BRIDGING THE GAP

How to Prepare Students to Enter the AI Workforce

THESIS

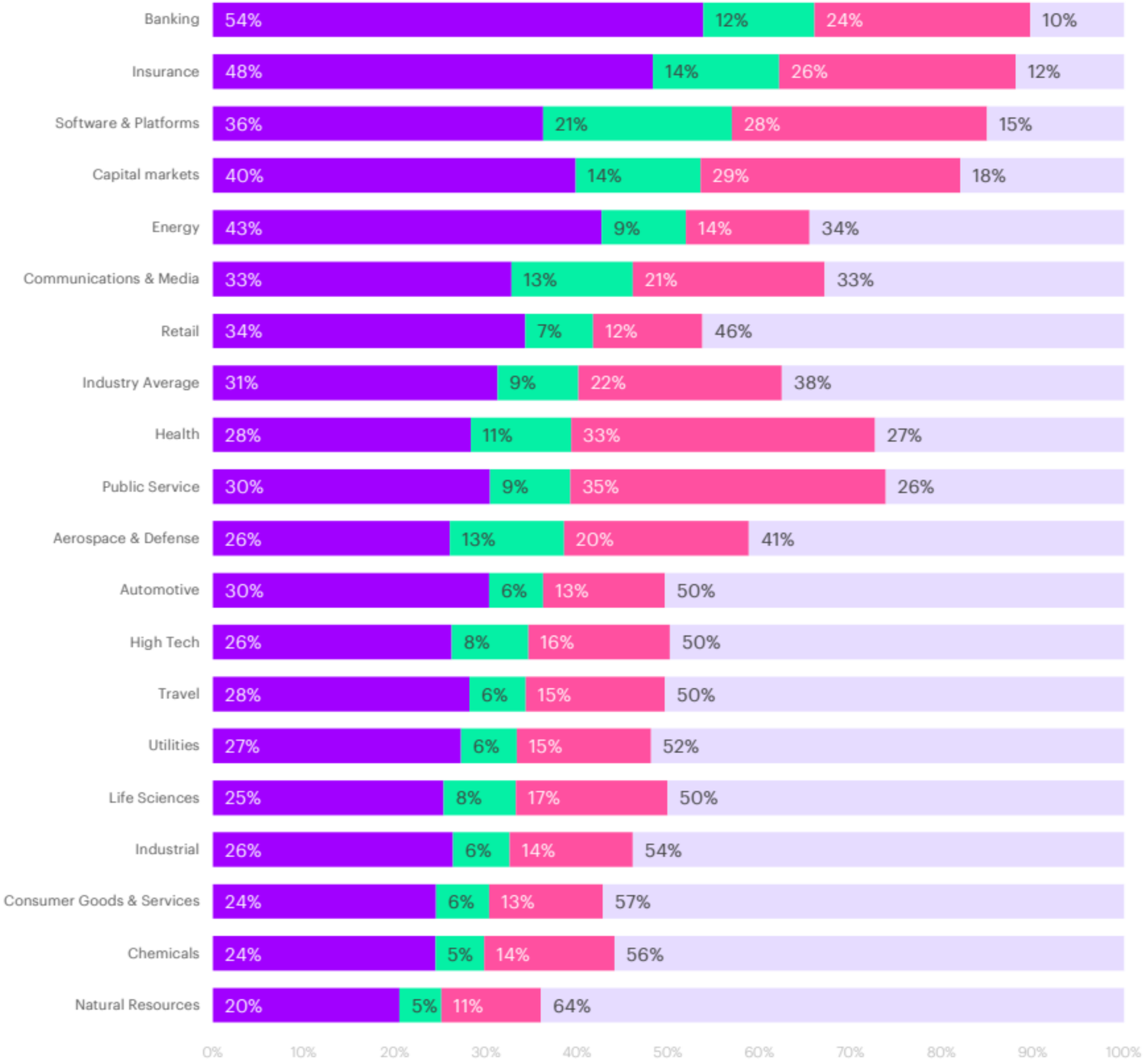
To prepare our students to thrive in an AI integrated world we must shift the technology narrative from a big tech to academic perspective. Prioritizing process over product while helping students develop AI literacy and human integration skills.

TECH + INFORMATION LITERACY = SUSTAINABLE TECH ADVANCEMENTS

The marriage of tech and information literacy is essential to sustainable innovation. They are two sides of the same coin, you cannot have one without the other.

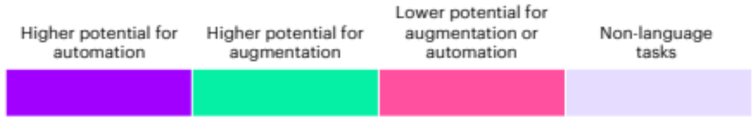
AGENDA

1. WHAT AI SKILLS DO COMPANIES THINK THEY WANT?
   vs. What They Actually Hire
2. HOW DO WE HELP STUDENTS BUILD THOSE SKILLS
   a. The Academic vs. Corporate Approach to Technology
   b. Shift the Narrative
3. THE SKILLS STUDENTS NEED
   a. AI Literacy
   b. Human Integration



Work time distribution by industry and potential AI impact

Based on their employment levels in the US in 2021



40% of working hours across industries can be impacted by Large Language Models (LLMs)

Why is this the case? Language tasks account for 62% of total worked time in the US. Of the overall share of language tasks, 65% have high potential to be automated or augmented by LLMs.

Source: Accenture Research based on analysis of Occupational Information Network (O*NET), US Dept. of Labor; US Bureau of Labor Statistics.

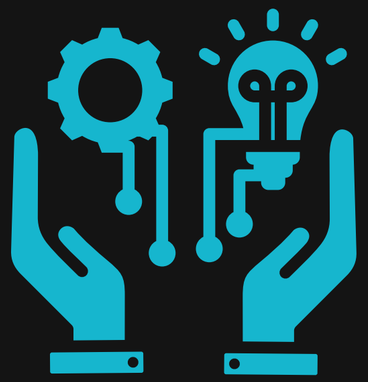
Notes: We manually identified 200 tasks related to language (out of 332 included in BLS), which were linked to industries using their share in each occupation and the occupations' employment level in each industry. Tasks with higher potential for automation can be transformed by LLMs with reduced involvement from a human worker. Tasks with higher potential for augmentation are those in which LLMs would need more involvement from human workers.

WORLD ECONOMIC FORUM REPORT, 2024

An estimated 69 million new roles are expected to be created and 83 million displaced. Communities already facing systemic inequalities are the ones most at risk of being left behind.

