

ARTIFICIAL INTELLIGENCE FOR ADULT EDUCATION


LETNI POSVET O IZOBRAŽEVANJU ODRASLIH

ANTHONY F. CAMILLERI – KNOWLEDGE INNOVATION CENTRE - 6
OCTOBER 2023





AI IS THE FUTURE

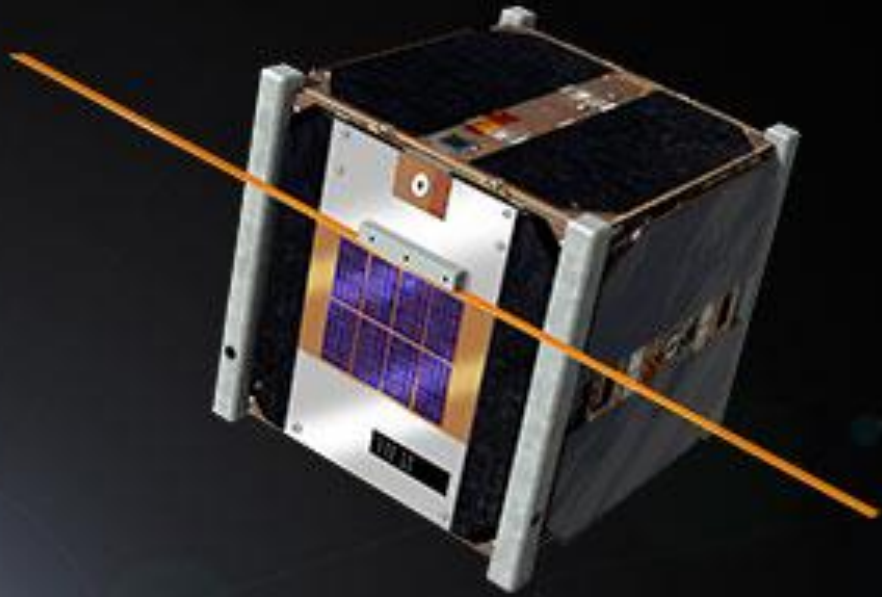


Where have
we heard this
before?

In the 1960s
space was the future



CUBESAT



what we got is shoebox-size
factories in space



In the 1990s the Human
Genome Project promised
personalised medicine for all

vec-xioi

onasemnogene abeparvovec-xioi

ZOLGENSMA

Rx ONLY

Suspension for intravenous infusion

2.0×10^{13} vector genomes/ml

See enclosed prescribing information
for dosage and directions for use.

Contains no
preservatives.

Discard any
unused portion.

Upon receipt store refrigerated at
 2°C to 8°C (36°F to 46°F).

a registered
Novartis, Inc.

HEALTHCARE & PHARMA MAY 24, 2019 / 6:58 PM / UPDATED 4 YEARS AGO

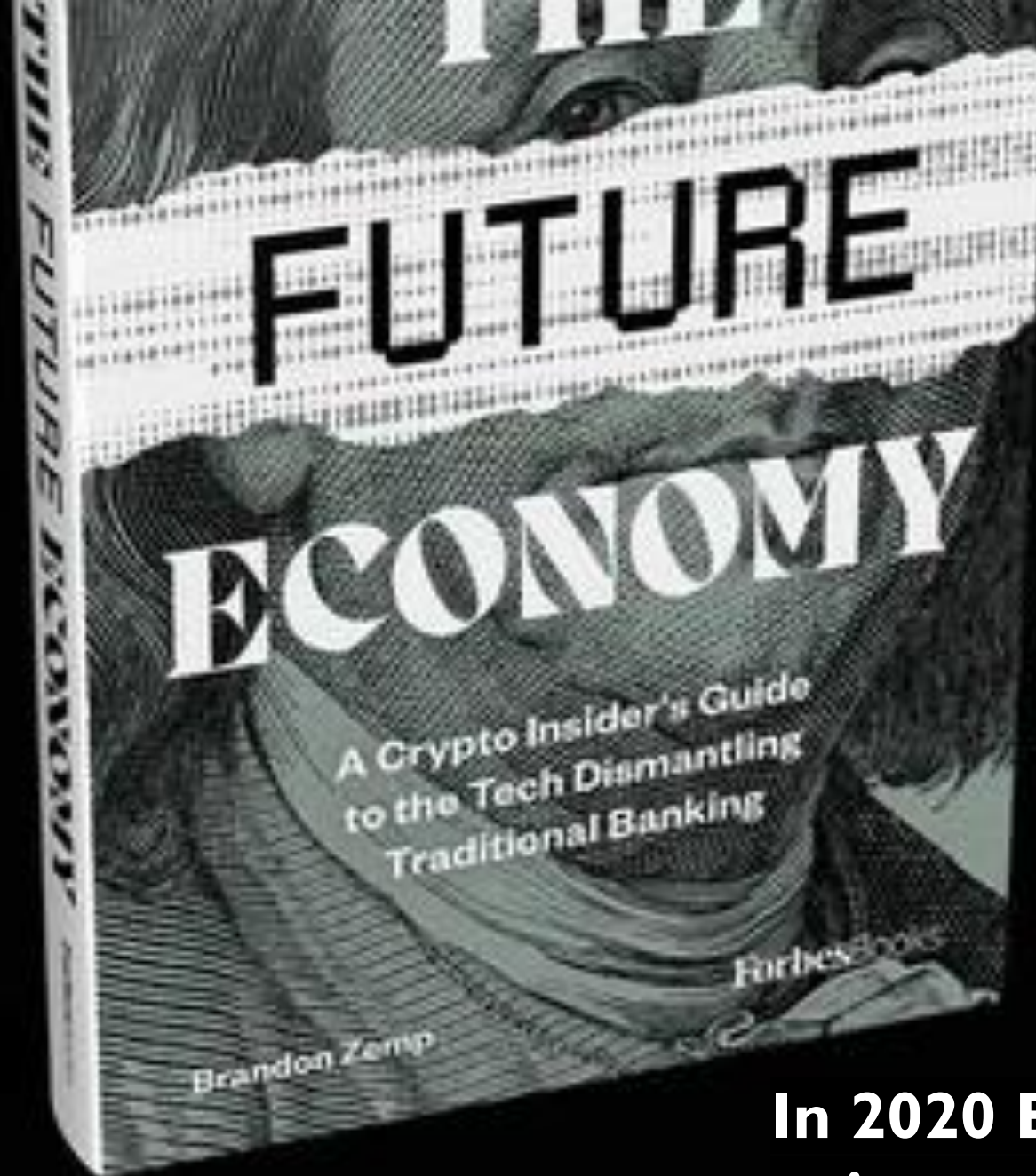
Novartis \$2 million gene therapy for rare disorder is world's most expensive drug

