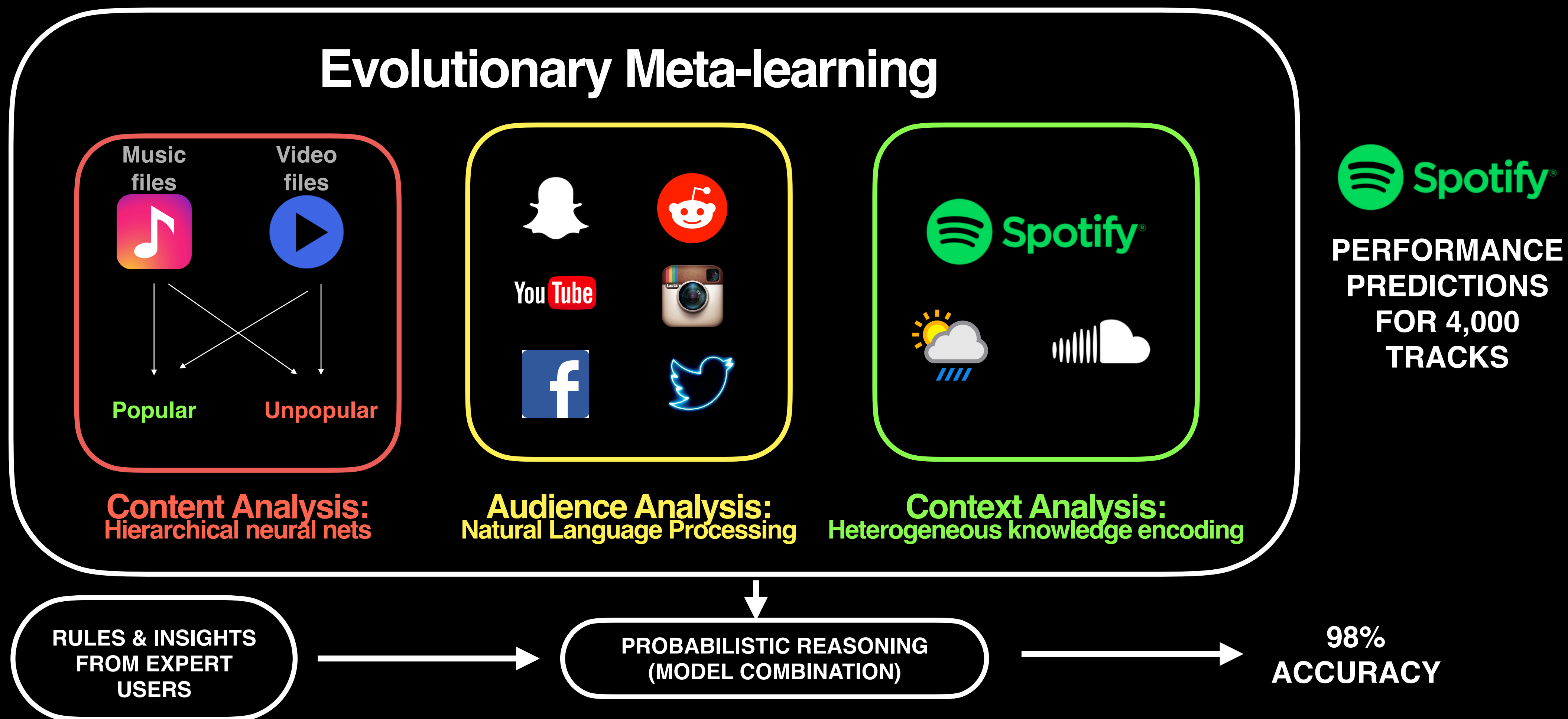# THE PEOPLE VS. AI

YVES BERGQUIST, ETC
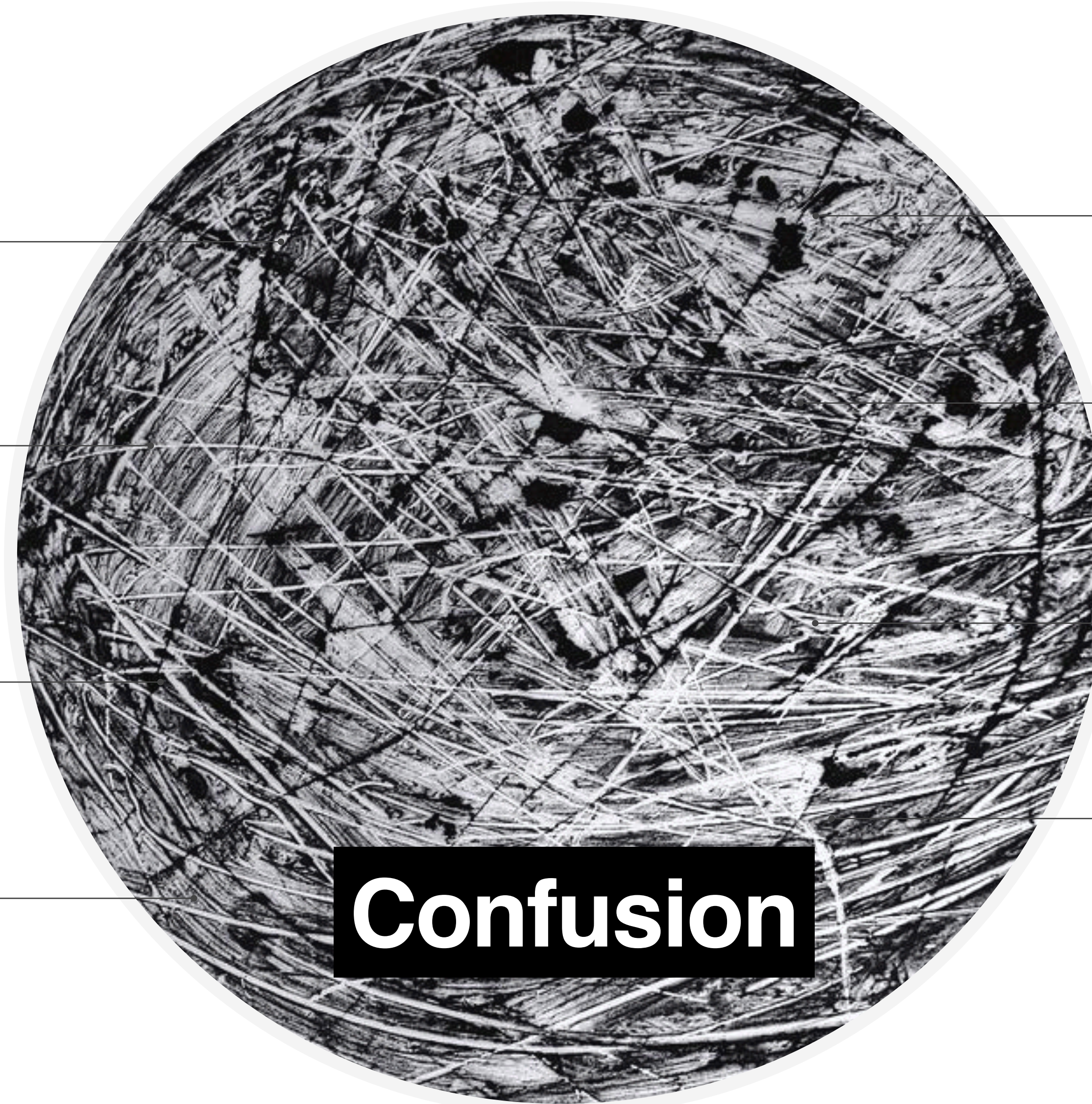
ONCE UPON A TIME...

MUSIC PERFORMANCE PREDICTION

BUILDING AI IN ENTERPRISE TODAY IS:

TRYING TO IMPLEMENT A **22ND CENTURY TECHNOLOGY**

ON **21ST CENTURY ARCHITECTURES**

FOR **19TH CENTURY ORGANIZATIONAL MODELS.**

AI tech is accelerating

AI talent takes 3-6 years to educate and train

AI tech is becoming more complex/hybrid/ harder to build

