

# *Processes and Dynamics in the Age of Artificial Intelligence*

*April 2025*

*KvK, Klaipeda*



# Personal Presentation

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# Personal Presentation

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# *Summary*

**The Digital “World”  
Transformation**

**Artificial Intelligence**

**Examples of use and implementation**



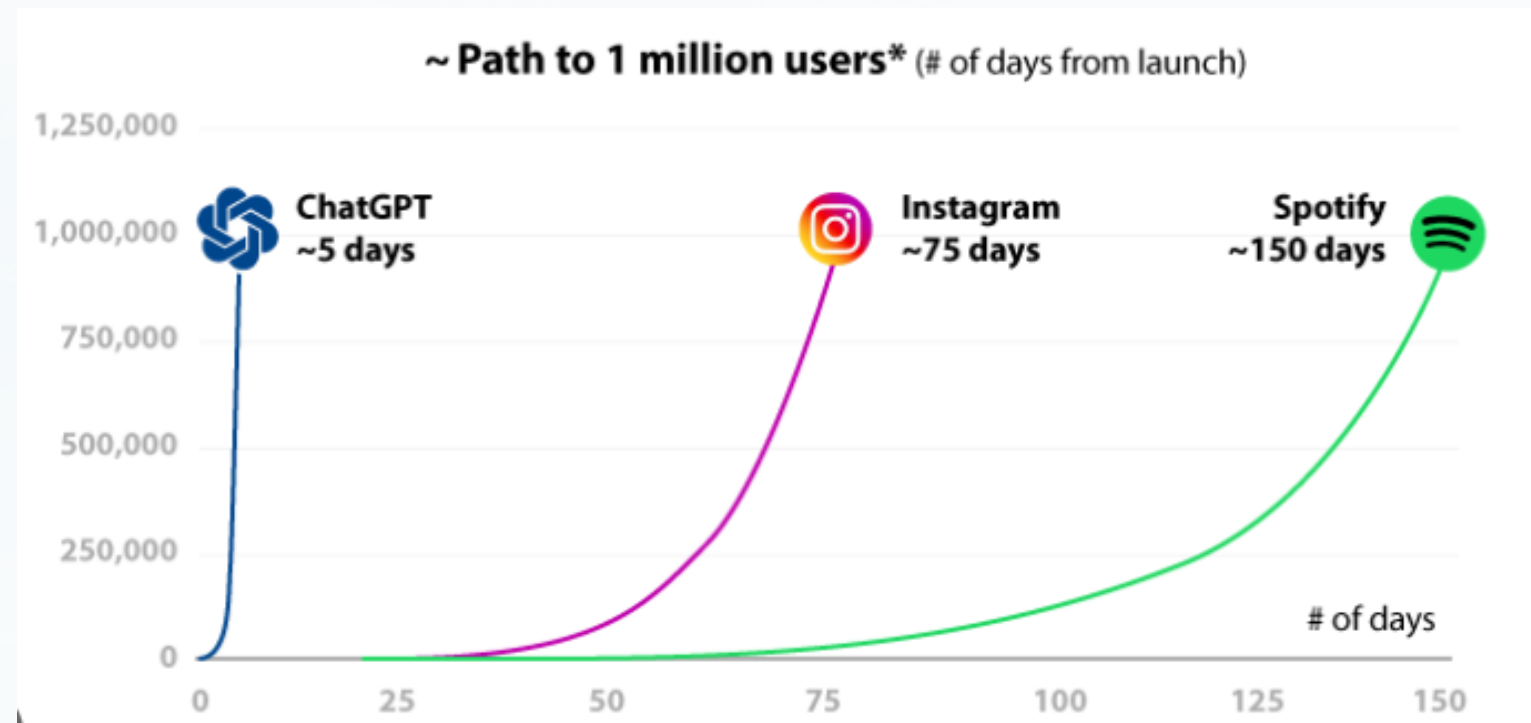
# ***What is happening with the transformation of this "Digital World"?***



*We live in a different world ... a connected world ...  
A world that connects **people with people - people with things**  
**- things with things***

Now, it is possible to have services and applications used by **millions of people in a few days (... hours)**.

For example, the **Chat GPT** needed only **5 days to reach 1 million users**.



A world with the ability to use large volumes of data in a mobile context...



Cloud computing and distributed systems allow us to use all types of data to add value.

Big Data gives us amounts of data in terms of **Volume, Velocity, Variety, and Veracity**, with digital information available to everyone, everywhere.



A world with the ability to **use large volumes of data in a mobile context...**



The **development of 5G** has enhanced and improved **access to knowledge and data in mobility and innovation contexts** (better latency, higher speed and higher density) and is now moving **to 6G (100x)**.



A world where **knowledge is accessed and shared** in a **Learning Organization context**, that can:

- create, acquire, interpret, transfer and retain knowledge
- modify its behavior, for business and competitiveness reasons, and reflect the new knowledge in its context



This index includes a score for companies that demonstrate that they follow the principles of an LO



# Sustainability indexes

## Economic



Codes of Conduct (Ethics)	4.2
Corporate Governance	5.4
CRM – Customer Relationship Management	3
Investor Relations	3.6
Risk and Crisis Management	4.2
Scorecards/ Measurement systems	4.2
Strategic Planning	4.2
Industry Related Criteria	variable

## Environment



Environmental Management	4.8
Environmental Performance	3.6
Environmental Reporting	1.8
Industry Related criteria	variable