1. WHAT DO COMPANIES THINK THEY WANT

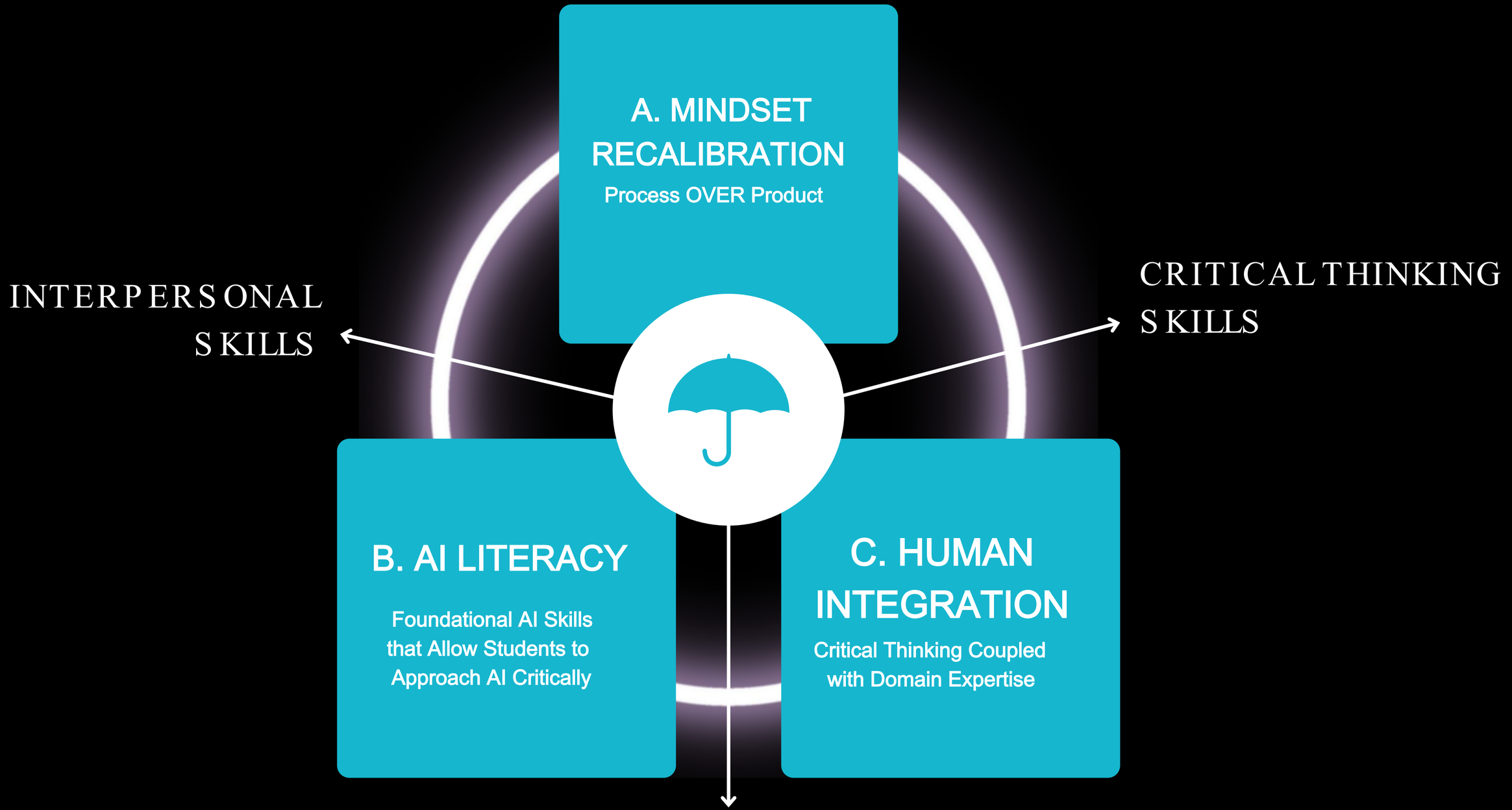
"The current hype cycle is around AI capability, digital skills, and the need for organizational change management, but our current finding reveals the importance of specific human capabilities to the successful use of AI."
- *Harvard Business Review*



WHAT COMPANIES ACTUALLY HIRE = UMBRELLA SKILLS

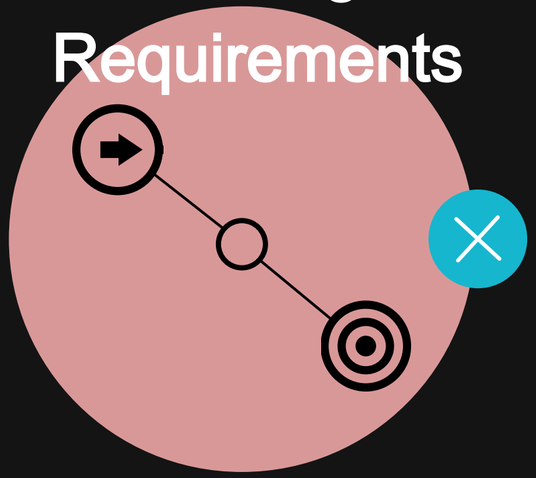
- **INTERPERSONAL SKILLS**
  Effective Communication / Collaboration / Emotional Intelligence
  Cultural Awareness / Professionalism / Active Listening
- **CRITICAL THINKING SKILLS**
  Analysis / Informed Decision Making / Inference / Evaluation
  Identify Bias / Adaptability
- **DOMAIN EXPERTISE**
  Subject Specific Knowledge and Abilities / Deep Understanding