By John Miller, Caroline Humer

6 MIN READ



ZURICH/NEW YORK, (Reuters) - Swiss drugmaker Novartis on Friday won U.S. approval for its gene therapy Zolgensma for spinal muscular atrophy (SMA), the leading genetic cause of death in infants, and priced the one-time treatment at a record \$2.125 million.



**In 2020 Blockchain was
going to dismantle banks**



The New York Virtue

Sam Bankman-Fried

pitched himself as the honest crypto genius who'd spend his fortune saving the world.

Then he spent other people's money trying to save himself.

What his \$32 billion meltdown has revealed, and wrought.

Was the Con

Markets
Crypto

Crypto Crash Erases More Than \$1 Trillion in Market Value

- Biden administration said to aim for crypto executive order
- Bitcoin drops to below \$36,000 for first time since July

SOME LESSONS FROM HISTORY



TECHNOLOGIES DON'T ALWAYS GET CHEAPER

(GOVERNMENTS AND
VENTURE CAPITALS HIDE
REAL COSTS)



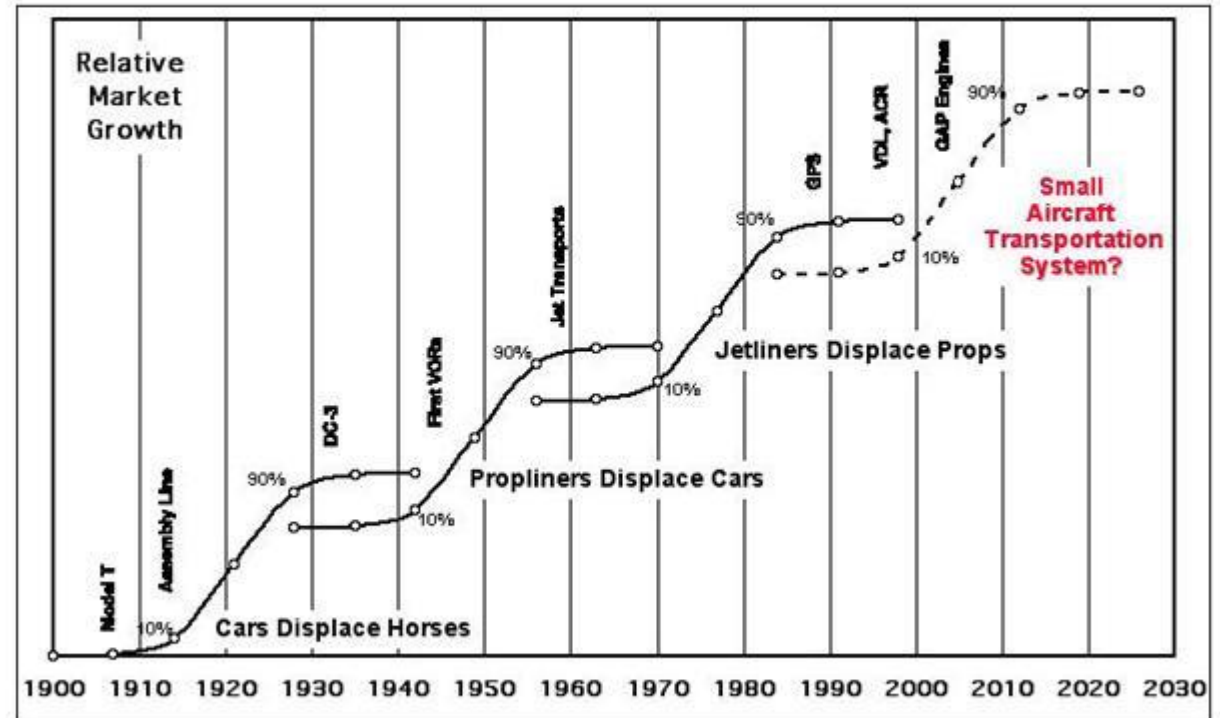
INNOVATION IS
NOT A
CONTINUOUS
PROCESS



G.A. / SATS Research

(R)evolutions in Higher Speed Travel

The "Atomic Structure" of Business Innovation Cycles



COOL
TECHNOLOGIES
DON'T ALWAYS
MEET REAL USER
NEEDS



DEMOS DON'T
ALWAYS
DELIVER REAL
PRODUCTS



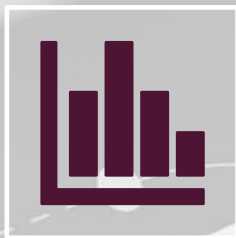


A SCEPTICAL VIEW OF USE CASES FOR AI IN ADULT LEARNING

USE CASES



Curriculum
Planning



Market
Surveys



Translation of
Content



Transformation
of Content



Intelligent



Content



Learning Analytics



Automated Grading

- Brain
- Course ○
- Interactive Video
- Glossary ●
- Concepts Cards ●
- Quiz ○
- Flashcards ●
- Summary ●
- Learn on the go ○
- Summary & submit



How Exactly Is the Human Brain Organized?

Watch Later Share

See ker

HUMAN

☰

Glossary

Brain

Course

Glossary

Concepts Cards

Quiz

Flashcards

Summary

Learn on the go

Summary & submit

> Anatomy

> Auditory cortex

> Brainstem

> Cerebellum

> Cerebral cortex

> Cerebrum

> Cognition

> Corpus callosum

> Electroencephalography

ned to help you learn the main topics and ideas covered in your course.

The cerebrum is also known as the ____ brain.

Turn

Card 1 of 10



☰

Quiz

Brain

Course

Glossary

Concepts Cards

Quiz

Flashcards

Summary

Learn on the go

What is the name of the structure that connects the two sides of the brain?