## Social

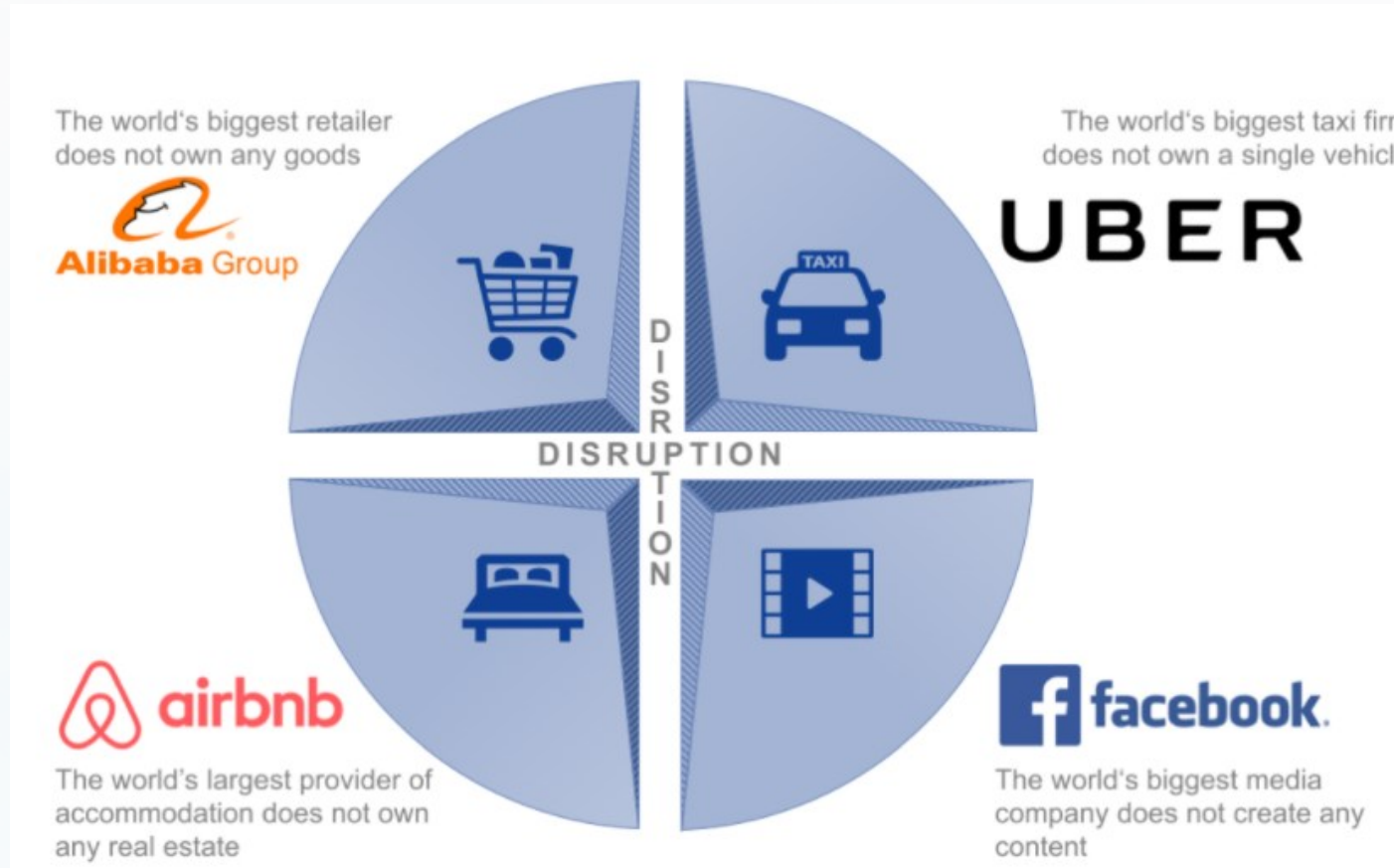


Corporate Citizenship	2.4
Stakeholders Engagement	3.6
Labor Practice Indicators	3
Human Capital Development	3
<b>Learning Organization</b>	<b>3</b>
Social Reporting	1.8
Talent Atraction & Retention	3
Standards for Suppliers	2.4
Industry Related Criteria	variable



This index includes a score for companies that demonstrate that they follow the principles of an LO

A world with disruptive services and trends **reach millions users.**



*The world's largest **taxi** company does not own **cars** (Uber)*

*The world's largest **lodging provider** does not own **real estate** (Booking)*



This digital revolution means a career change for many, with new skills, for example, the most valued:

- **Digital literacy**
- **Data analysis**
- **Digital marketing**
- **Cybersecurity**
- **Critical thinking**
- **Logical thinking**
- **+ Soft Skills**



So, we live in a world ...

*... where the **human dimension of technology** must be understood and shared ...*

*... and where **machines "help us think and do"**, using **Artificial Intelligence** ...*





# Artificial Intelligence

According to Russel & Norvig (2013), **Artificial Intelligence (AI)** is an area in **Computer Science** responsible for **simulating human intelligence and behavior using only machines**.