NECESSARY AI SKILLS SUMMARY

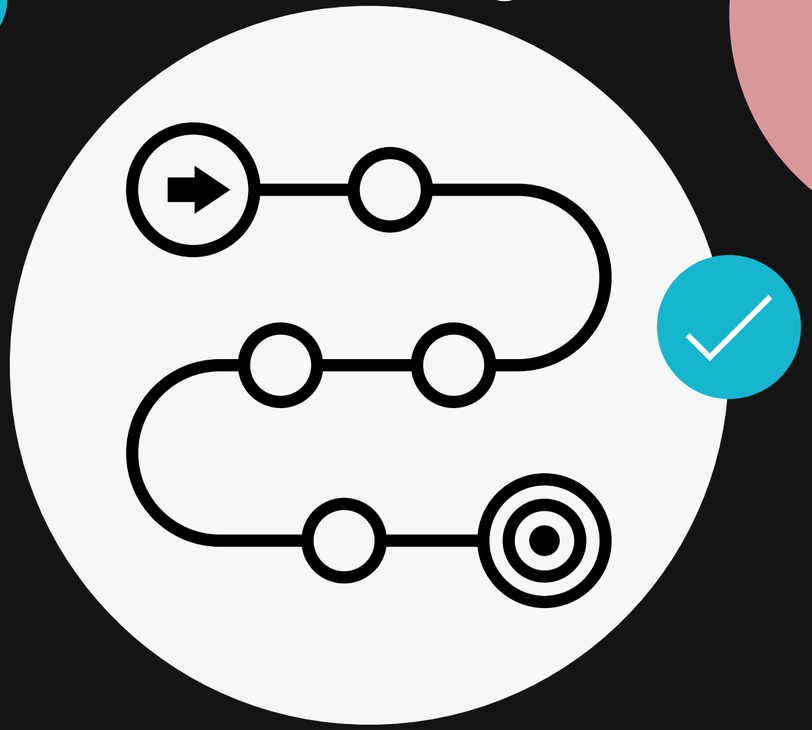


A. MINDSET RECALIBRATION = PROCESS OVER PRODUCT

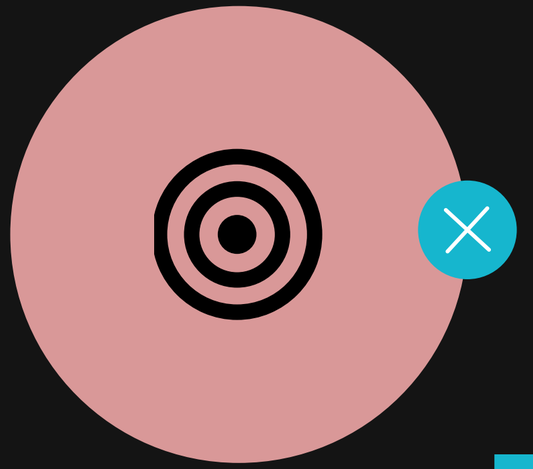
Meeting Requirements



Learning



Cheating



The goal of educators is to engage students in the learning process.

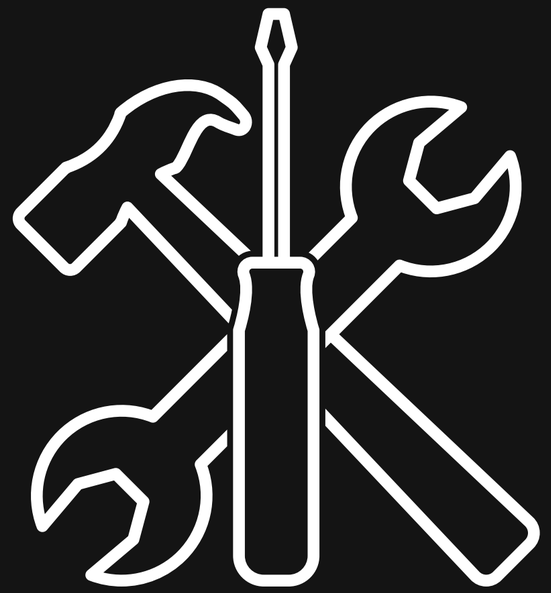
B. AI LITERACY TOOL KIT

1. MACHINE LEARNING BASICS

How do LLM work and why does that matter?

2. ETHICS

What are the ethical implications we MUST consider when using AI?