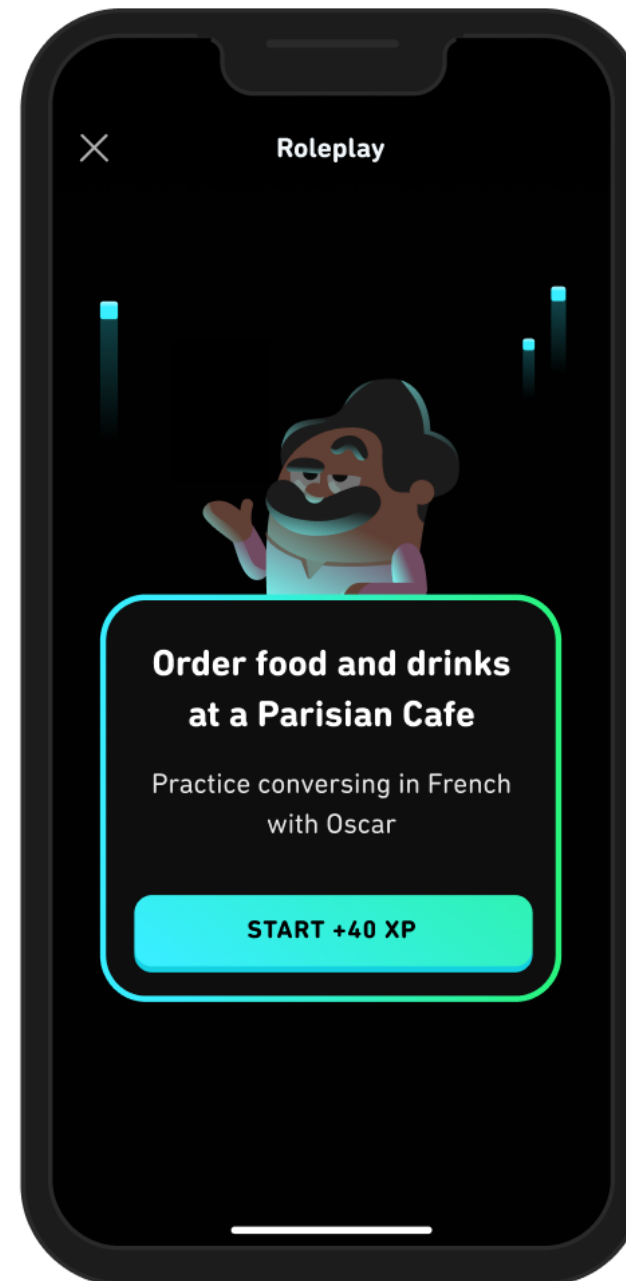
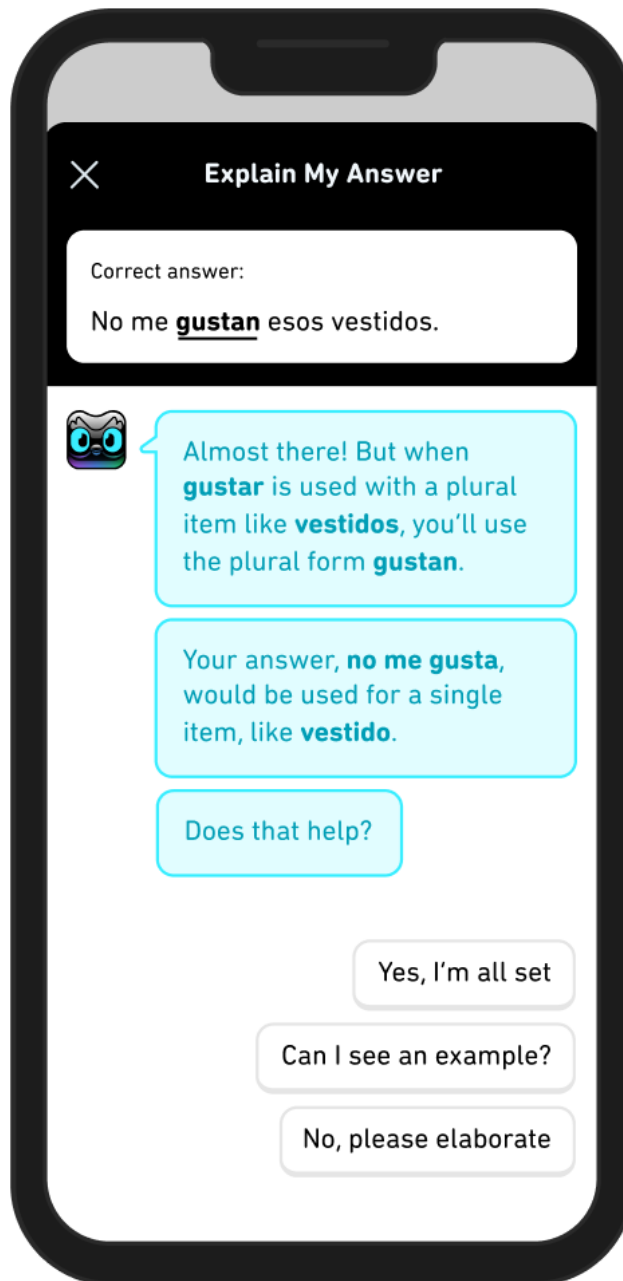
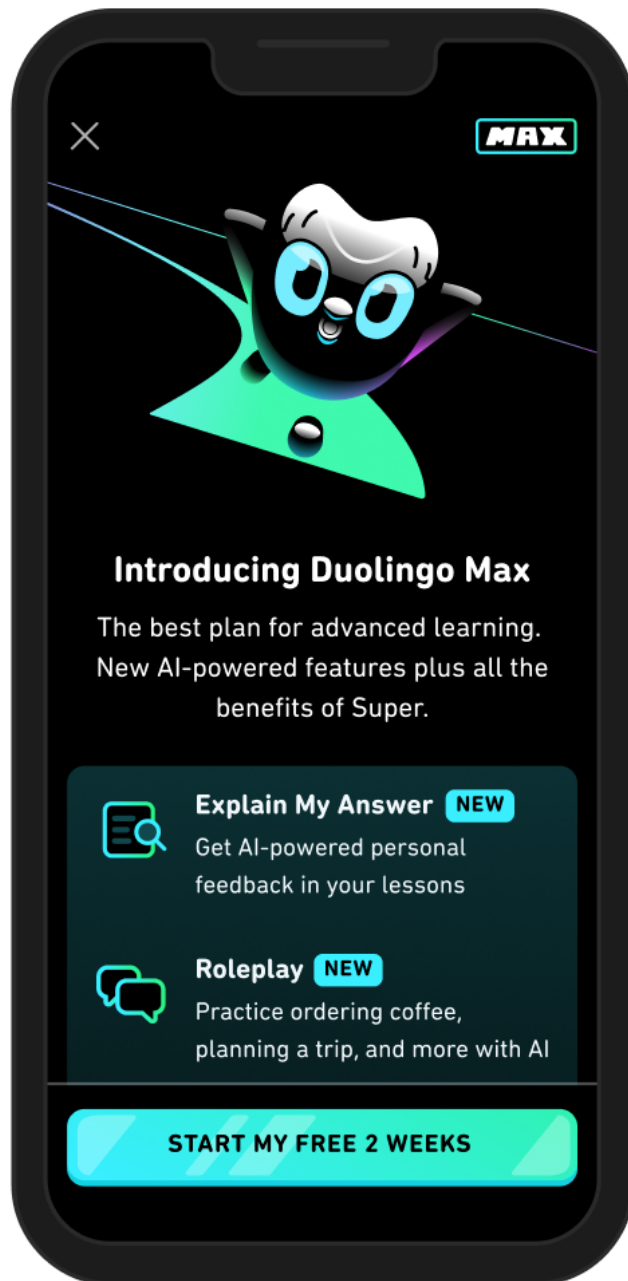
Prefrontal cortex

Corpus Callosum

Limbic system

Pituitary gland

Check





This conversation is recorded and viewable by your parent and teacher.

Can you just tell me the answer?

It's important that you learn how to do this yourself! What do you think you need to do to multiply 2 by $\frac{5}{12}$?

They need the same denominator.

That's a good thought, but in this case, you don't need to find a common denominator because you're multiplying, not adding or subtracting. What else could you try?

Type message (do NOT share any personal data)



Clear chat



This conversation is recorded and viewable by your parent and teacher.

Let's start by discussing some details about your class. What grade level and subject do you teach? And what's the topic you want to create a lesson for?

