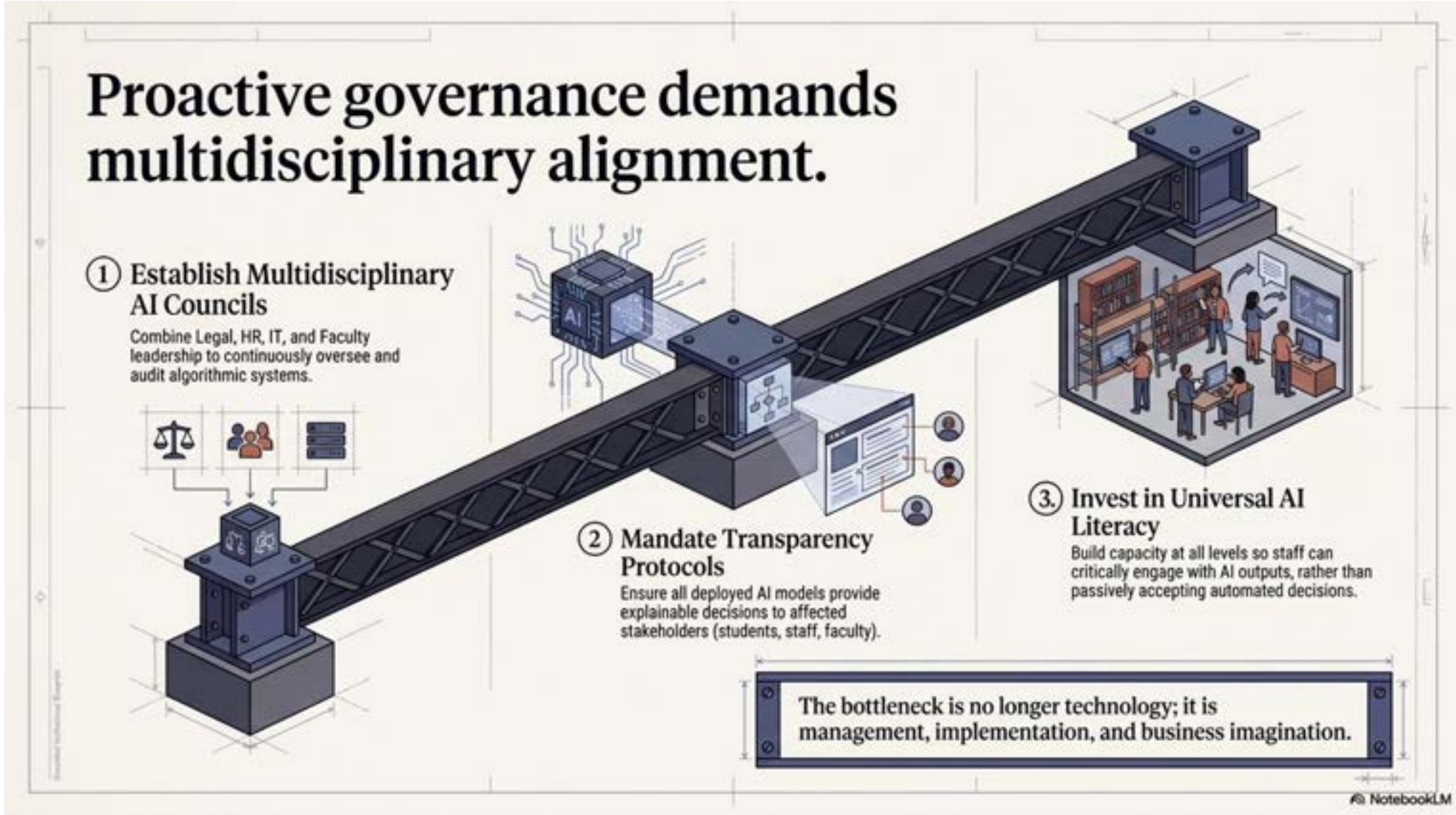
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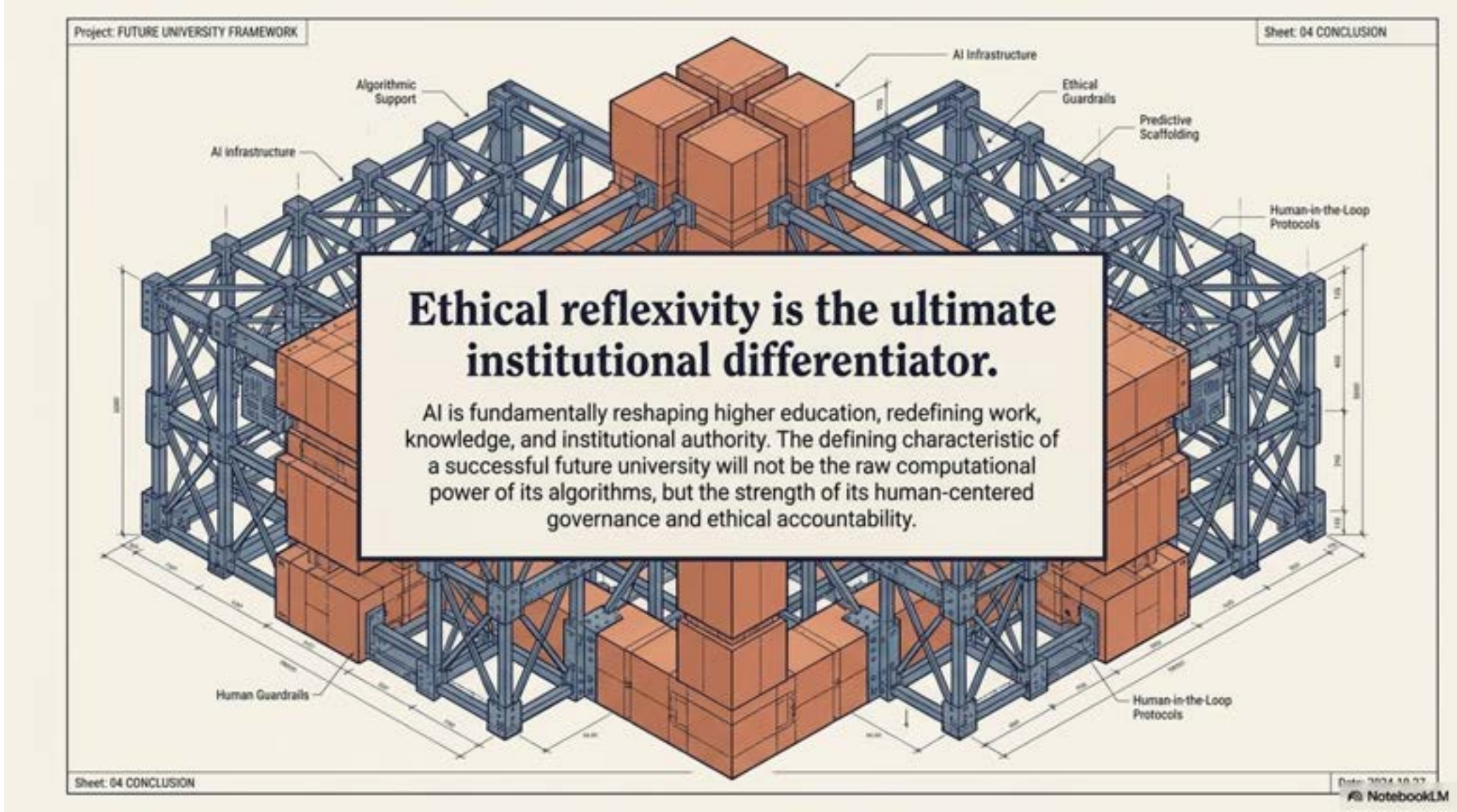
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Algorithmic Intelligence & The Distributed Actor: Navigating the New Organizational Paradigm