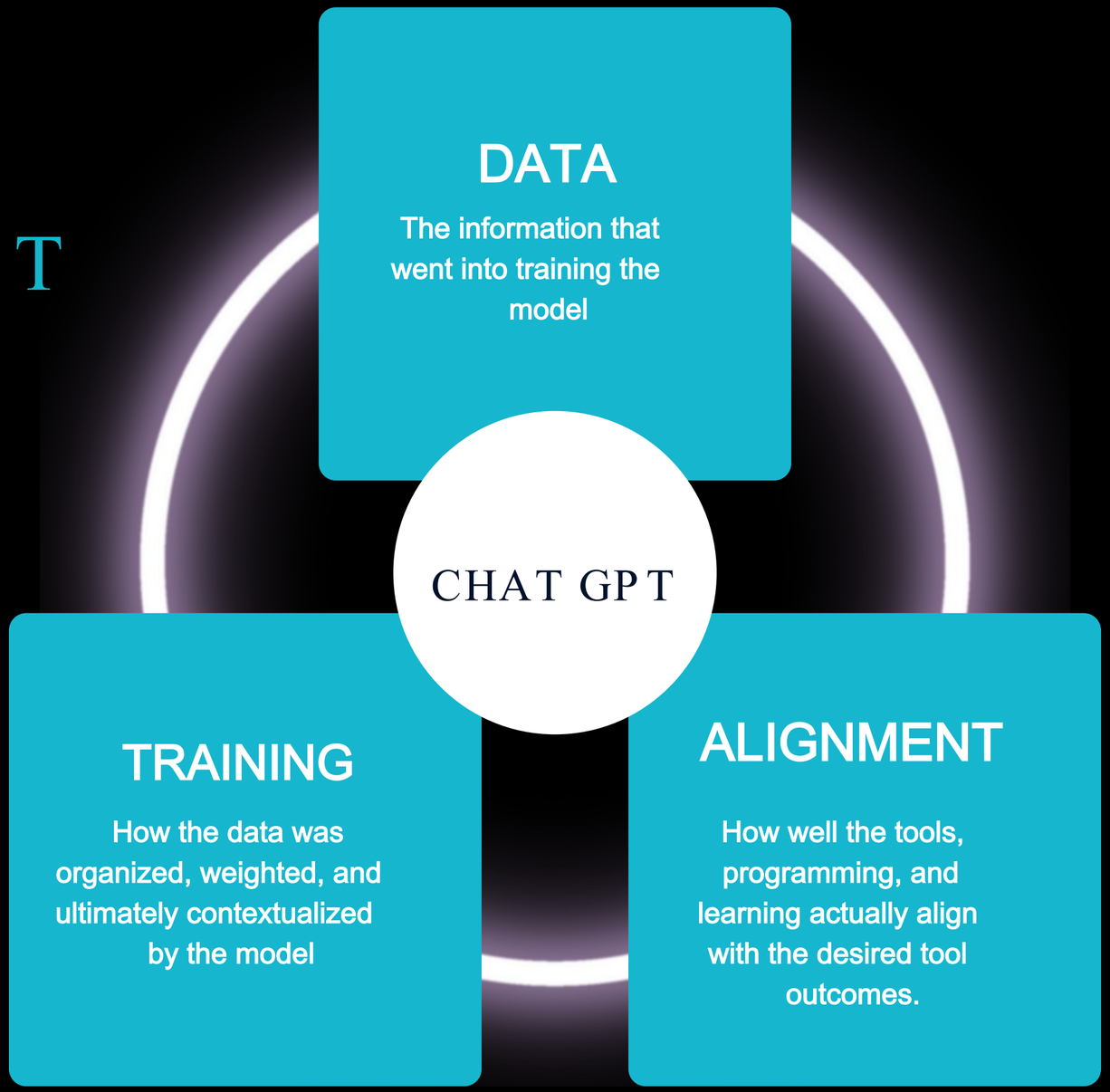
3. PROMPT ENGINEERING

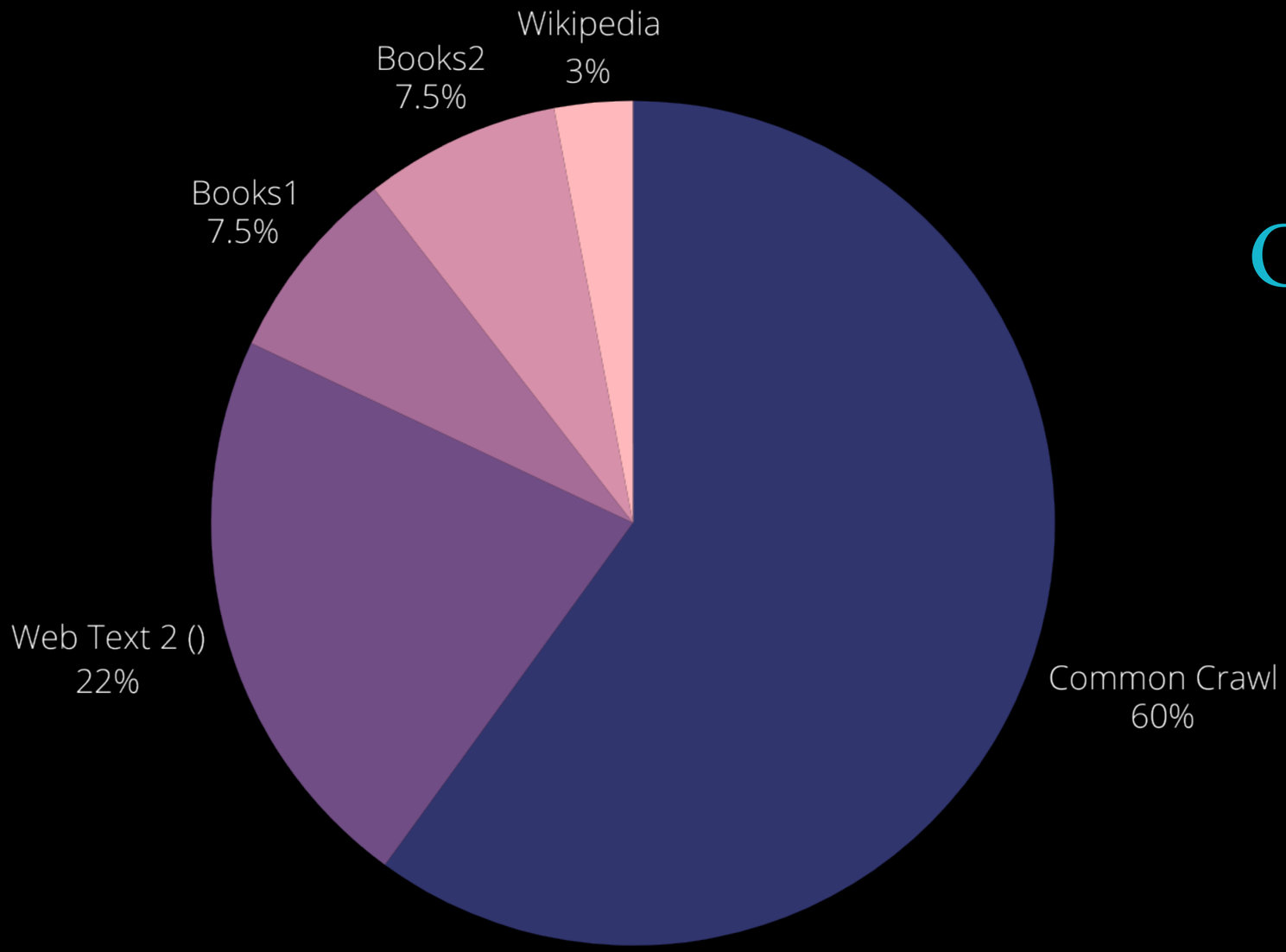
How can we get LLM to produce an output that is actually usable?

4. TOOL EVALUATION/ RECOMMENDATION

Introduce relevant, improved tools to students that encourage critical thinking.