**Generative AI** allows machines to **perform tasks that normally require human intelligence**, such as *speech recognition, visual perception, decision-making, language translation, grammar checking, support systems and many other more complex operations.*

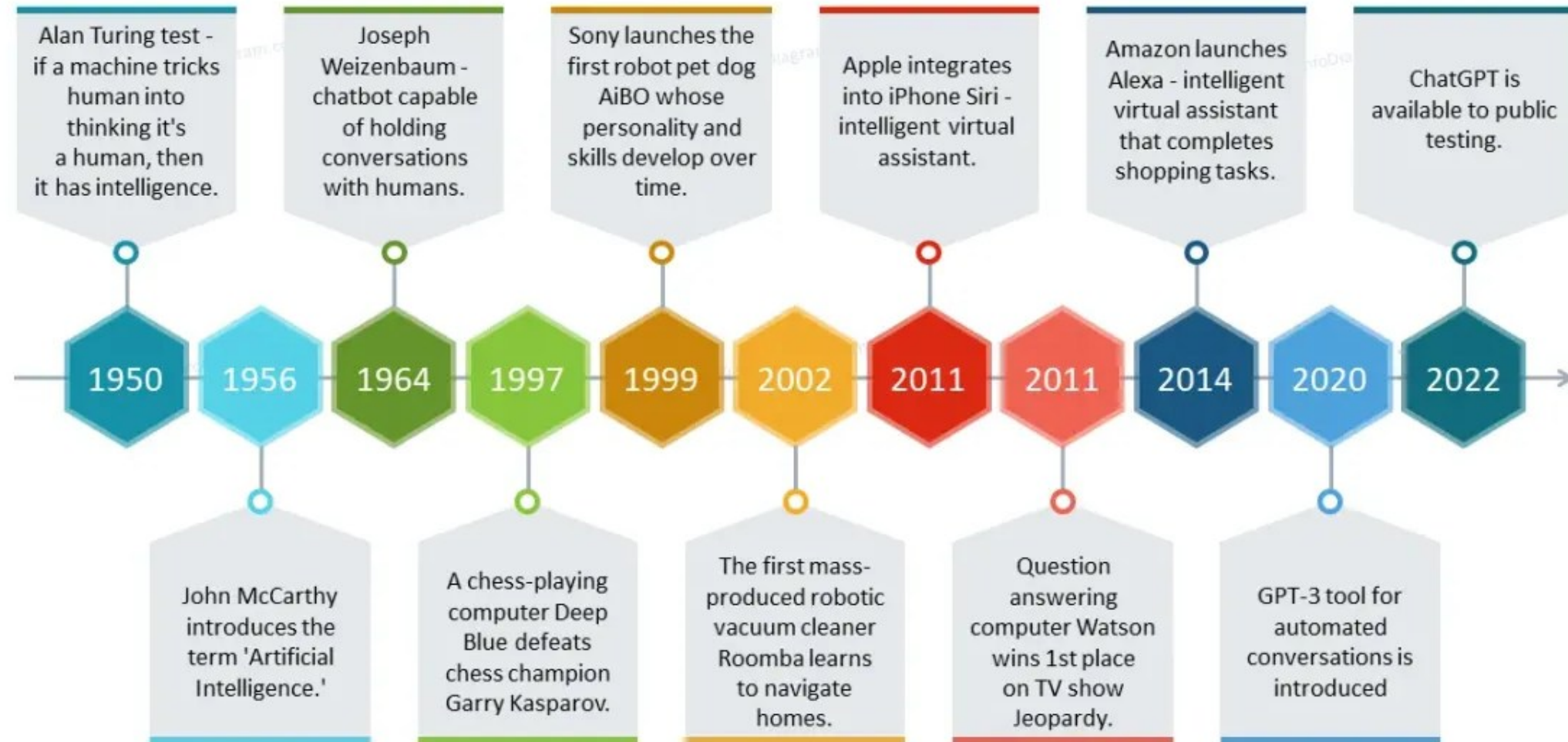


# The Evolution of Artificial Intelligence

Humanity has been developing the process of **Artificial Intelligence (AI)** for many years.

The term "**Artificial Intelligence**" was introduced in **1957** at a conference organized by **John McCarthy** at *Dartmouth College*.

Since then, and especially since **2020**, its use has increased exponentially.