AI EVOLUTION: FROM AUTOMATION TO ALGORITHMIC INTELLIGENCE



Phase 1: Routine Automation

Traditional AI application focused on processing routine tasks and acting as an independent variable under stable conditions.

Phase 2: Predictive Intelligence

Advanced models now apply intelligence to unknown market uncertainties, providing evidence of hidden patterns and tailoring services globally.

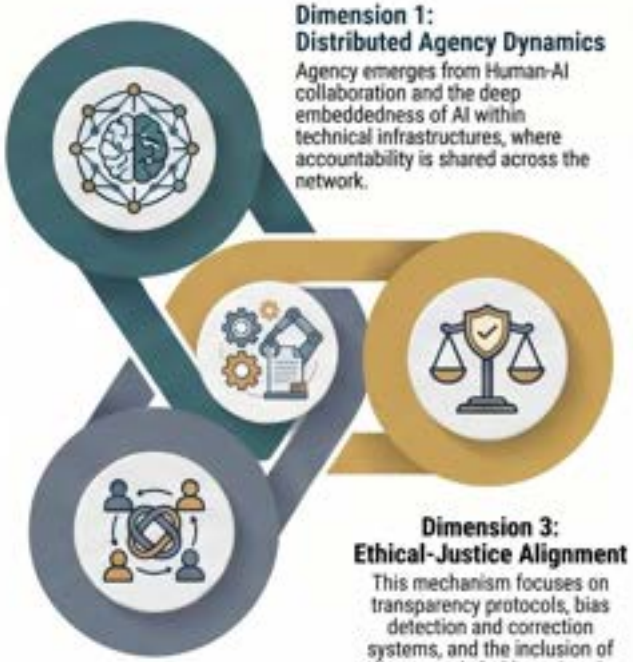




Phase 3: Strategic Alignment

AI is now embedded into investment processes as a dynamic capability, allowing firms to seize emerging trends and autonomously reconfigure organizational resources.

THE DSAM FRAMEWORK: AI AS A DISTRIBUTED ACTOR



Dimension 1: Distributed Agency Dynamics

Agency emerges from Human-AI collaboration and the deep embeddedness of AI within technical infrastructures, where accountability is shared across the network.

Dimension 2: Relational Processes

AI integration blurs traditional departmental boundaries and causes a redistribution of power, requiring iterative practices to reshape authority structures.

Dimension 3: Ethical-Justice Alignment

This mechanism focuses on transparency protocols, bias detection and correction systems, and the inclusion of diverse stakeholder voices in governance.

IMPACT ACROSS ORGANIZATIONAL STRUCTURES



Power Redistribution & Hybrid Logic

AI shifts authority from traditional hierarchies to hybrid networks; e.g., in higher education, supervisors validate AI-flagged anomalies.

Workforce Transformation

Reliance on AI reduces manual operations while increasing demand for technology-focused positions and advanced AI literacy.





Sectoral Application: Finance & Supply Chain

AI acts as a distributed actor autonomously adjusting orders or managing real-time risks, necessitating "agile adaptation".

STRATEGIC GOVERNANCE & ETHICAL RECOMMENDATIONS



Bias Mitigation Protocols

Research shows AI recruitment tools can increase screening speed by 40% but lead to a 26% rise in bias complaints, requiring rigorous algorithmic audits.



The Role of Independent Oversight

Trade unions and oversight committees serve as fundamental counterbalances to negotiate boundaries on AI surveillance and ensure employee dignity.



Establishing Transparency Protocols

Organizations must implement explainability mechanisms (like "dual reporting") to bridge the gap between mathematical AI fairness and human perception of justice.