1. MACHINE LEARNING BASICS = GPT TRINITY





Data Sets Used to Train Chat GPT

GPT-3 DATA

- ~570 GB total data

GPT-4 DATA

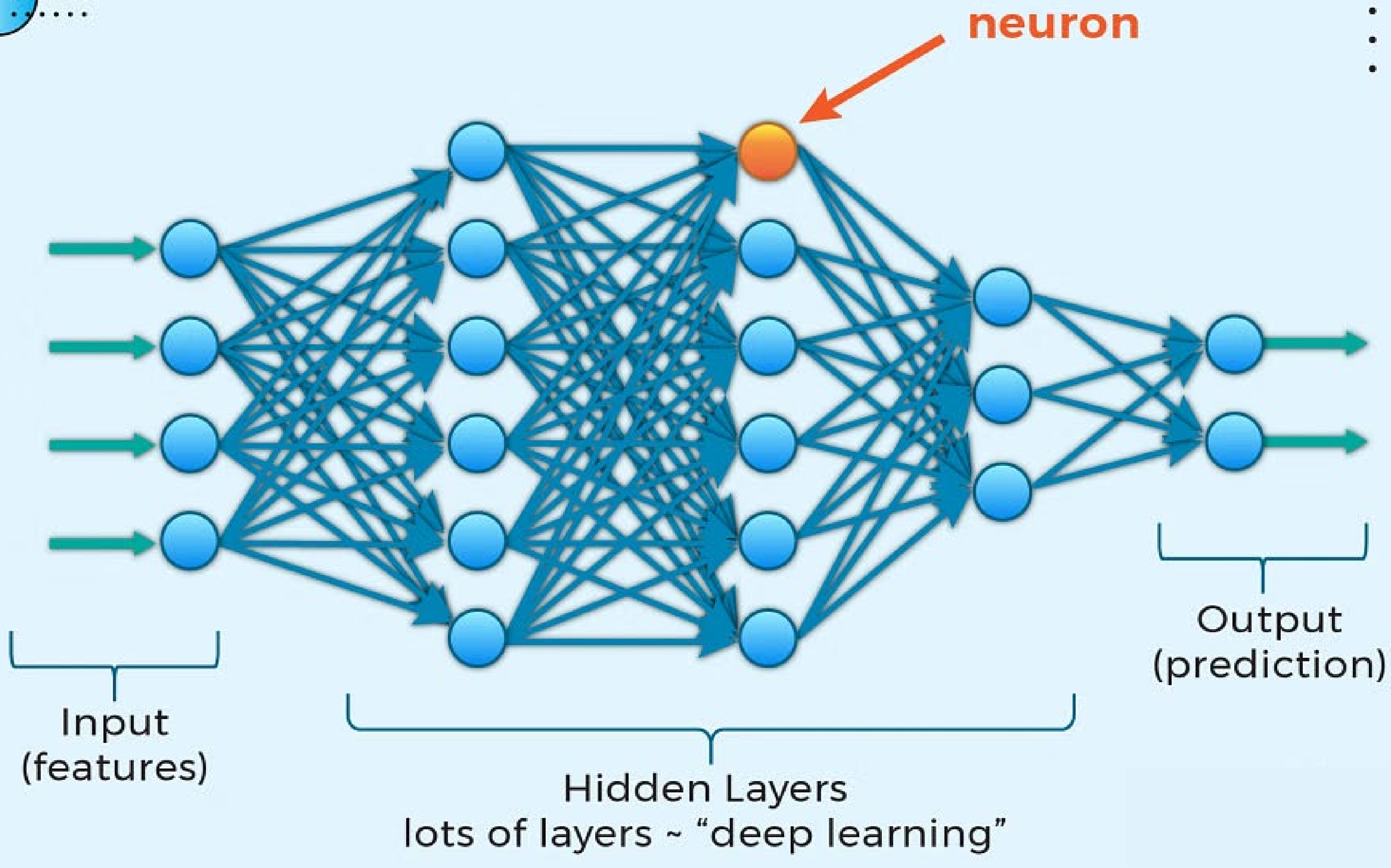
“Given both the competitive landscape and the safety implications of large -scale models like GPT -4, this report contains no further details about the architecture (including model size), hardware, training compute, dataset construction, training method, or similar.”

-GPT 4 Technical Report , Open AI

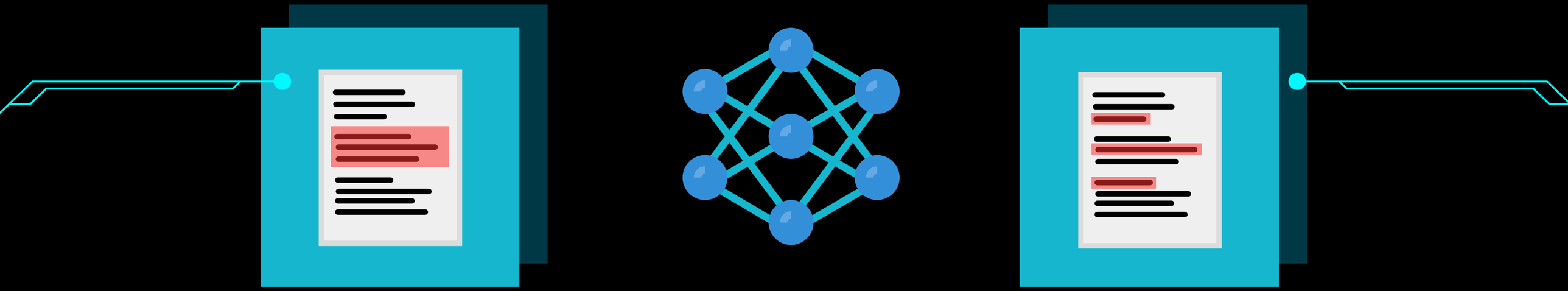
ChatGPT is a transformer -based neural network

TRAINING

- Through a process called supervised learning , human programmers tell the model how to weight pieces of information, the more information it intakes the more it can practice the optimalization of its parameters and the faster it can produce a "correct" output.
- Parameters = Synapses

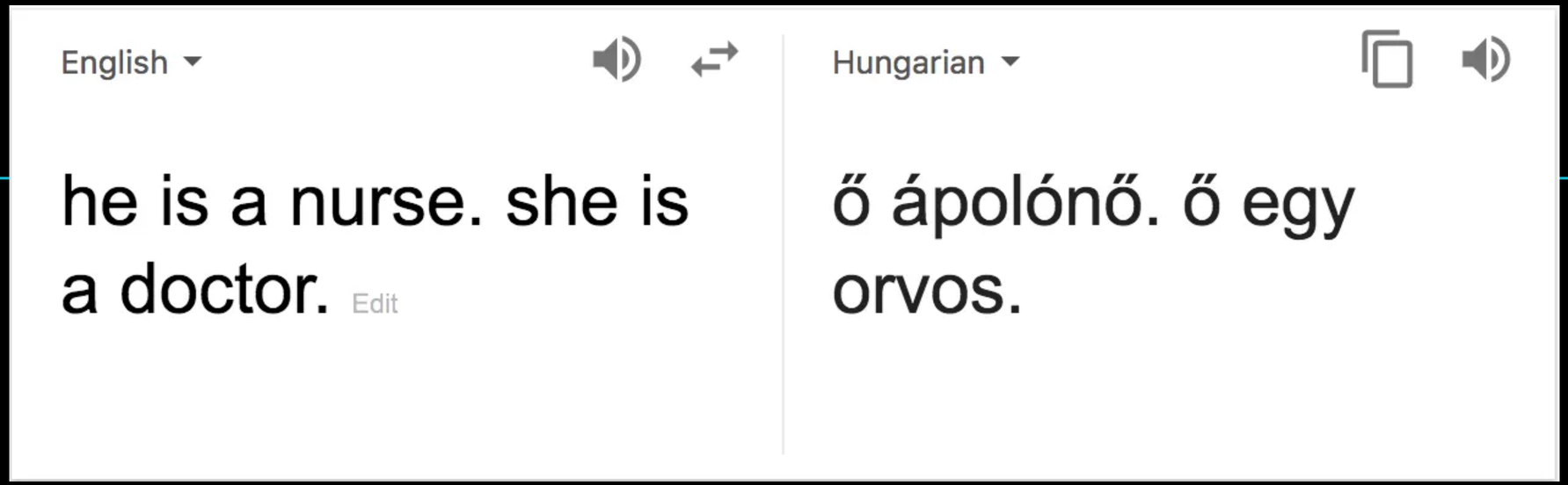

neuron
Input
(features)
Hidden Layers
lots of layers ~ “deep learning”
Output
(prediction)