Lots of competition for scarce talent=$$$$ + short tenure times

AI tech is still experimental & expensive

Media industry doesn't have a software culture

Data is still a mess (fragmented, no unifying ontologies)

Media industry is going through a lot of reorganization

Confusion

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ONLY 2% OF CDOS AND CAOS LIST DATA LITERACY AS A TOP PRIORITY

■ % of data leaders mentioning as #1 priority
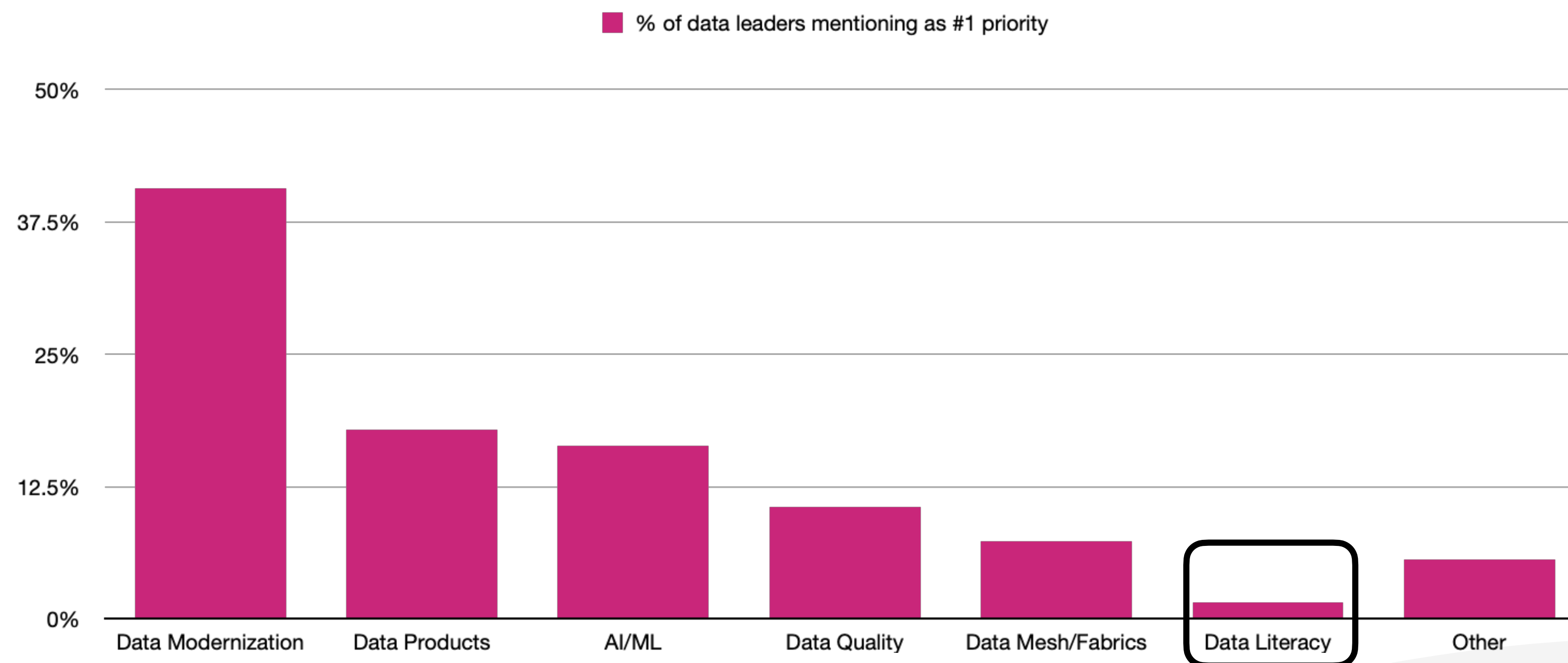
1,000 CDOS & CAOS FROM FORTUNE 1000 CORPORATIONS