I teach sixth grade English Language Arts. I want a lesson to help students learn how to identify, summarize, or explain the main idea using supporting details in an expository text.

That's a great topic! Have your students had any previous lessons on identifying the main idea or summarizing expository texts?

No

Type message (do NOT share any personal data)



Clear chat



This conversation is recorded and viewable by your parent and teacher.

Tell me more about your character. What are her interests, talents, fears, and dreams?

She likes dogs. She's good at writing.

She's scared of the dark. She dreams about changing the world.

That's a great start! Now, let's think about what kind of story we want to tell. What kind of goal or problem might your character face?

Type message (do NOT share any personal data)



Clear chat





AI TODAY



“AI will become the calculator for writing”

Erik Brynjolfsson – Professor of Economics & Information Technology at
Stanford

WIRED STAFF

SCIENCE JUN 26, 2012 11:15 AM

Google's Artificial Brain Learns to Find Cat Videos

When computer scientists at Google's mysterious X lab built a neural network of 16,000 computer processors with one billion connections and let it browse YouTube, it did what many web users might do -- it began to look for cats.

FEEDING AN AI
THE ENTIRE
INTERNET
DOES NOT
MAKE A
TEACHER

THIS IS YOUR MACHINE LEARNING SYSTEM?

YUP! YOU POUR THE DATA INTO THIS BIG PILE OF LINEAR ALGEBRA, THEN COLLECT THE ANSWERS ON THE OTHER SIDE.

WHAT IF THE ANSWERS ARE WRONG?

JUST STIR THE PILE UNTIL THEY START LOOKING RIGHT.