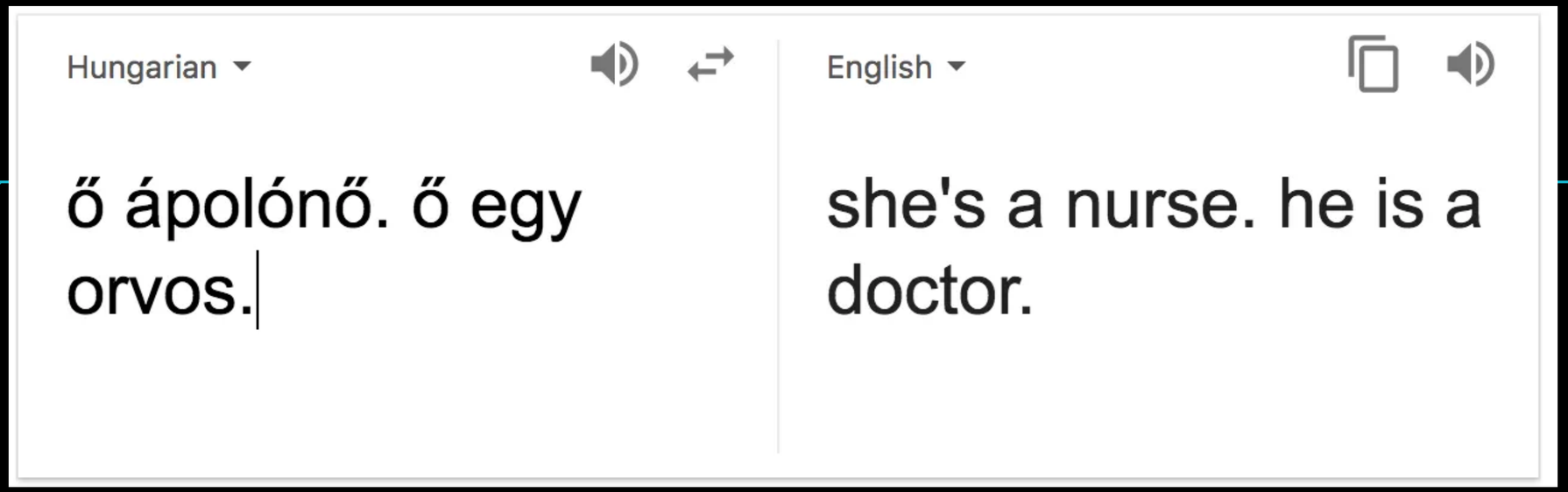
2 .ETHICS OF AI



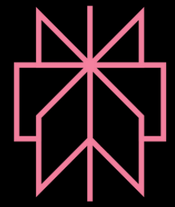
BIAS ED INPUT

BIAS ED OUTPUT


English
he is a nurse. she is a doctor. Edit
Hungarian
ő ápolónő. ő egy orvos.


Hungarian
ő ápolónő. ő egy orvos.
English
she's a nurse. he is a doctor.

ResearchRabbit

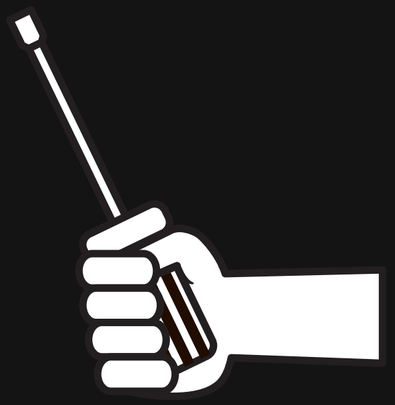


perplexity

scite_

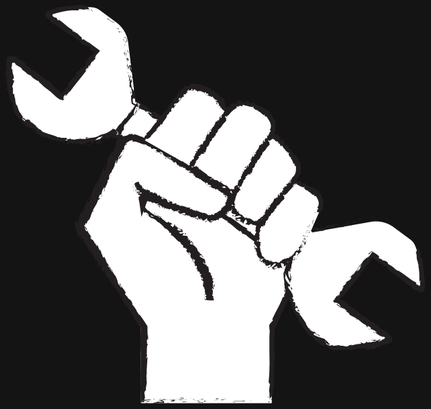
4. TOOL EVALUATION / RECOMMENDATION

3 .HUMAN INTEGRATION



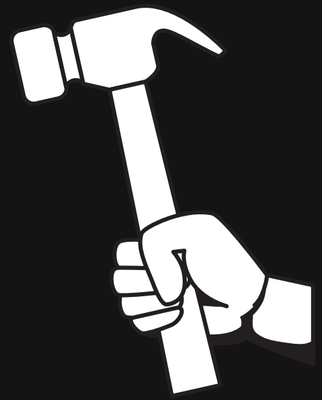
CRITICAL THINKING

Process OVER Product
(what makes AI the MOST effective choice)



EVALUATION

Understanding how and when to deploy AI = appropriate tool selection and use



DOMAIN EXPERTISE

Improved understanding of industry systems via practice, time, research.

A

CRITICAL THINKING

Carlos is a young mechanic who has just opened his own shop and wants to grow his business. His main concern is improving the efficiency of his business. He wants to know how AI tools can help him with scheduling and predictive diagnostics for car issues.