"DATA & ANALYTICS LEADERSHIP ANNUAL EXECUTIVE SURVEY 2023", NEW VANTAGE PARTNERS, JANUARY 2023
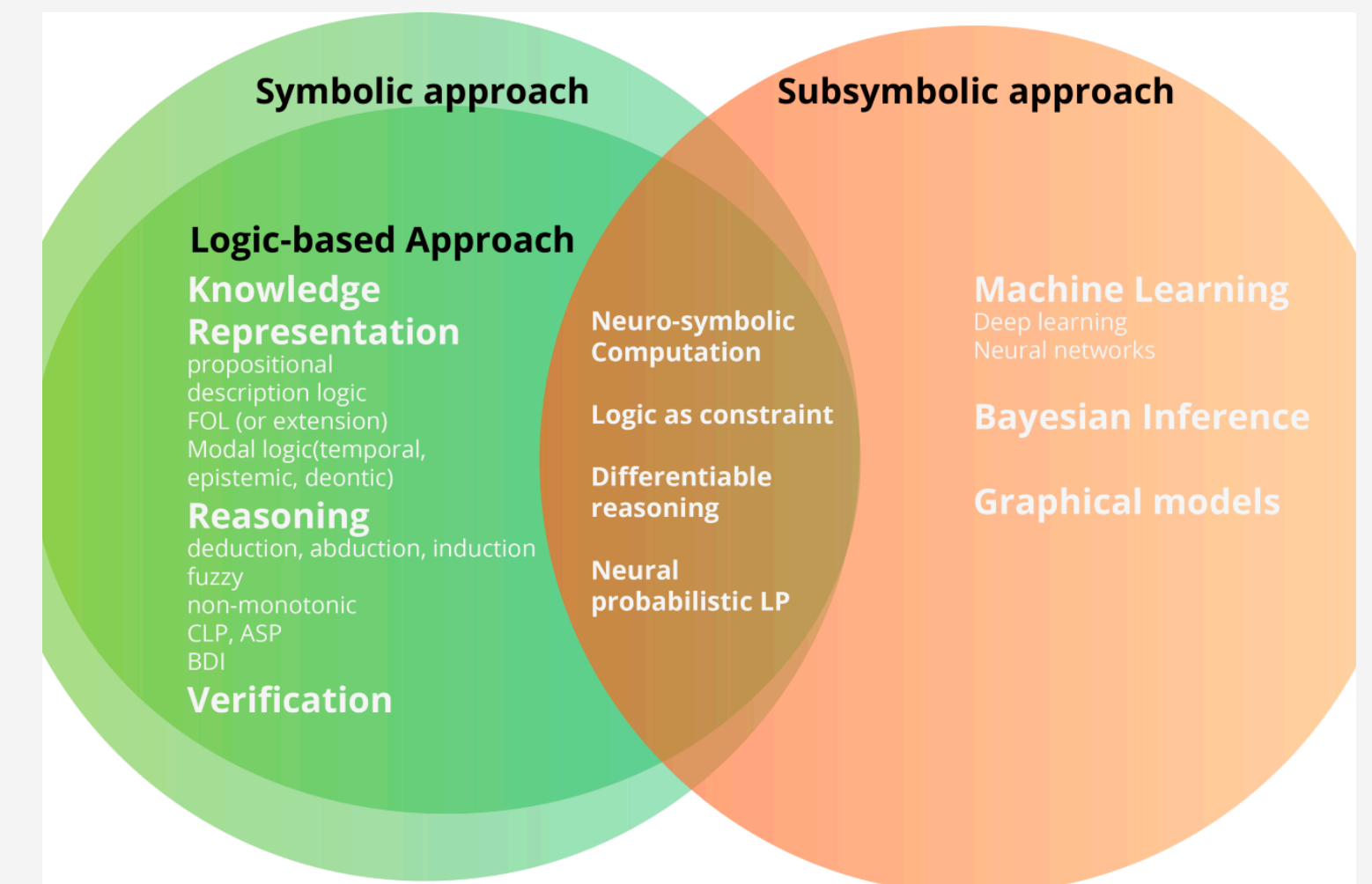