Generalised LLMs can be used to learn general skills

Specialised LLMs can be used to learn specialised skills



Massively accelerate our ability to ingest and compare information



Massively accelerate the process of media creation



Replace many forms of Tutoring

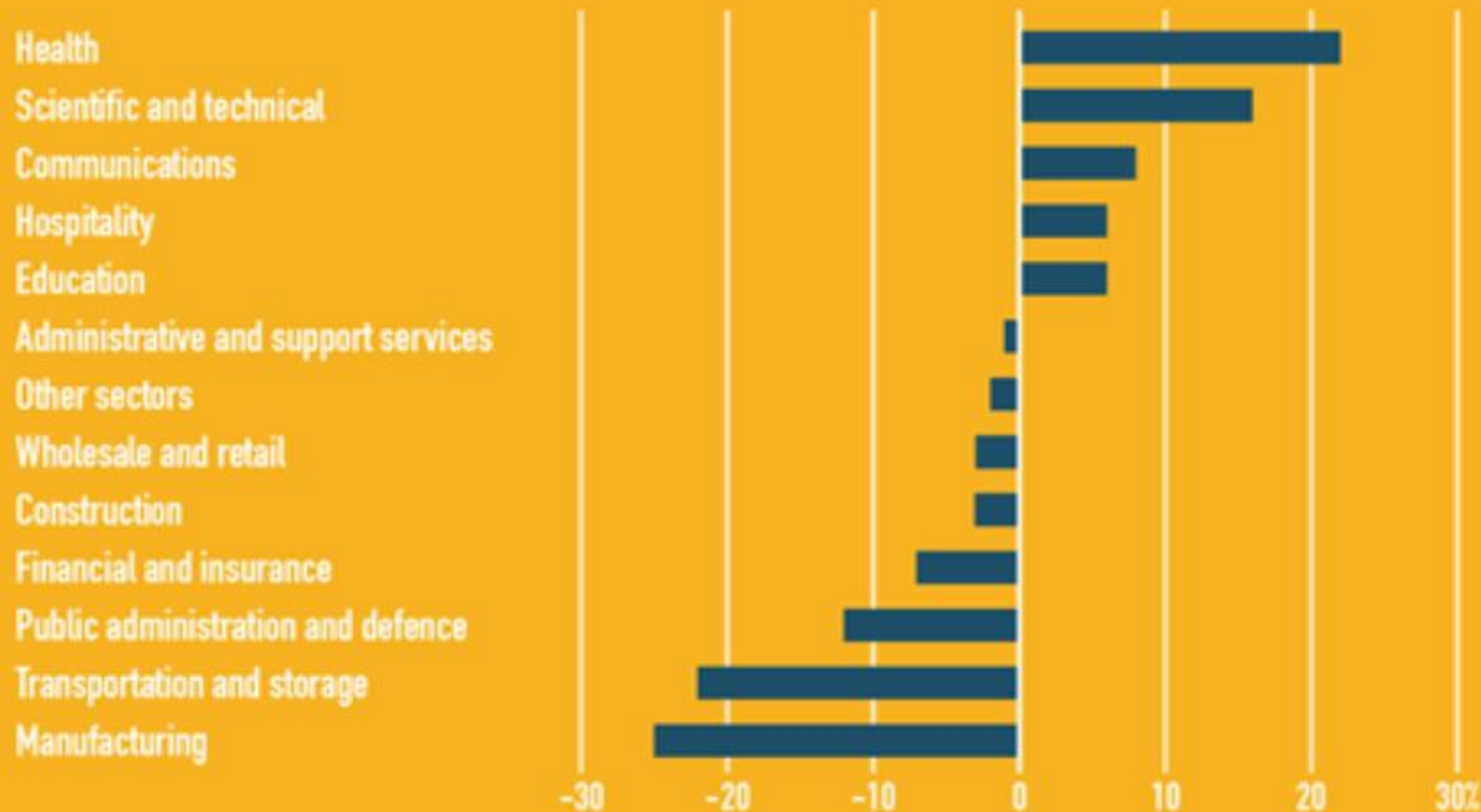




Lower Costs of Content Translation

IN THE SHORT-TERM AI WILL ALLOW US TO

HOW AI COULD CHANGE THE JOB MARKET

ESTIMATED NET JOB CREATION BY INDUSTRY SECTOR, 2017-2037





**LOW COST
HIGH-QUALITY
PERSONALISED
LEARNING**

**USE AI TO
FIND THE
HOLY GRAIL**

Massively accelerate
our ability to ingest and
compare information



Integrate different materials and methods from hundreds of
courses

Massively accelerate
the process of media
creation



package learning in multiple formats: textbook, stories,