CRITICALLY ASSESS HIS CURRENT WORKFLOW AND PINPOINT INEFFICIENCIES

IDENTIFY OPERATIONAL PAIN POINTS

SET MEASURABLE GOALS

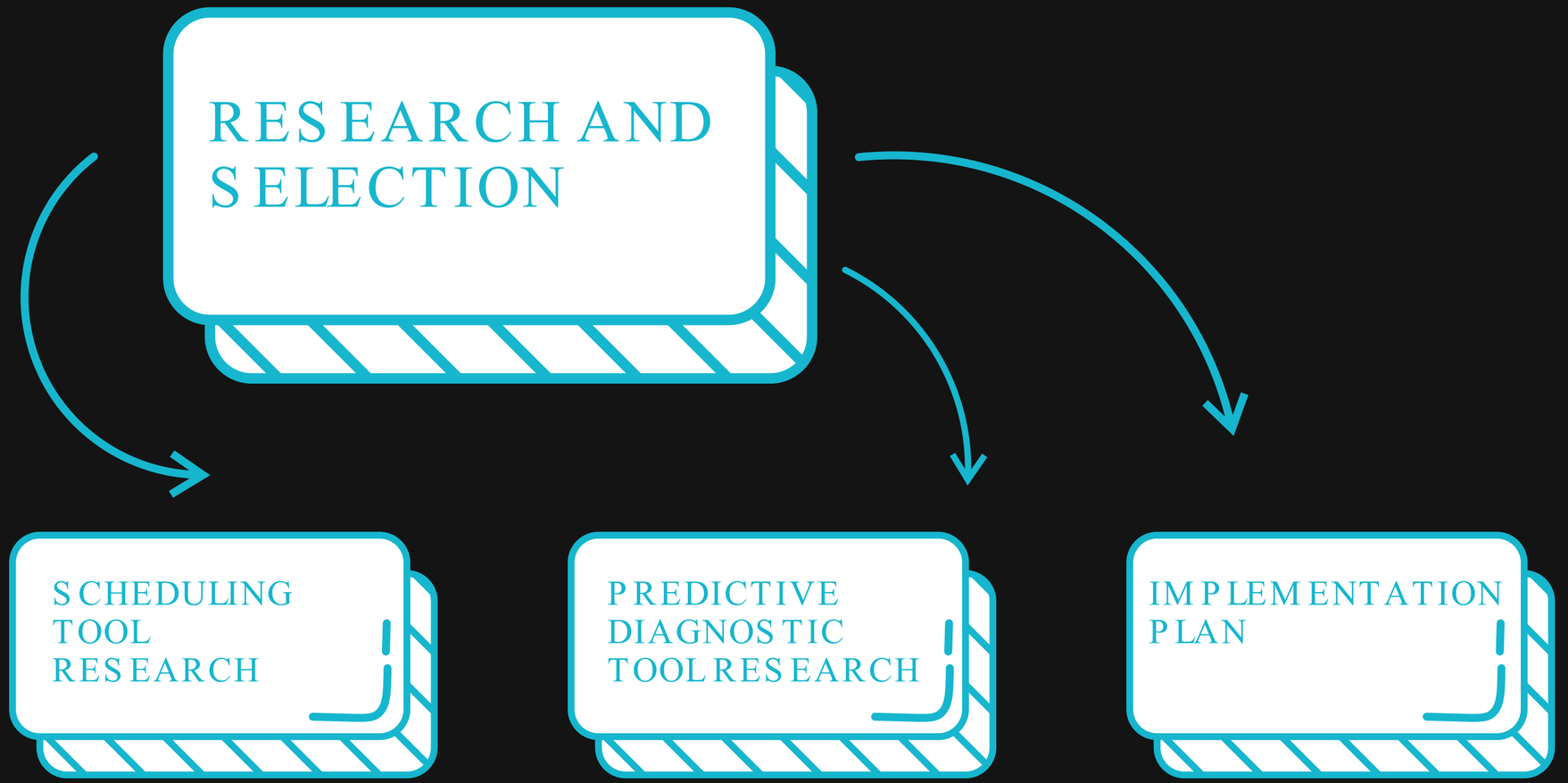
EVALUATE FEASIBILITY AND ROI*

*Not every problem requires AI; some may be solved with simpler fix

2

EVALUATION

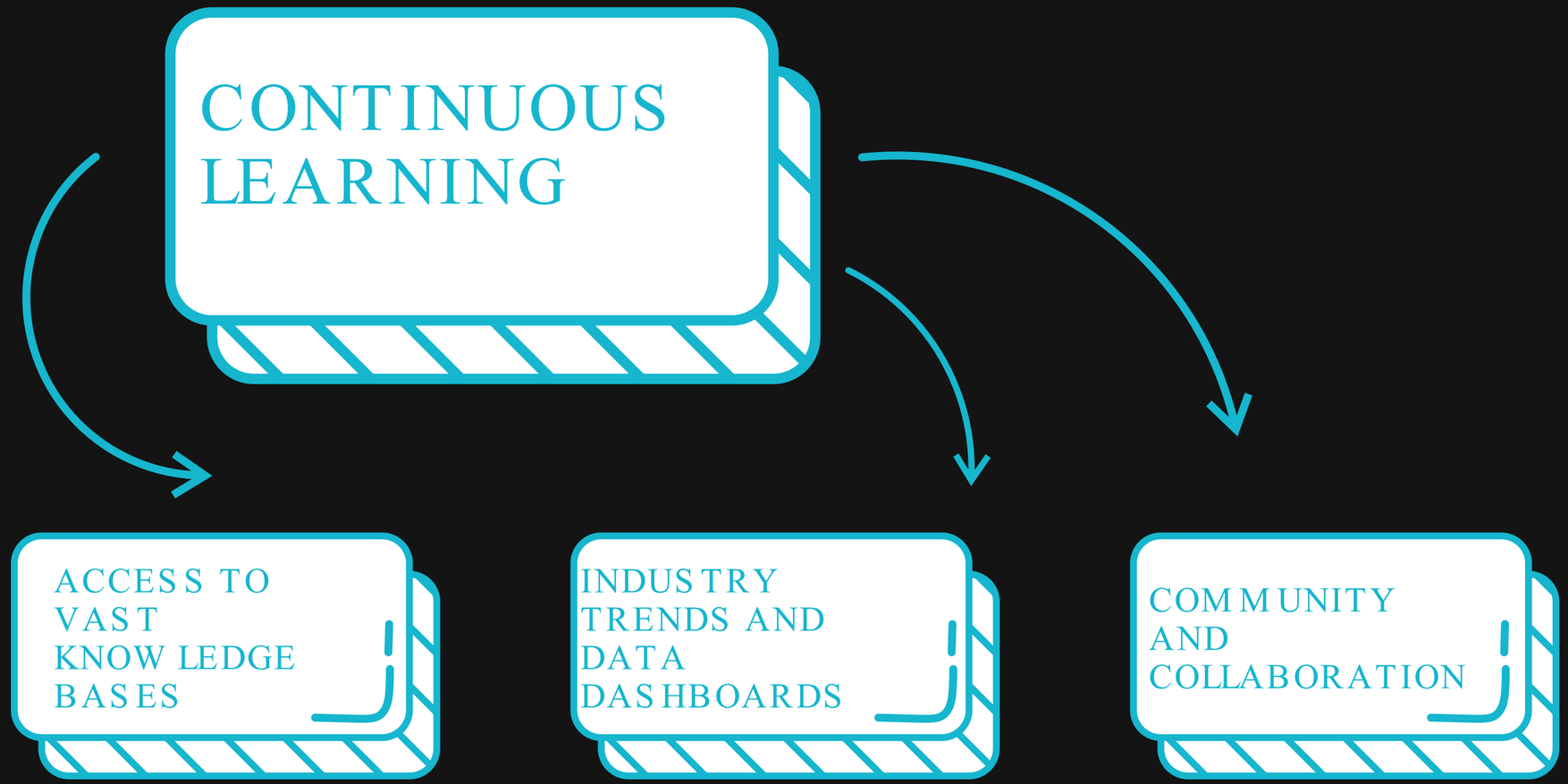
With clear goals and pain points identified, Carlos can now explore specific AI tools for (A) smarter scheduling and (B) predictive diagnostics. This step involves researching available solutions, comparing features and costs, and planning how to implement them in his shop's workflow.