WHAT IS HAPPENING?
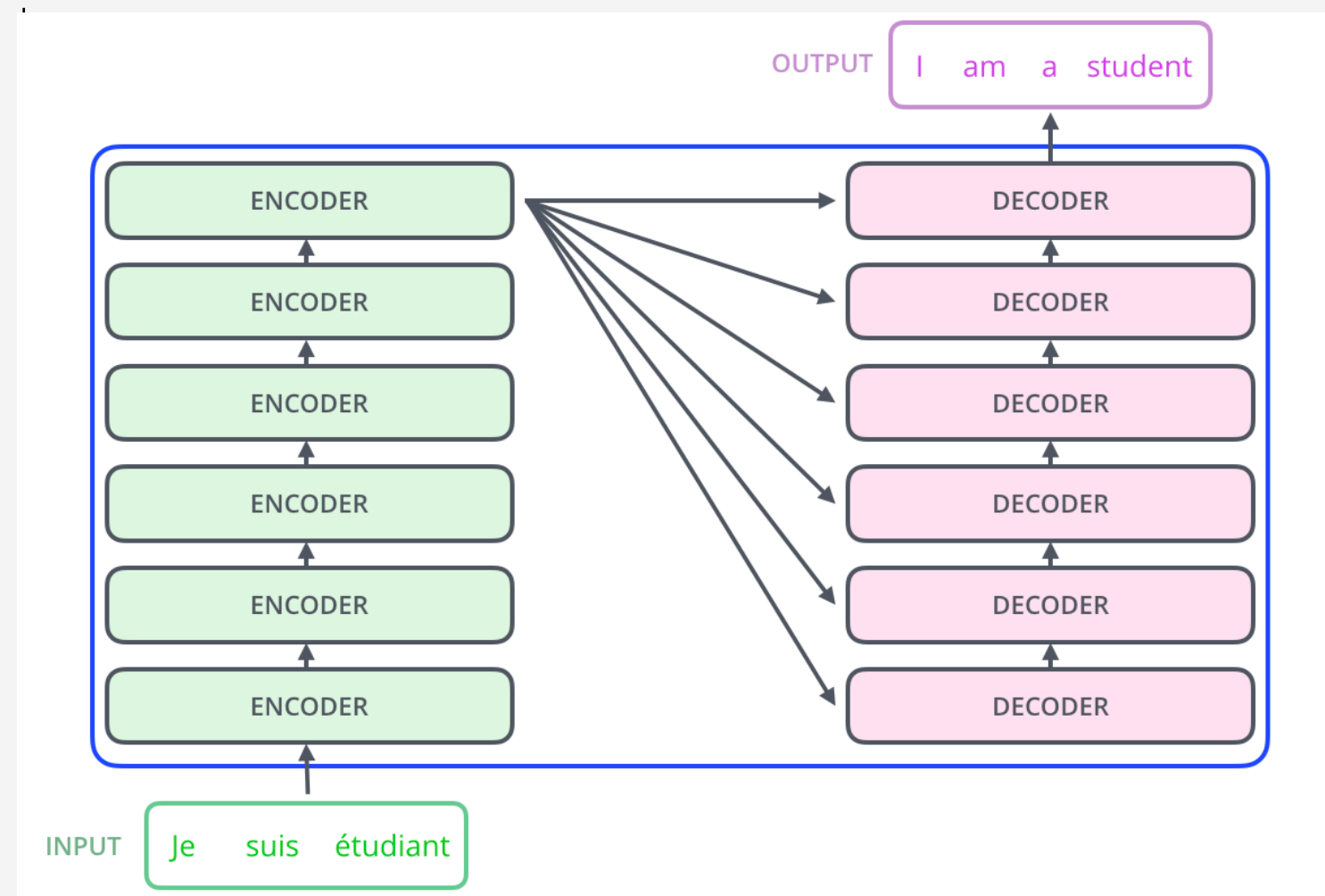
ML METHODS ARE BECOMING MORE SOPHISTICATED