presentation, video

Replace many forms of
Tutoring



Make personalised tutoring part of every homework assignment

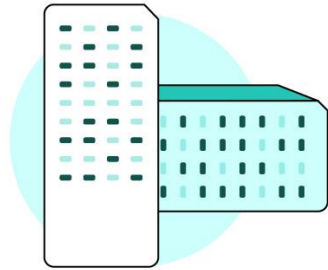
Lower costs of
Translation



Enable new Forms of Multi-Lingual Learning

IN THE SHORT-TERM AI WILL ALLOW US TO

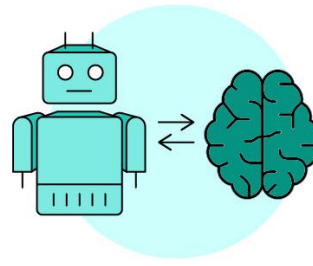
User-Interface Paradigms of Computing



Paradigm 1
Batch Processing



Paradigm 2
**Command-Based
Interaction**



Paradigm 3
**Intent-Based
Outcome Specification**

NNGROUP.COM **NN/g**

AI WILL ALLOW
US TO INTERACT
WITH
TECHNOLOGY IN
NEW WAYS

Dr. Strangelove

Or: How I Learned To Stop Worrying And Love AI



PARANOID RESPONSES

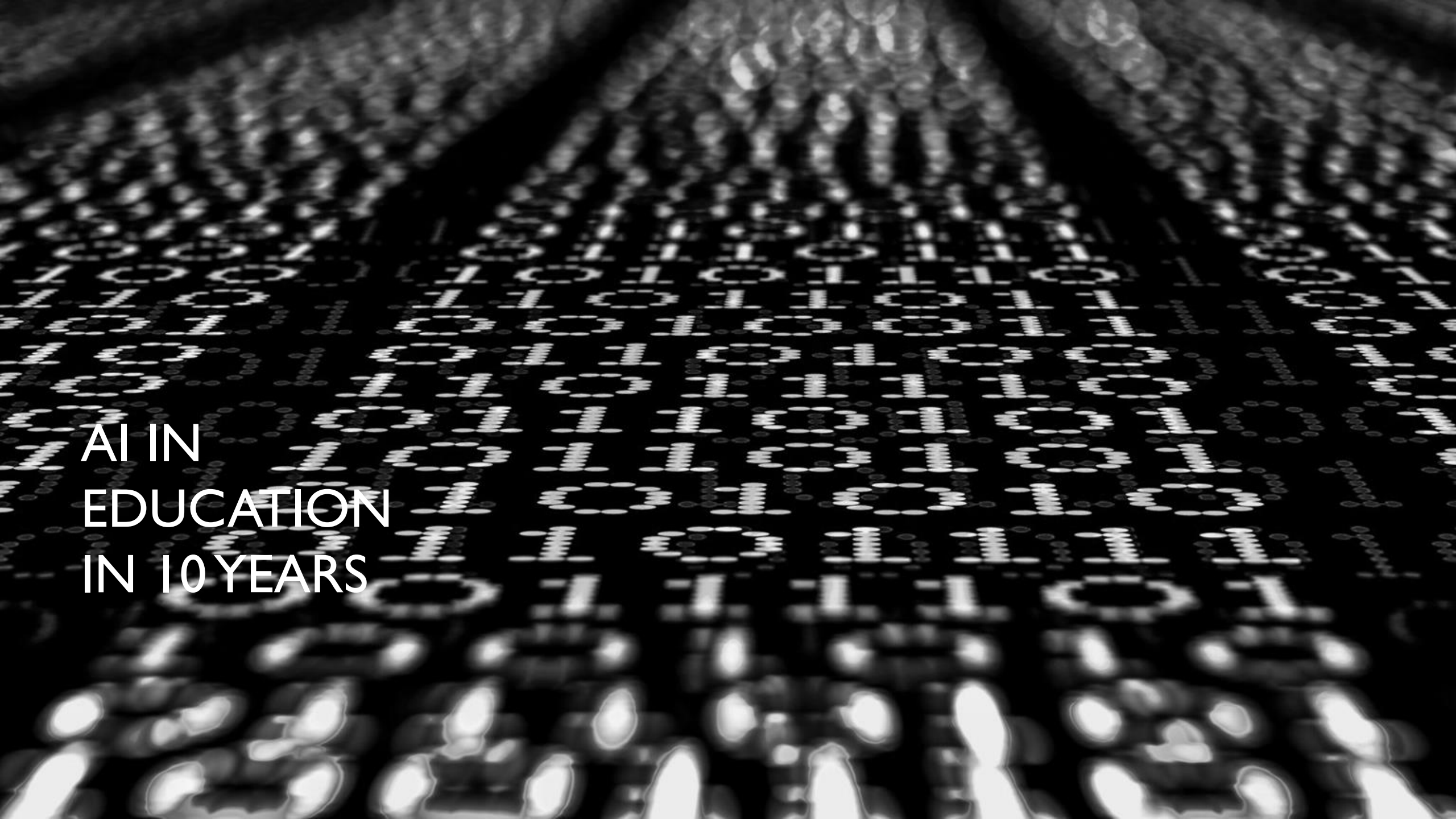
- Ban it instead of understand it
- Hide Content from the Robots
- Worry about SkyNet
- Call the Unions