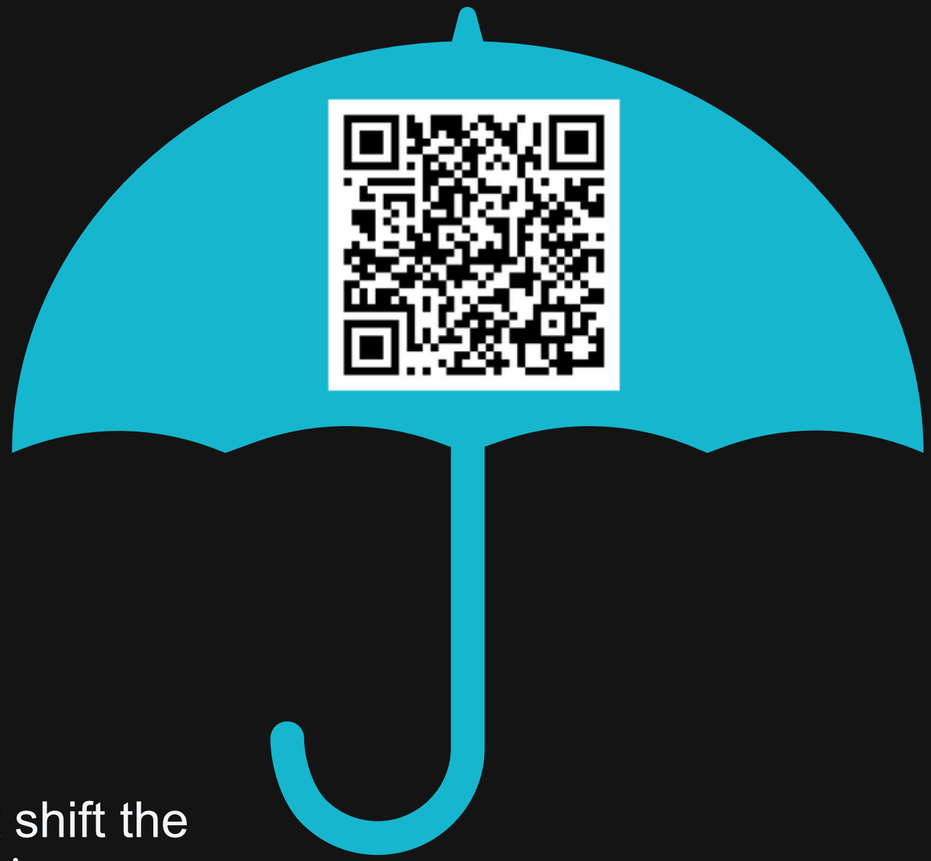


3

DOMAIN EXPERTISE

Beyond immediate efficiency gains, Carlos is looking at the long-term benefit of using AI: becoming more knowledgeable about automotive systems and industry best practices. AI tools can act as on-the-job mentors, data analysts, and research assistants all in one.





CONCLUSION

To prepare our students to thrive in an AI integrated world we must shift the technology narrative from a big tech to academic perspective. Prioritizing process over product while helping students develop AI literacy and human integration skills at our institutions.

How?

- AI Literacy in Information Literacy courses

QUESTIONS?

WANT TO DIVE DEEPER?

Want to learn more about practical AI application in the classroom and prompt engineering? Join us for our sessions on prompt engineering and conscious AI conversations in the classroom.

TODAY'S STUDENTS AND AI

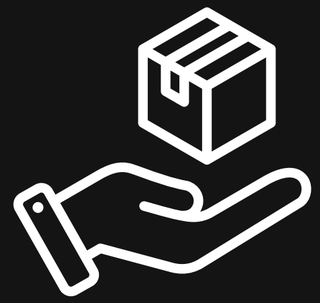
THE BIG TECH VS ACADEMIC APPROACH TO TECHNOLOGY

BIG TECH APPROACH TO TECHNOLOGY

Product Over Process = Shortest distance from point A to point B.

BIG TECH TRAINING & DEVELOPMENT

Hype Cycles drive the market.



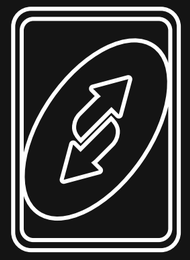
SIMPLE SOLUTIONS TO COMPLEX PROBELMS

Loss of critical thinking and informed citizens

WHAT'S THE DISCONNECT?

WHAT CAN BE DONE?

2. STEPS IN SHIFTING THE NARRATIVE



A

MINDSET RECALIBRATION

Process Over Product

B

AI LITERACY

Foundational AI Skills

C

HUMAN INTEGRATIO N

Critical Thinking Coupled with Domain Expertise

THE BIG TECH VS ACADEMIC APPROACH TO TECHNOLOGY

Big tech emphasizes product over process and relies on hype cyles rather than actual innovation to sell their products, often offering simple solutions for complex problems. Big Tech answers to market trends and shareholders, we answer to our students and communities. The dominant technology narrative does not need to be nor should be the narrative set by for profit tech companies. Higher ed needs to enter the conversation and offer a better way.

STREAMLINING PROCESSES WITH AI

THE ROLE OF DATA IN AI

AI can enhance various business functions, from customer service automation to predictive analytics. Integrating AI into existing workflows requires careful planning, employee training, and system compatibility. Businesses that successfully implement AI gain improved efficiency and data-driven decision-making capabilities.

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