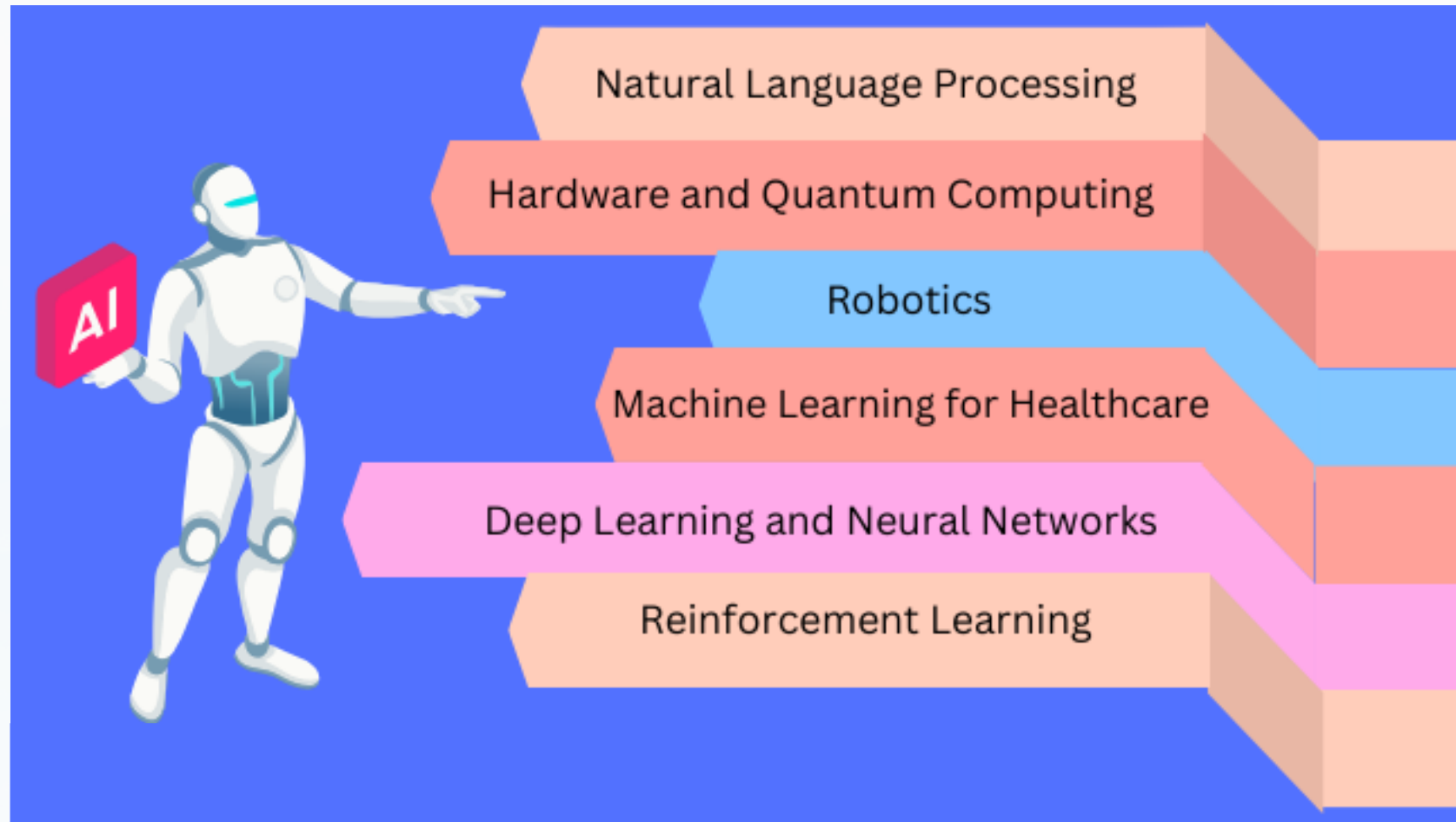


<https://www.infodiagram.com/slides/ai-development-timeline/>

<https://www.youtube.com/watch?v=NIhkAkUnMpA>

<https://blog.pareto.io/teste-de-turing/>

# Machine Learning



**Several fields**, all contributing to bring “*Intelligence*” to hardware, trying to mimic the most complex, optimised and well-functioning complex system know by man: *the human being!!*

<https://ghazalbioinfodr.medium.com/ai-ml-and-dl-309700212b94>

[https://www.juansensio.com/blog/086\\_intro\\_ml](https://www.juansensio.com/blog/086_intro_ml)

[https://www.youtube.com/watch?v=Beh13Cd\\_QbY](https://www.youtube.com/watch?v=Beh13Cd_QbY)

# Machine Learning & Deep Learning

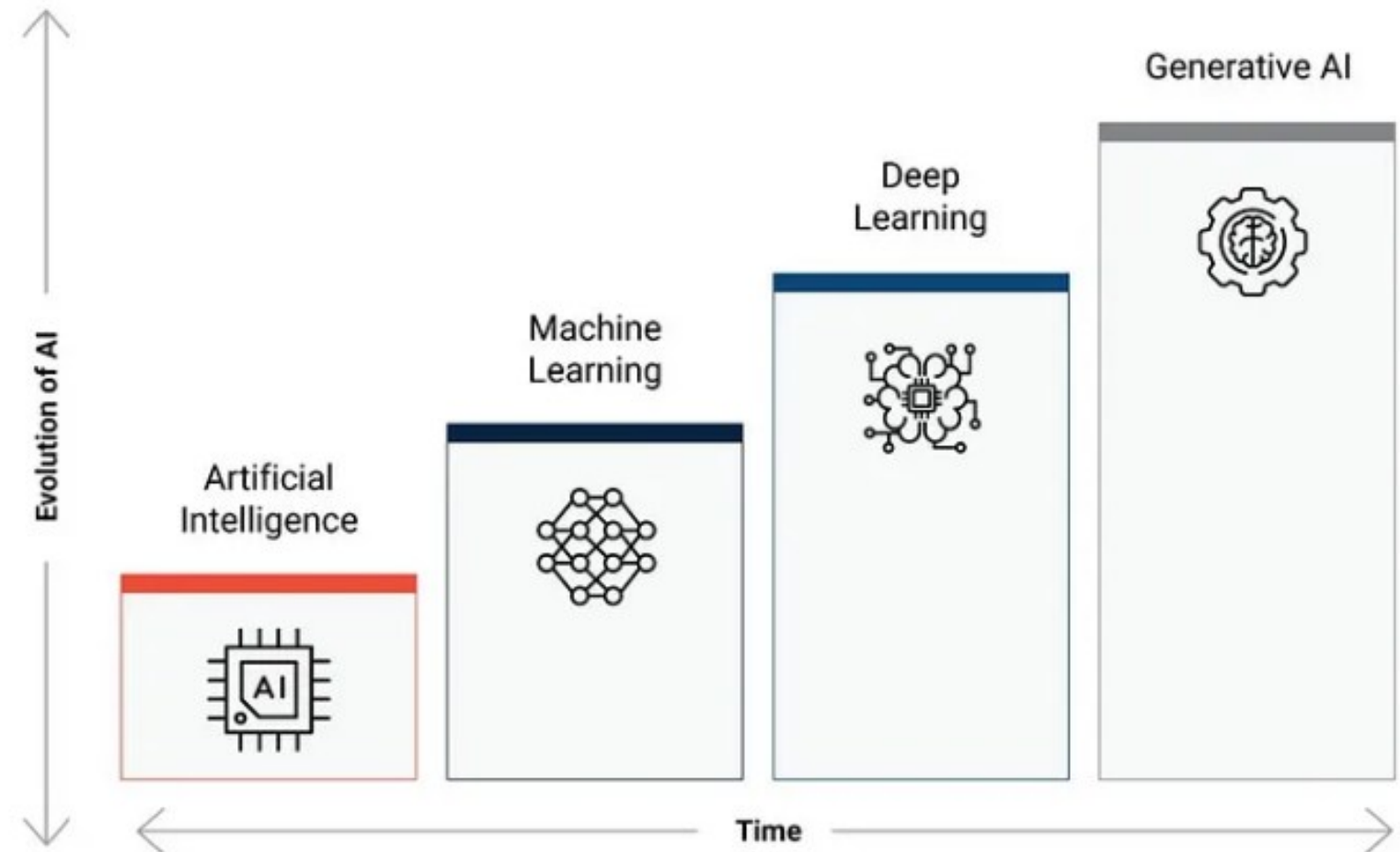
**Machine Learning** - ability to "learn" from a large amount of data/results, without being explicitly programmed.