The background of the slide features a dense crowd of stylized human figures, represented by dark grey silhouettes with circular heads. In the center-left of the crowd, one figure is highlighted in a bright, glowing yellow-orange color, standing out from the dark group. The overall lighting is dim, with the glow from the central figure illuminating the surrounding area.

INSPIRED RESPONSES

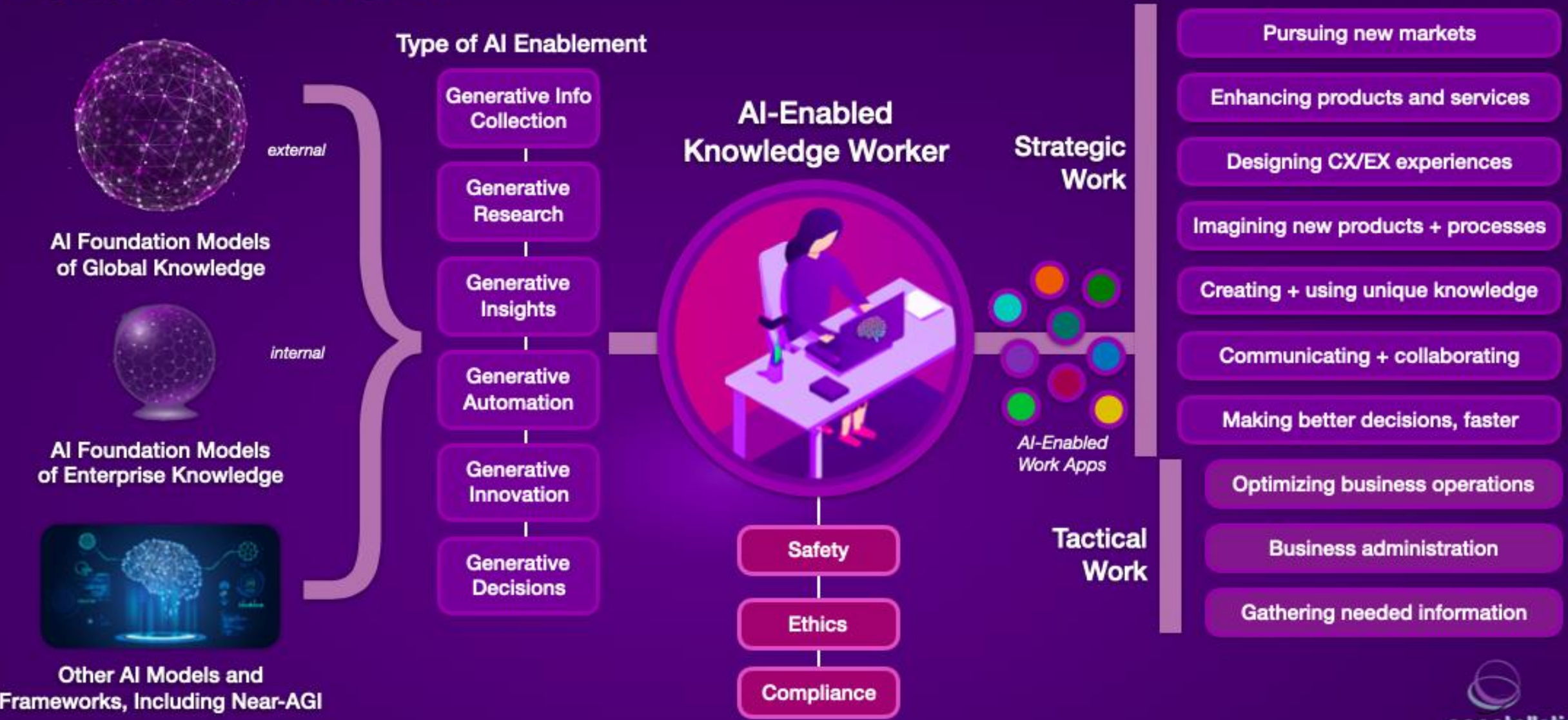
- Curate High quality Content
- Design new ways to test knowledge application
- Inspire and Engage
- Increase Output and Quality of our Educational Systems



AI IN
EDUCATION
IN 10 YEARS

Generative AI and the Future of Work

How Artificial Intelligence Will Reshape the Workplace and Employee Experience



WILL KNIGHT

BUSINESS APR 17, 2023 7:00 AM

OpenAI's CEO Says the Age of Giant AI Models Is Already Over

Sam Altman says the research strategy that birthed ChatGPT is played out and future strides in artificial intelligence will require new ideas.