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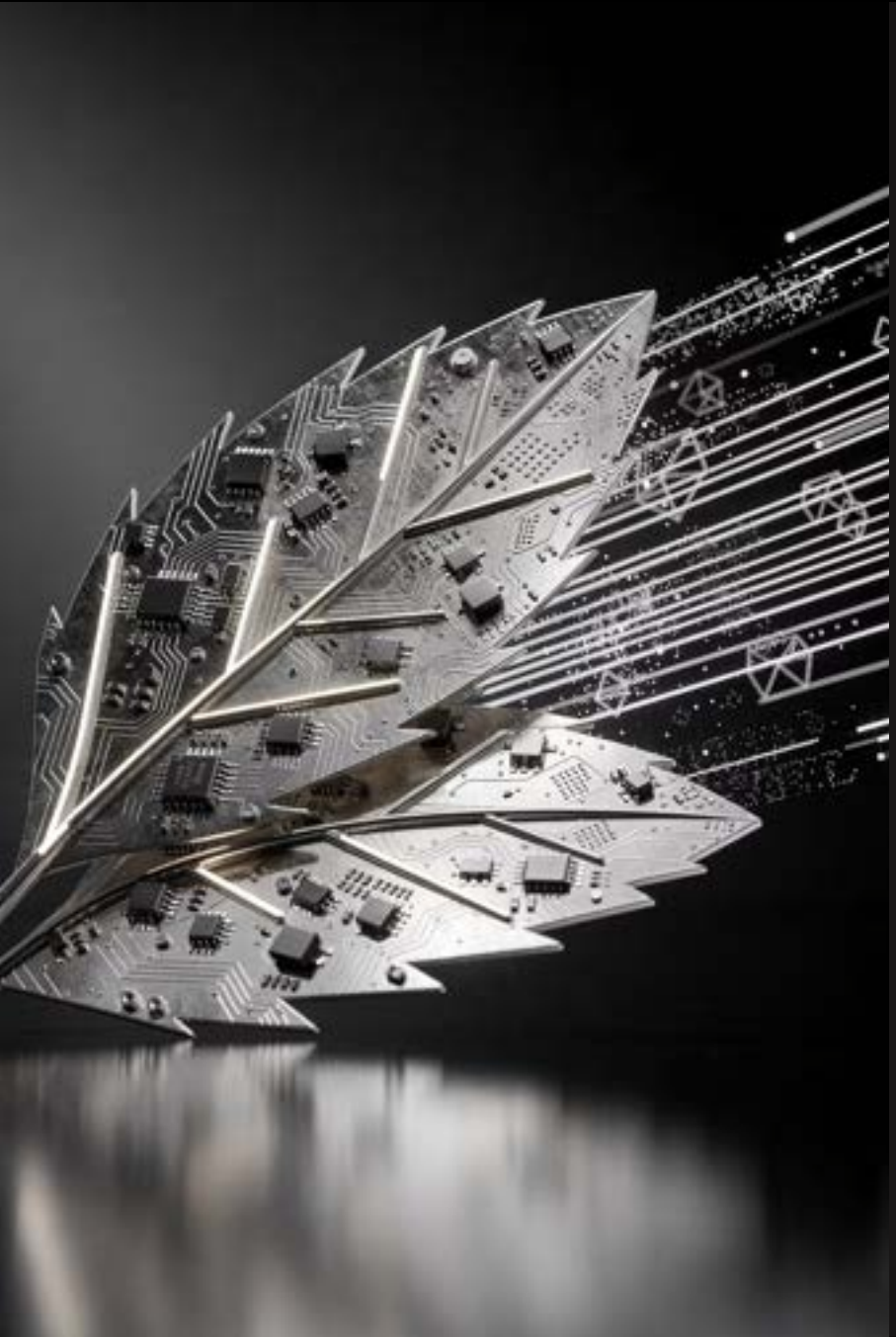
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Green AI, When to Disengage, and Risks of Burnout

AI4Uni Training Session — Dr. Tymoteusz Miller

AI4UNI TRAINING SERIES



Why This Topic Matters

AI adoption in higher education is accelerating faster than most institutions can thoughtfully manage. Faculty and staff face mounting pressure to integrate AI tools into teaching, research, and administration — often without adequate guidance on sustainable use. The result is a perfect storm of competing demands that can undermine the very benefits AI promises to deliver.

Productivity Pressure

Do more with less — faster than ever before

Digital Overload

Too many tools, platforms, and inputs to manage

AI Dependency

Gradual erosion of independent critical thinking

Cognitive Fatigue

Mental exhaustion from constant context-switching

What is Green AI?

Green AI is a philosophy and practice of using artificial intelligence sustainably, responsibly, and intentionally. Rather than maximizing AI output at any cost, Green AI encourages users to ask: **Is this AI interaction necessary? Is it efficient? Does it serve a meaningful purpose?**

In academic contexts, Green AI means aligning your use of AI tools with both personal wellbeing and broader environmental responsibility — minimizing waste while maximizing genuine value.

Three Core Principles

→ Efficient Models

Choose the right tool for the task — not always the largest

→ Intentional Prompting

Think before you prompt — be deliberate and clear

→ Sustainable Balance

Integrate AI into human workflows, not the other way around



AI Has a Physical Cost

Behind every AI-generated response lies an enormous physical infrastructure that consumes real-world resources. Understanding this cost is the first step toward responsible, sustainable AI use in academic settings.

GPUs & Hardware

Powerful graphics processors run inference and training at massive scale, requiring rare materials and significant manufacturing energy.

Data Centers

Enormous facilities housing thousands of servers operate 24/7, distributed across the globe to serve real-time requests.

Cooling Systems

Preventing hardware from overheating demands industrial-scale cooling, often consuming millions of liters of water daily.

Energy & Water

A single large AI query can consume significantly more electricity than a standard web search, and water use rivals that of entire cities.