These algorithms use **statistical techniques to identify patterns in data and make predictions or decisions, without human intervention**

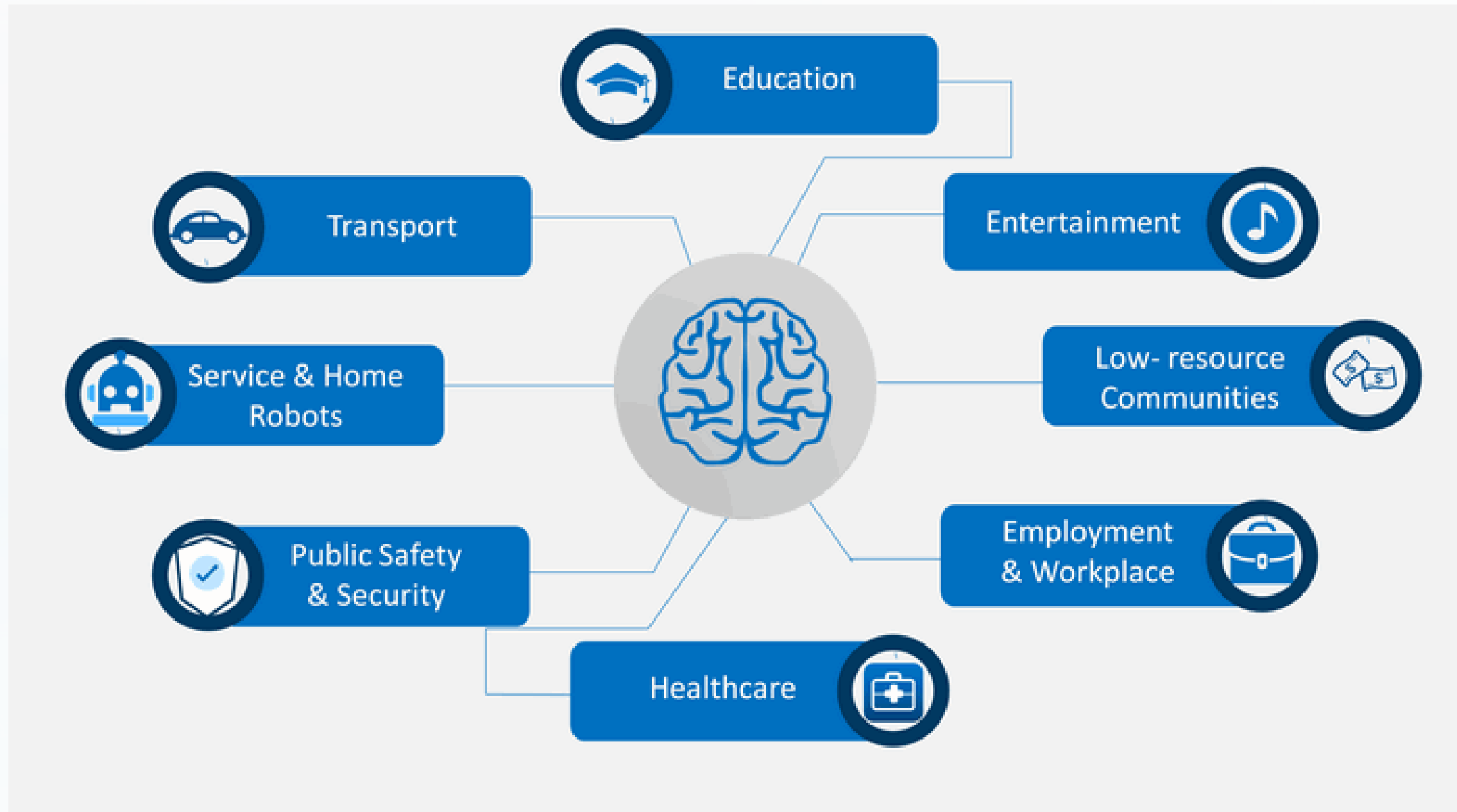
**Deep Learning** is a subset of ML that uses **artificial neural networks** to "*try to imitate and recreate*" the learning process of the **human brain**.

**Deep Learning** is a **network with multiple layers** that assimilate tasks and recognize symbols from data.

With DL, the machine learns through **pattern recognition** in several processing layers.