LOTS OF LIMITATIONS, ETHICAL QUESTIONS, AND CONFUSION ABOUT WHAT'S NEXT

BUT HYBRID METHODS ARE EMERGING AND WE NEED TO GET READY

Enormous $$$ spent + talent = rapid innovation = transformers + Reinforcement Learning + Human input = highly capable applications (LLMs, text-to-image, text-to-video, text-to-audio).

Models are still too inaccurate to be fully trusted and integrated into products. Lots of ethical questions, and lots of confusion about how to bridge the chasm between sophisticated Learning and true Intelligence. Regulators are doing to step in. Traditional organizations are nowhere near ready.

Deep Neural Nets + Knowledge Graphs + Human-Built Symbolic Reasoning are going to accelerate the capabilities of traditional ML systems.

ZOOMING OUT: COMPUTABLE EVERYTHING

01

02

03

04

05

COMPUTABLE
KNOWLEDGE

COMPUTABLE
RELATIONSHIPS

COMPUTABLE
CONTRACTS &
MONEY

COMPUTABLE
CONTENT

COMPUTABLE
INDUSTRIES

THE FUTURE?

In the next few years dumb money will go towards "ChatGPT applied to X" startups. This will create glut of content generation startups.

Smart money will go where the opportunity really is: content curation, recommendation and personalization using content data and audience data (social media, streaming data).

Explosion of content + still 24 hours in a day = NEED FOR PERSONALIZATION AND CURATION.

Highly Automated Media Organizations

Crafting and distributing with efficiency

Personalized, Highly Curated, and Integrated (Metaverse) Content
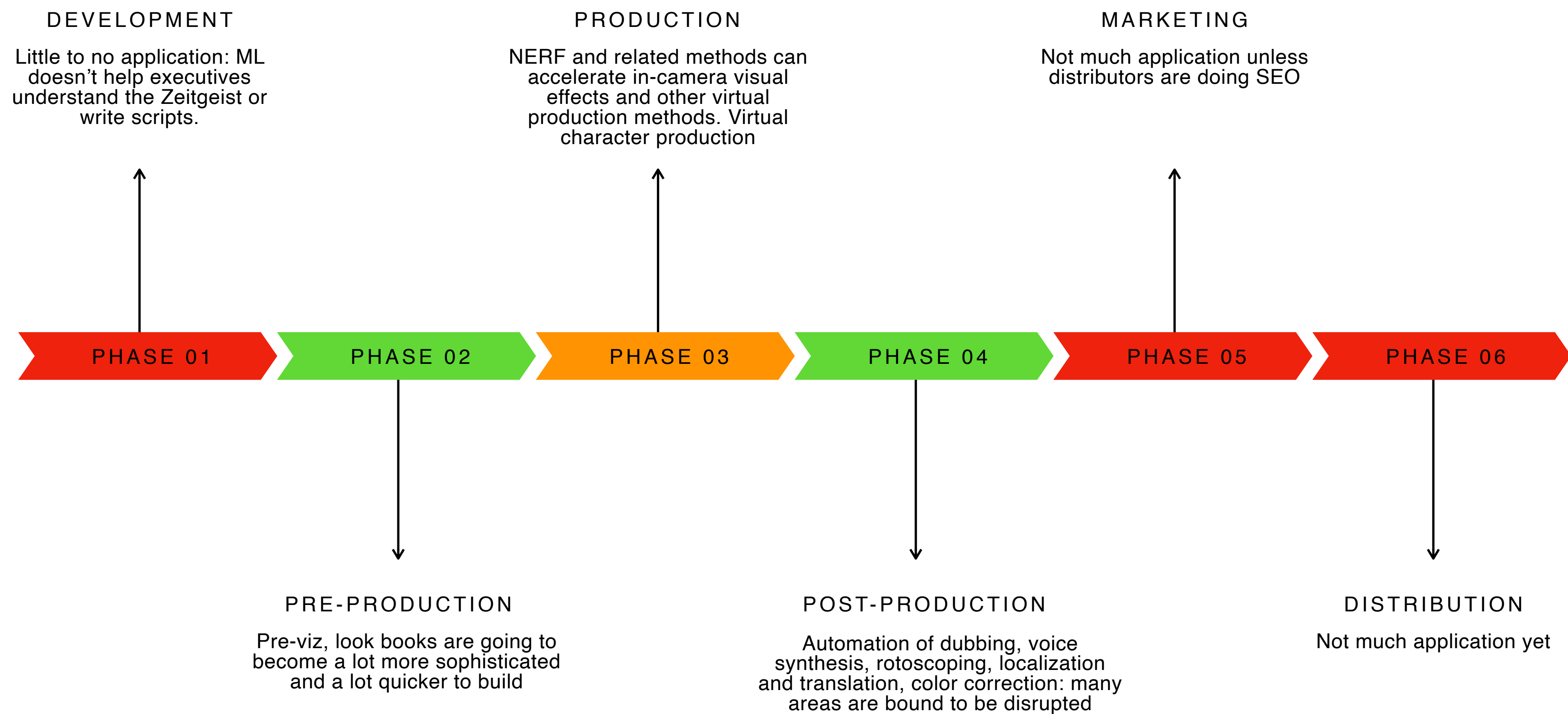
To connected & overwhelmed audiences

AI winners: software companies and creatives, studios which know how to make AI trustable and retrain their employees for "AI augmentation".

AI losers: any work that doesn't require either "connecting the dots" of audience data data or speaking directly to the human soul.

AI winners: studios who own their distribution platform and detailed audience data who can use ML to understand what attributes of content resonate with what audience segments.

AI losers: those who don't own the distribution platform (minute by minute audience viewership or play data).

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WHAT DOES IT MEAN? WHO WILL BE DISRUPTED SOON?

DEVELOPMENT

Little to no application: ML doesn't help executives understand the Zeitgeist or write scripts.

PRODUCTION

NERF and related methods can accelerate in-camera visual effects and other virtual production methods. Virtual character production

MARKETING

Not much application unless distributors are doing SEO

| PHASE 01 | PHASE 02 | PHASE 03 | PHASE 04 | PHASE 05 | PHASE 06 |

PRE-PRODUCTION

Pre-viz, look books are going to become a lot more sophisticated and a lot quicker to build

POST-PRODUCTION

Automation of dubbing, voice synthesis, rotoscoping, localization and translation, color correction: many areas are bound to be disrupted

DISTRIBUTION

Not much application yet

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HOW WILL COMPANIES BUILD COMPETITIVE ADVANTAGE?

Generative AI will be seen and implemented differently throughout the media ecosystem.