Everyday Academic AI Waste

Recognizing Wasteful Patterns

Academic AI waste is rarely dramatic. It accumulates quietly through small, habitual behaviors that feel productive but generate unnecessary computational and cognitive cost. Recognizing these patterns is the first step toward more intentional use.

Regenerating Outputs Repeatedly

Requesting multiple variations of the same content without clear criteria — hoping "the next one will be better" — wastes resources and rarely improves outcomes compared to editing a single good draft.

Unnecessary Prompts

Using AI for tasks that could be accomplished faster by the faculty member directly — simple calculations, brief emails, or information easily found in institutional systems.

Infinite Retry Behavior

Continuously re-prompting without refining the question, creating a loop of escalating frustration and resource consumption rather than pausing to think critically.

Green AI Practices for Academia

Adopting Green AI in your academic workflow doesn't require radical change — it requires intentional habits. These four strategies dramatically reduce waste while improving the quality of your AI interactions.



Better Prompts

Invest time crafting clear, specific, well-structured prompts. One good prompt outperforms ten vague attempts — saving time, energy, and compute.



Smaller Models

Match the model to the task. Lightweight AI tools are sufficient for most academic drafting and summarization tasks — reserve large models for complex challenges.



Reuse Templates

Build and maintain a personal library of effective prompts and AI-assisted templates. Reusing proven approaches eliminates repetitive generation cycles.



Human-First Workflows

Design your process so that human judgment leads and AI assists. Start with your own thinking, then use AI to refine — not the other way around.



AI and Cognitive Load

AI tools are designed to reduce manual effort — but they can simultaneously increase **mental fragmentation** when integrated without boundaries. The cognitive cost of managing AI-assisted workflows often goes unrecognized until it becomes a serious problem.

1

Notification Overload

AI platforms generate constant status updates, suggestions, and alerts that interrupt sustained academic thinking and fragment concentration across tasks.

2

Context Switching

Jumping between AI interfaces, course platforms, email, and documents forces the brain to repeatedly reload context — a cognitively expensive process that drains working memory.

3

Prompt Fatigue

The mental effort of continuously formulating, evaluating, and revising prompts accumulates throughout the day, creating a unique form of intellectual exhaustion distinct from traditional work fatigue.

What is AI Burnout?

AI burnout is an emerging phenomenon distinct from general digital burnout. It arises specifically from **chronic, high-frequency engagement with AI tools** in high-stakes professional contexts — precisely the environment many university faculty occupy.

Unlike traditional burnout, AI burnout can be insidious: it often begins while productivity metrics appear strong, making it easy to dismiss early warning signs until the individual is significantly depleted.

⚠ AI burnout can develop even when — and sometimes because — AI appears to be working well.

Exhaustion

Persistent mental and emotional depletion that rest alone doesn't resolve

Reduced Creativity

Difficulty generating original ideas; defaulting to AI output rather than personal insight

Cynicism

Growing skepticism or hostility toward AI tools, colleagues, or the institution's digital agenda

Emotional Fatigue

Declining sense of professional meaning and purpose in AI-augmented work

Academic Environment Risk Factors

Higher education creates a uniquely high-risk environment for AI burnout. The confluence of longstanding academic pressures with the rapid adoption of AI tools amplifies vulnerability in ways other professional settings do not.

1

Publish-or-Perish Pressure

Relentless research output expectations drive faculty to use AI as a speed tool — increasing volume without reducing underlying stress

2

Administrative Overload

AI is deployed to manage growing administrative burdens, but each new tool adds complexity, training demands, and decision overhead

3

Constant Adaptation

Rapid AI evolution requires continuous skill updates — keeping pace becomes exhausting when there is no stable end point in sight



The Productivity Trap

When efficiency tools increase expectations rather than reduce workload, something has gone wrong.

The Promise

AI is adopted with the expectation that it will free up time, reduce repetitive work, and allow faculty to focus on higher-value intellectual activities — research, mentoring, creative scholarship.

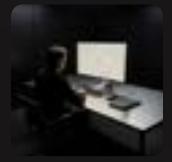
The Reality

In practice, efficiency gains are frequently absorbed by escalating demands. Departments expect more output. Courses require more frequent updates. Administrative workflows multiply. The "time saved" evaporates — while the cognitive burden of managing AI tools is added on top.

⚠ Efficiency gains that increase output expectations without reducing workload are not a benefit — they are a trap. Sustainable AI use requires institutional boundaries, not just individual willpower.