# Artificial Intelligence Fields of Application





# The Impact of AI on Education



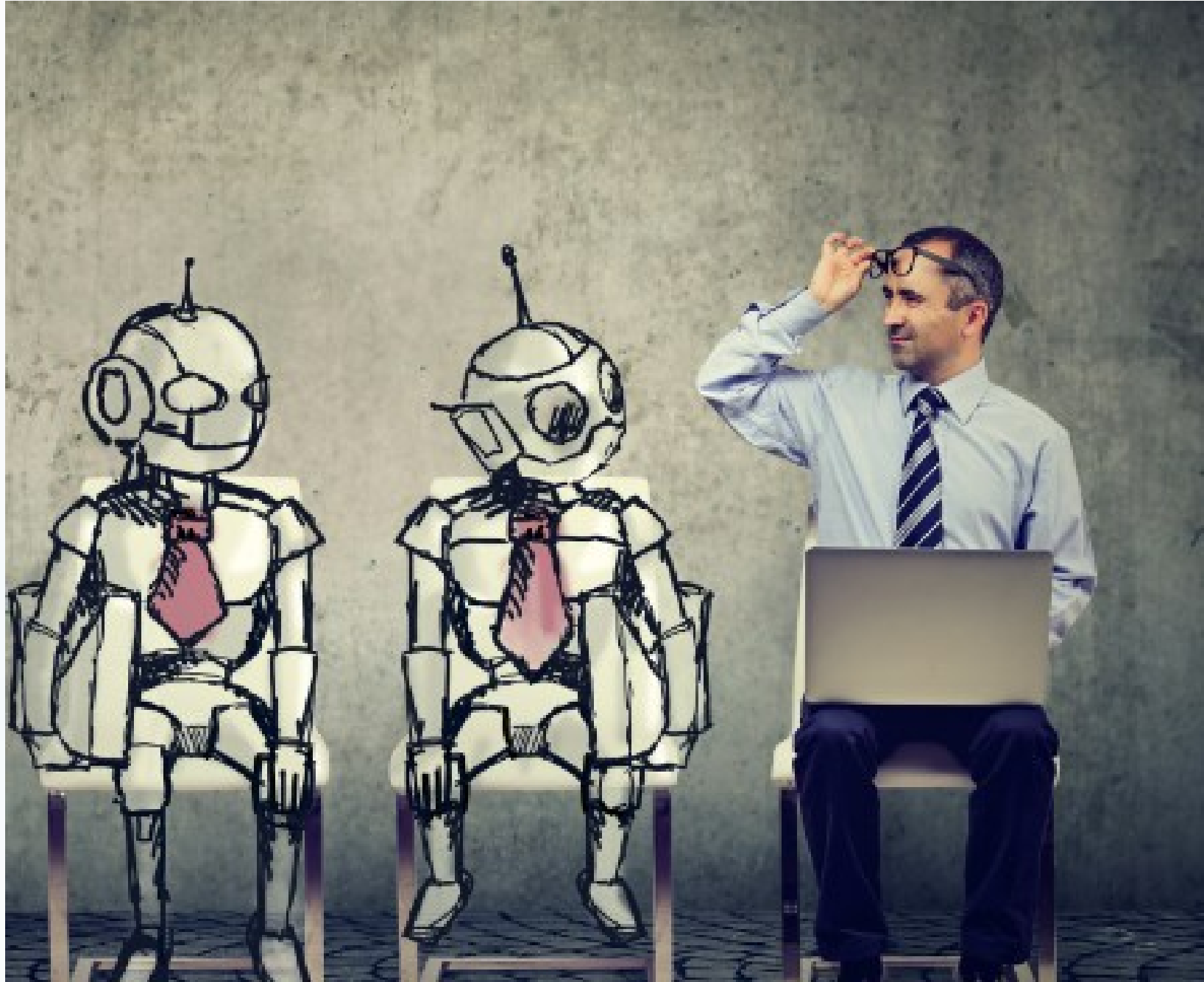
**Personalized teaching:** adapting to the pace, style, interests and individual needs of each student, with immediate and personalized feedback.



**Improving the teaching-learning process:** offers teachers powerful tools to enrich their pedagogical practices, allowing them to design dynamic curricula tailored to students' needs.



**Providing quick and relevant information** to aid learning, innovation and research, offering a **valuable tool** for both students and teachers.



# Brave New Words

How AI Will  
Re|volutionize  
Education (and  
Why That's a  
Good Thing) ☀

Salman Khan

Founder of Khan Academy

"A timely master class for anyone interested in the future  
of learning in the AI era." —Bill Gates



# Generative AI applications



- **Text generation:**
  - ChatGPT, Gemini, Copilot, Claude (for chatbots and writing assistance).



- **Image and video creation:**
  - DALL-E, MidJourney.



- **Program:**
  - GitHub Copilot, CodeWhisperer.