SCENARIO A



Adding variety and lower costs within the boundaries of an outdated model of massified education

SCENARIO B



**Creating a
completely new
paradigm for
personalised
learning**

NO ONE IN
HISTORY HAS
EVER DEPLOYED
PERSONALISED
LEARNING AT
SCALE



THE ROLE OF SKILLS



- Personalised Learning at Scale means a move from:

I want to
STUDY



I want to
LEARN

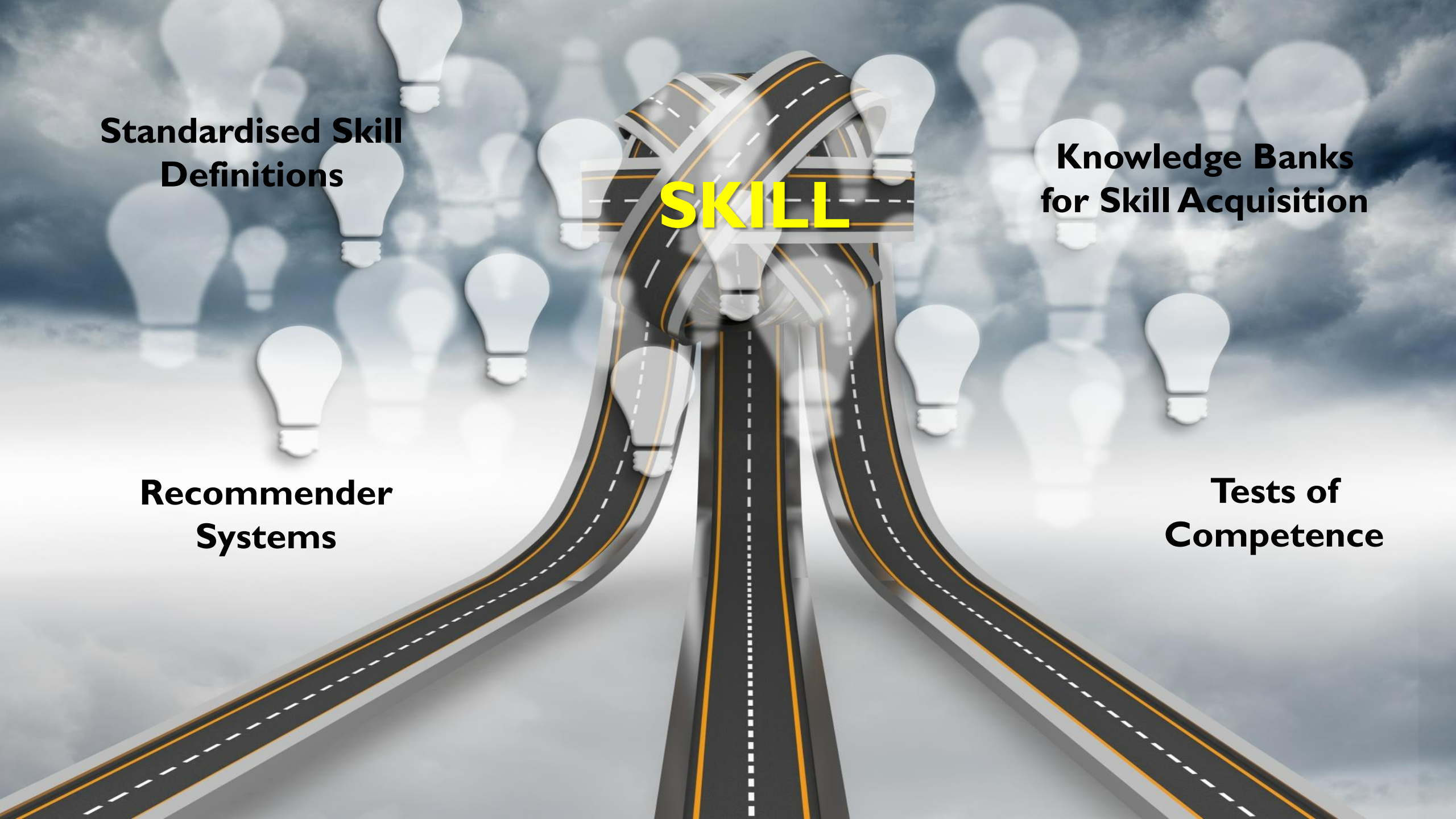
**Standardised Skill
Definitions**

SKILL

**Knowledge Banks
for Skill Acquisition**

**Recommender
Systems**

**Tests of
Competence**



SOME BORING IMPORTANT QUESTIONS

- Does standardised assessment make sense when we can test knowledge acquisition and application in different ways, suited to a learner's character?
- How do we Quality Assure partially automated teaching and assessment?
- Does the profession of teaching need to change into 'learning designers/engineers' and 'tutors'?
- Can we design new multi-lingual learning methodologies based on an assumption of high quality translation and localisation?
- How do we curate and share knowledge to build the right AI?



The art of
AI teaching is the
art of assisting
discovery.

MARK VAN DOREN

THANK YOU
FOR YOUR
ATTENTION

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LETS DISCUSS!