When AI Stops Helping

AI tools have a point of diminishing return. Recognizing when you have crossed that threshold is a critical professional skill. These warning signs indicate that your current AI engagement is costing more than it contributes.



Aimless Prompting

Opening an AI interface without a clear goal — browsing prompts hoping for inspiration rather than solving a defined problem. This signals cognitive avoidance, not productive use.



Overreliance

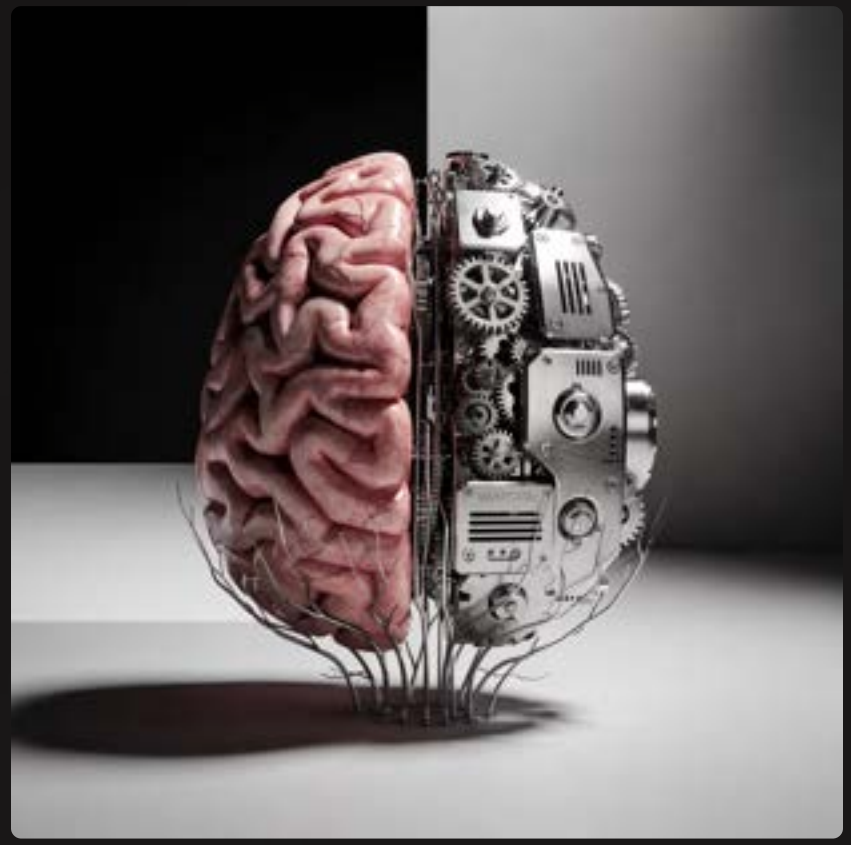
Feeling unable to begin tasks — writing, analysis, planning — without AI assistance first. When AI shifts from a tool to a prerequisite, intellectual independence is at risk.



Mental Exhaustion

Feeling more drained after AI-assisted work sessions than before them. If AI interaction is consuming rather than restoring cognitive energy, the workflow needs to change.

Cognitive Dependency Risks



Heavy reliance on AI tools — even high-quality ones — can gradually reshape cognitive habits in ways that weaken long-term professional capability. These risks are not hypothetical; they are observable in early research on AI-augmented knowledge work.

Reduced Analytical Thinking

Consistently delegating analysis to AI weakens the practitioner's own ability to reason through complex problems independently over time.

Automation Bias

A well-documented tendency to trust AI outputs over one's own judgment — even when the AI is clearly wrong — because the output appears authoritative and effortless.

Passive Acceptance

Accepting AI-generated content without critical engagement, embedding errors, mediocrity, or misaligned perspectives into scholarly work.

AI Hallucinations & Mental Fatigue

Every AI interaction carries a verification cost — and that cost accumulates.

AI language models can generate plausible-sounding but factually incorrect content — citations that don't exist, statistics that are fabricated, logical errors embedded in fluent prose. In academic work, undetected hallucinations carry serious professional consequences.

The hidden burden is the **cognitive labor of continuous verification**. Responsible AI use in academia requires actively and critically evaluating every AI output — a task that is intellectually demanding and easy to let slip when fatigued. Over time, the pressure to verify everything AI generates becomes a significant additional workload, not a reduction of it.