OpenAI - ChatGPT



Microsoft Copilot



Google Gemini



Anthropic - Claude

# GPT - Generative Pre-Trained Transformer



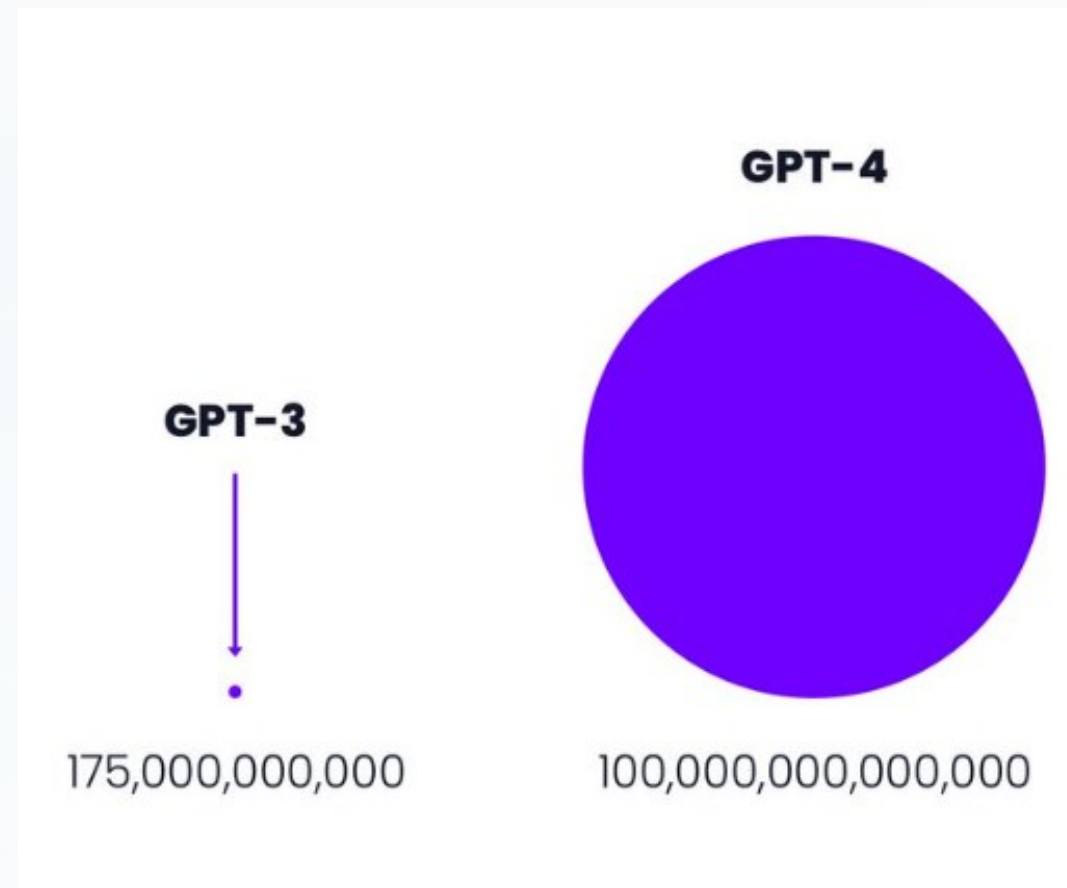
These GPT applications stand for **Generative Pre-Trained Transformer**, the **GPT** is a **Natural Language Model**.

**GPT Chat** was created in **2015** by **Sam Altman** (Open IA). This chat system currently has more than **400 million users** (Source: OpenAI - <https://openai.com>).

GPT-4o has **100 trillion parameters**. It processes **25,000 words** in one go and can remember **64,000 words**.

**GPT Chat** not only answers questions, it can also **perform various tasks** such as:

- Composing texts, emails and cover letters
- Create lists
- Describe subjects in detail
- Writing code
- Summarize content
- Creating poems and lyrics
- Search the Internet ...





**GPT-4o** (“o” for “omni”) accepts as input any combination of text, audio, image, and video and generates any combination of text, audio, and image outputs.

It can respond to audio inputs in as little as 232 milliseconds, with an average of 320 milliseconds, which is similar to human response time in a conversation.

<https://openai.com/index/hello-gpt-4o/>

# Generative AI applications

1. Role
2. Task
3. Goal
4. Context
5. Steps
6. Constraint
7. Format
8. In summary...

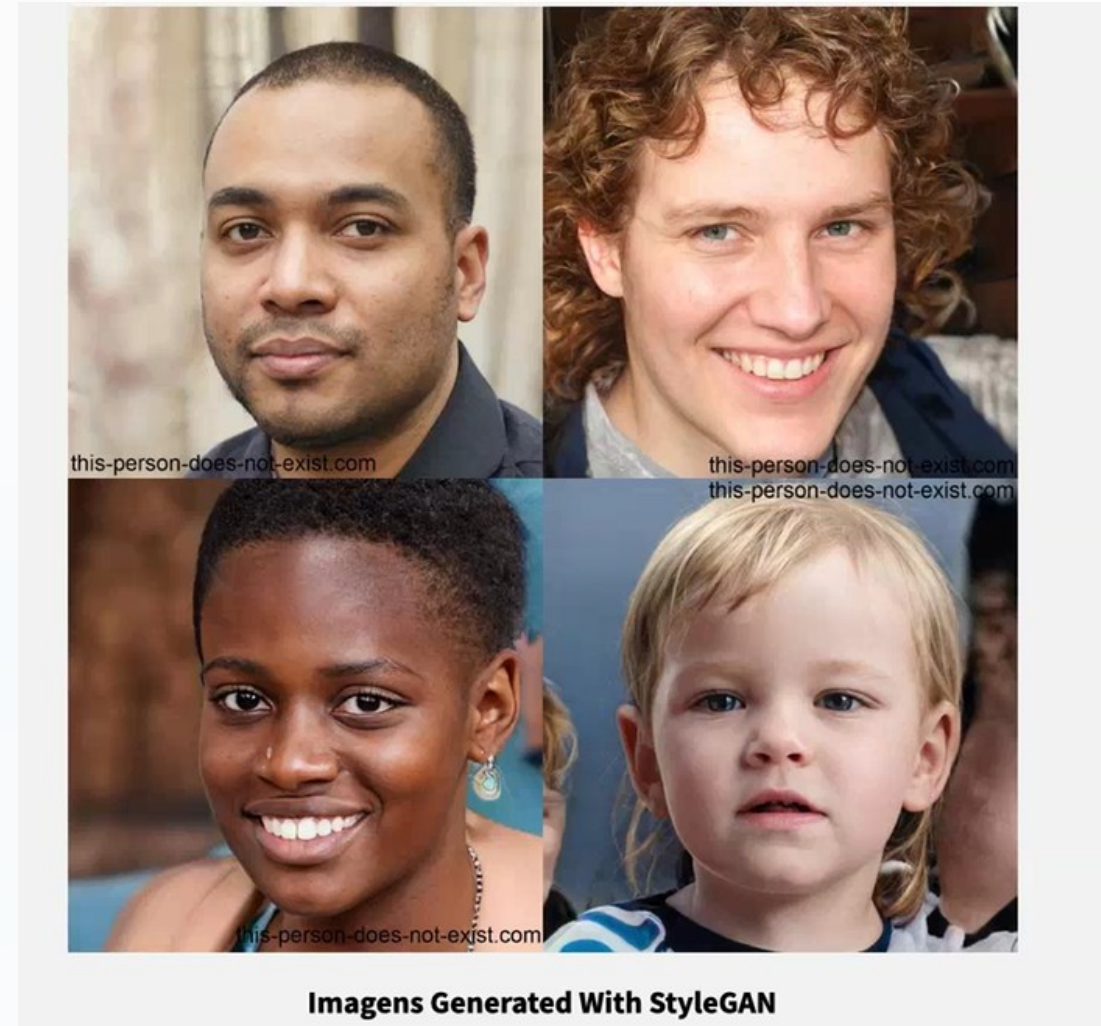
These **Generative AI** applications are powered by language models (LLM), which receive input in **natural language** and return appropriate responses in a variety of formats, *such as text, music, video, images or code*.