This is tied to how much competitive advantage (and future revenue) can be extracted from the new tech, either through optimization or new feature/product development.

Here the main challenge is that the 3 main resources of competitive advantage-building Generative AI development (proprietary and plentiful data, high-ranking ML talent, and organizations willing/able to throw money at AI development) are unequally distributed within the media industry:

- Technical vendors (software), post-production & VFX houses, and camera manufacturers have the technical and product talent and budget but lack the training data.

- IP holders have the training data but (generally) not the ML talent. Studios are not software developers, it's a completely different culture (rewarding failure). Right now (this may change) they can't pay world-class ML talent salaries. The current M&A and fiscal environments aren't conducive to major ML efforts.

COMPETITIVE ADVANTAGE

CORE SKILL

FEATURE AUGMENTATION AUTOMATION

HARDCORE ML/MATH UX/PRODUCT

BUT: TRAINING DATA? LEGAL ISSUES?

PRODUCT DEVELOPMENT

AUTOMATION TOWARDS COST REDUCTION

HARDCORE ML/MATH

UX/PRODUCT

BUT: TRAINING DATA? LEGAL ISSUES?

FEATURE AUGMENTATION

HARDCORE ML/MATH

UX/PRODUCT

BUT: TRAINING DATA? LEGAL ISSUES?

DATA UNIFICATION

CONTENT CURATION

KNOWLEDGE GRAPHS

TRAINING DATA (CONTENT)

MODEL MANAGEMENT

PRODUCT DEVELOPMENT (FILM-TV-VIDEOGAME-METAVERSE)

ETHICS

BUT: ML / HACKER / DATA TALENT?

LEGAL ISSUES

EXPANSION AND SPECIALIZATION OF INTERNAL DATA & TECH INNOVATION ECOSYSTEMS

DATA & ANALYTICS

TECH INNOVATION

THESE ROLES

WILL BE BROKEN DOWN INTO THESE ROLES

KNOWLEDGE REPRESENTATION

DATA UNIFICATION

MODEL MANAGEMENT (INCL. ETHICS)

INTERNAL AI COMMUNICATION

COMPETITIVE EXPERIMENTATION

KNOWLEDGE MANAGEMENT

UPSKILLING

"THE HACKER"

MANAGES THE ENTIRE ECOSYSTEM BUT IS SINGLE POINT OF CONTACT FOR COMMUNICATIONS WITH C SUITE

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Who is the hacker?

A profile

Deep AI knowledge: credible with the AI team

Can code but hates it, knows developers pet peeves

Curious problem-solver

Great speaking, writing, and presentation skills

A data scientist who loves business

Hacker means loves to solve linear problems with computation

Knows how to fail without turning off the spigot

Strong grounding in ethical AI

TRUST BUILDER

The Hacker is the quarterback of the data and AI function

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HOW AI GETS IMPLEMENTED IN THIS NEW PARADIGM

	STEP 1	STEP 2: PLANNING	STEP 3: LINING UP RESOURCES	STEP 4: MVP ROLLOUT	STEP 5: EARLY USER FEEDBACK	STEP 6: BETA ROLLOUT	STEP 7: BETA USER FEEDBACK	STEP 8: V.1 ROLLOUT
HACKER	GETS C SUITE GREENLIGHT	PROBLEM DEFINITION	C SUITE COMM: GOALS	LEAD PROJECT MANAGEMENT	C SUITE COMMS: ON TRACK? MORE $$?	LEAD PROJECT MANAGEMENT	USER FEEDBACK	LEAD PROJECT MANAGEMENT
DATA UNIFIER		WHERE IS THE DATA?	CLEANING/MERGING/ BUYING DATA	DATA OPS	DO WE NEED MORE/ BETTER DATA?	DATA OPS	DO WE NEED MORE/ BETTER DATA?	DATA OPS
KNOWLEDGE REPRESENTER		HOW TO TURN DATA INTO KNOWLEDGE?	HOW DOES IT FIT WITH ORG KNOWLEDGE?	KNOWLEDGE GRAPH BUILDING	IS KNOWLEDGE CONSISTENT & INTEGRATED?	KNOWLEDGE GRAPH BUILDING	IS KNOWLEDGE CONSISTENT & INTEGRATED?	KNOWLEDGE GRAPH BUILDING
MODEL MANAGER		HOW TO MODEL / WHAT RESOURCES?	MODEL CARD/ LABELING LINED UP	MODEL TRAINING/ MODEL CARD MANAGEMENT	IS MODEL ACCURATE?	MODEL TRAINING/ MODEL CARD MANAGEMENT	IS MODEL ACCURATE?	MODEL TRAINING/ MODEL CARD MANAGEMENT
COMMUNICATION LEAD		INTERNAL COMMS PLAN	HOW THIS IS ABLE TO GET JOB DONE	WHAT THIS IS GOING TO TRANSFORM	HERE IS WHERE IT COULD HELP / HERE IS HOW IT'S ETHICAL	WHERE THIS IS GOING TO TRANSFORM	HERE IS WHERE IT COULD HELP / HERE IS HOW IT'S ETHICAL	WHO THIS IS GOING TO TRANSFORM
UPSKILLLING LEAD		HOW DOES THAT AFFECT OUR WORKFORCE?	EDUCATE WORKFORCE ABOUT GOALS	EDUCATE WORKFORCE ABOUT CAPABILITIES	TOWNHALL WITH MVP USERS & ALL AFFECTED	EDUCATE WORKFORCE ABOUT CAPABILITIES	TOWNHALL WITH MVP USERS & ALL AFFECTED	TRANSITION WORKFORCE TO HYBRID AI/HUMAN WORKFLOW
GOVERNANCE & ETHICS LEAD		WHAT ARE THE ETHICAL IMPLICATIONS?	GOVERNANCE PLAN: WHAT DO WE NEED TO MAKE SURE IT'S ETHICAL?	ETHICAL IMPLICATIONS (INTERNAL/EXTERNAL)	USER FEEDBACK: IS IT ETHICAL?	ETHICAL IMPLICATIONS (INTERNAL/EXTERNAL)	USER FEEDBACK: IS IT ETHICAL?	GOVERNANCE PLAN: WHAT DO WE NEED TO MAKE SURE IT'S ETHICAL?