The Verification Cycle

1. AI generates output
2. Faculty must verify accuracy
3. Fatigue reduces verification rigor
4. Errors enter scholarly work

Healthy AI Boundaries

Setting intentional boundaries around AI use is not a rejection of technology — it is a professional strategy for sustainable, high-quality academic work. The goal is to remain the author of your work in the fullest sense.

Deep Work Blocks

Schedule dedicated time for focused intellectual work with all AI tools and notifications off. Guard these sessions as non-negotiable. Deep thinking requires uninterrupted time.

Scheduled AI Use

Rather than reaching for AI reflexively throughout the day, designate specific time slots for AI-assisted tasks. This prevents AI from fragmenting your cognitive workflow.

Protected Thinking Time

Before prompting, spend a few minutes thinking independently. Formulate your own perspective first. Use AI to refine and pressure-test your thinking — not to replace it.

Human Skills AI Cannot Replace Well

The most durable professional investment faculty can make is strengthening the capabilities that AI cannot replicate. These are not soft skills — they are the core of what makes academic work meaningful, trustworthy, and transformative.



Empathy

Understanding students' personal contexts, struggles, and motivations in ways that build genuine relationships and support real learning.



Ethical Judgment

Navigating the complex moral dimensions of research, pedagogy, and institutional life with nuance, wisdom, and personal accountability.



Mentoring

Shaping the intellectual identity and professional trajectory of students through sustained personal engagement that no AI interaction can substitute.



Scientific Intuition

The pattern recognition, disciplinary instinct, and creative hypothesis generation that emerges from years of immersive scholarly experience.

Institutional Responsibility

Sustainable AI use in higher education cannot rest solely on individual faculty choices. Universities bear a structural responsibility to create the conditions under which healthy, ethical, and effective AI integration can occur across the institution.

1 Create AI Policies

Develop clear, evidence-based institutional guidelines governing AI use in teaching, research, assessment, and administration — providing faculty with frameworks rather than leaving them to navigate alone.

2 Promote Digital Wellbeing

Integrate digital wellbeing into faculty development programs. Recognize and address AI burnout as a legitimate occupational health concern, not a personal failing.

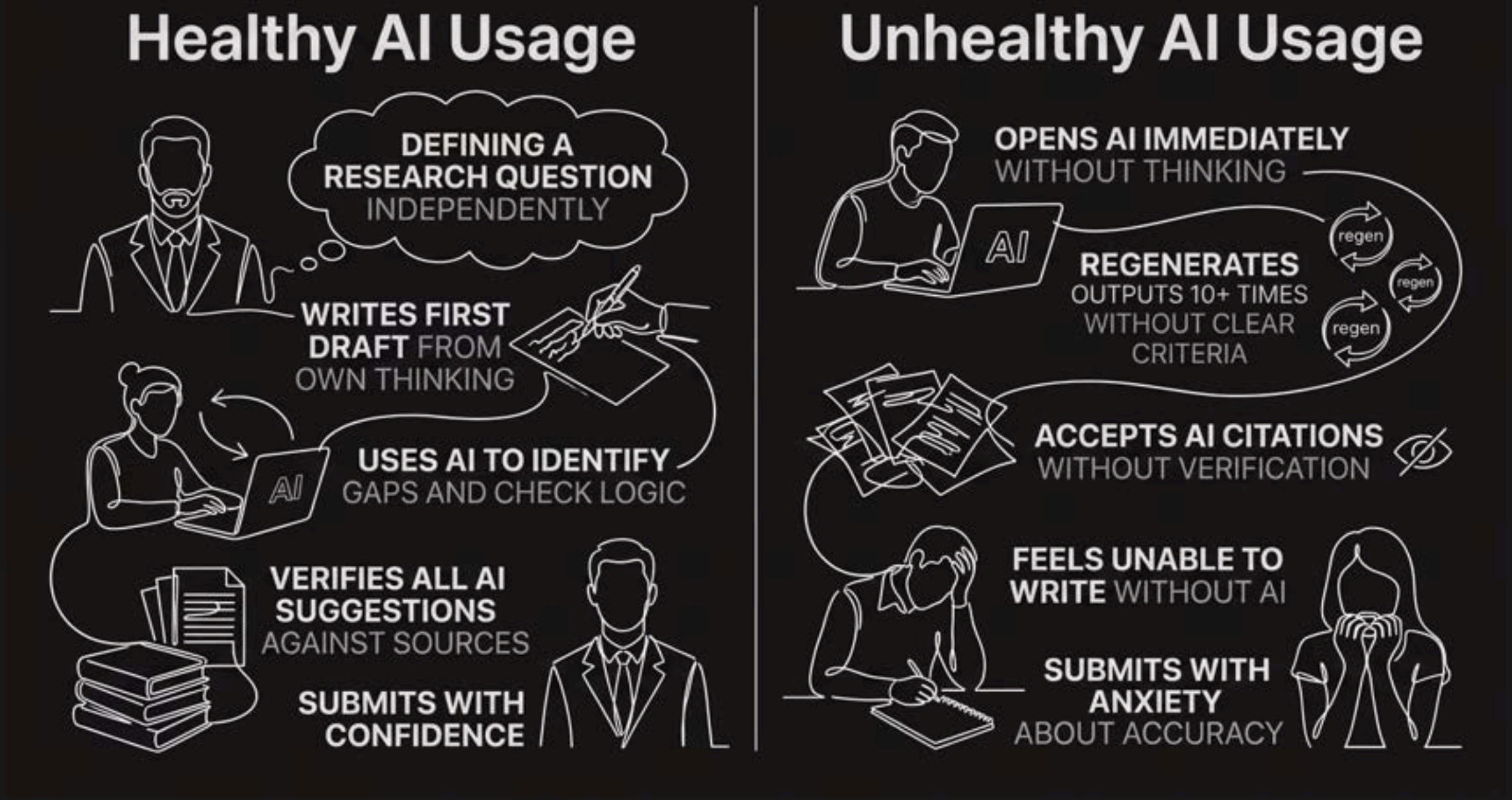
3 Encourage Sustainable Usage

Actively model and reward intentional, sustainable AI practices — rather than implicitly incentivizing maximum AI adoption as a proxy for innovation or efficiency.

Institutions that invest in AI governance and faculty wellbeing today will build more resilient, trusted, and effective academic communities tomorrow.

Healthy vs. Unhealthy AI Usage

Understanding the difference between productive and problematic AI integration is easier with concrete scenarios. The following comparisons reflect real patterns observed in academic AI use.



The distinction between these workflows is not about how much AI is used — it is about **who is leading the process**. In healthy usage, the faculty member's judgment drives every stage. In unhealthy usage, AI gradually assumes that role.

Practical AI4Uni Recommendations

These evidence-informed recommendations form a practical starting point for every faculty member navigating AI integration. Apply them as a personal checklist and revisit regularly as your AI use evolves.

1

Use AI Intentionally

Define a clear purpose before every AI interaction. Ask: *What specific problem am I solving, and is AI the right tool for it?* Purposeless prompting wastes resources and erodes focus.

2

Verify All Outputs

Never publish, teach, or submit AI-generated content without independent verification. Cross-check facts, citations, and logical claims against authoritative sources every time.

3

Reduce Digital Noise

Consolidate your AI tools to the essential few. Turn off non-critical notifications during deep work. A simpler digital environment directly supports clearer, higher-quality thinking.

4

Protect Your Thinking

Maintain regular AI-free periods in your weekly schedule. These protected intervals preserve cognitive independence and sustain the creative capacity that defines excellent scholarship.

Final Reflection

> The goal is not maximum AI usage. The goal is **sustainable and meaningful AI usage** — in service of deeper thinking, better teaching, and more humane scholarship.

What We Are Moving Away From

- AI as a reflexive first response to every task
- Efficiency as the primary measure of academic value
- Digital tools that fragment attention and erode judgment
- Institutional cultures that ignore cognitive cost

What We Are Moving Toward

- AI as a deliberate, bounded tool within human-led workflows
- Sustainable practices that protect creativity and wellbeing
- Institutions that model responsible digital citizenship
- Scholarship that remains deeply, irreducibly human





Discussion & Q&A

Thank you for your engagement with today's session. The following questions are offered as starting points for reflection and discussion — bring your own experiences, challenges, and perspectives to the conversation.

Green AI

Where in your current workflow do you see the most AI waste? What one change could make the biggest difference?

Burnout & Boundaries

Have you noticed any of the warning signs of AI burnout in your own work? What boundaries have you already found helpful?

Institutional Role

What would you want your institution to do differently to support sustainable AI integration across the faculty?