01 COMPUTATIONAL THINKING

02 GRAPH DATA STRUCTURES & KNOWLEDGE GRAPHS

03 TECH NARRATIVE & COMMUNICATION

04 EDUCATION & UPSKILLING

05 SYSTEMS THINKING (ETHICS)

06 UX DESIGN FOR AI

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HOW MUCH AI KNOWLEDGE DO YOU NEED?

NO CODING SKILLS | **CODING SKILLS**

	DEFINITION	INTRO TO DATA	ETHICS	MACHINE LEARNING 101	KNOWLEDGE REPRESENTATION	MACHINE LEARNING 201	SET UP A DEEP NEURAL NET	REINFORCEMENT LEARNING
C SUITE EXEC	■	■	■					
TECH EXEC	■	■	■	■	■			
POST-PRODUCTION EXEC	■	■	■	■	■			
PRODUCTION EXEC	■	■	■					
"THE HACKER"	■	■	■	■	■	■		
AI/ML SCIENTIST	■	■	■	■	■	■	■	■

BUSINESS & TECH ORGS MERGE:
"THE HACKER" EMERGES

BUSINESS ORG   **TECH ORG**

BUSINESS ORG **TECH ORG**

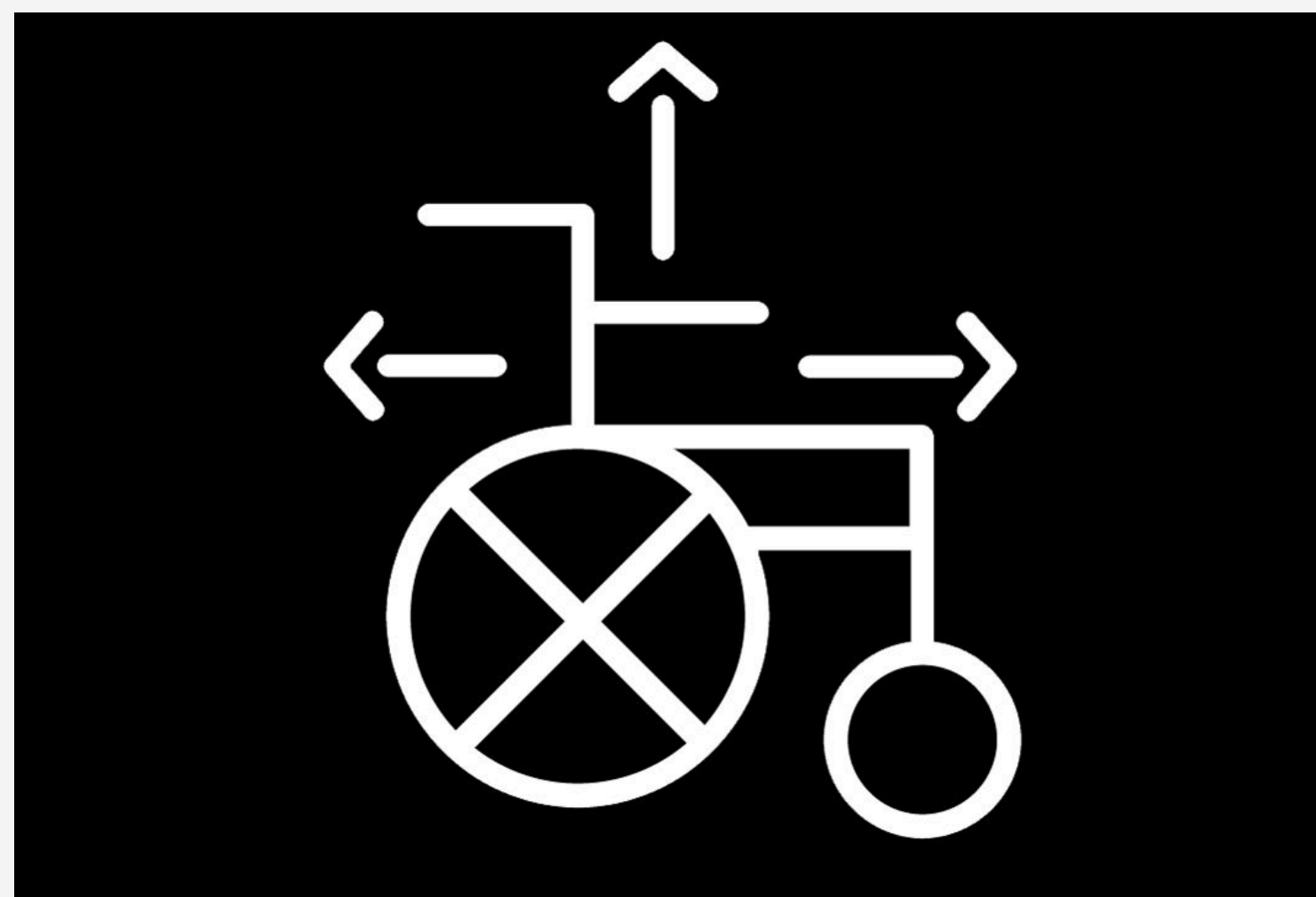**"THE HACKER" BRINGS THE TWO TOGETHER**

WHAT ETC IS DOING

INFORMATION & EDUCATION

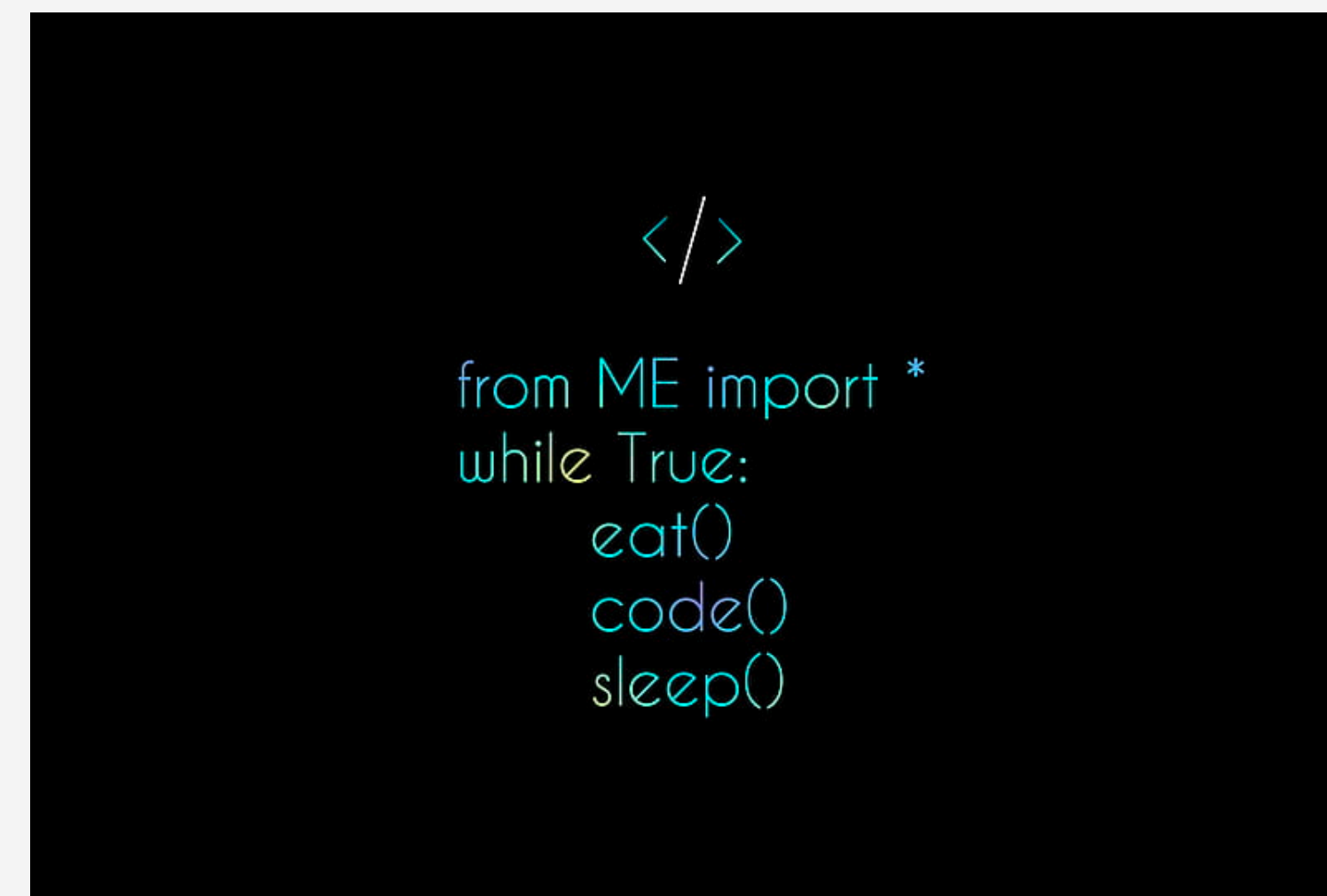White papers (ChatGPT Primer, etc.), private briefings to ETC members.

Course on AI for Media Executives (with SMPTE)

Course on AI for Creatives (with SMPTE)

STANDARDS

ETC-SMPTE Task Force on AI Standards in Media.

2023 Update to our White Paper on AI Ethics in Media (ethics of Generative AI).

RESEARCH AND DEVELOPMENT

Putting together a watermarking POC, open to other ideas.

Project Mya: industry-wide visual training set.

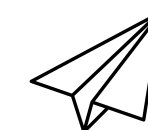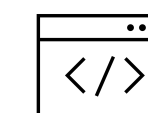Moral Knowledge Graph for ChatBots.

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