For this purpose, these applications use what is known as: **Prompt Engineering**, which underpins **the art of asking questions**.





**These models can fail... they can invent things...**



Example of images of people who do not exist.

The model learns what is needed to create a face and then creates one. But with small mistakes, like earrings....



For example, **Gen AI in the fashion world, with a valuable aid in the creation of clothing**

**FASHABLE AI DESIGNED ONE OF THESE DRESSES. CAN YOU GUESS?**



MARNI at [YOOX](#)



SAINT LAURENT at [YOOX](#)



AI  
Generated



ERDEM at [Net a Porter](#)



Dr. Abubakar Zakari ([www.fashable.ai](http://www.fashable.ai))

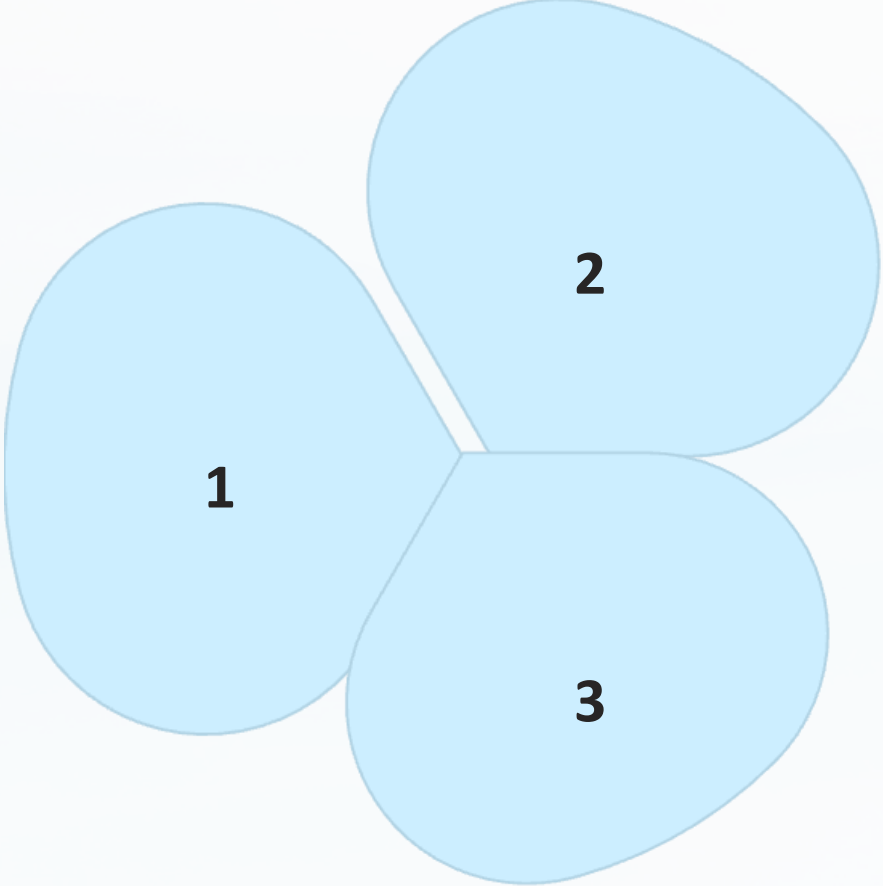


Another example, **MEO's contact center through Bot School**, which helps **Telecom customers directly**, for example to test their WiFi password.

A screenshot of a contact center interface with a purple background. In the top left corner, there is a circular logo with a stylized 'e' and a speech bubble. Below the logo, the text "Use Case" is written in white, followed by "Contact Center Offload MEO" in large, bold, purple letters. On the right side, there is a video inset showing a woman sitting at a table in a cafe, looking at her phone. At the bottom of the interface, there is a white speech bubble containing a microphone icon and the text "Hello, I would like to check my Wi-Fi password, please." The background of the interface has some faint, abstract shapes and colors.

# Artificial Intelligence

**Processes and Dynamics in  
the Age of Artificial Intelligence**



**AI for Product Business Model**

**Challenge and Opportunities**

# 1. AI Tools for Students and teachers

1

## Smart Support

ChatGPT



2

## Writing support

Grammarly, DeepL



3

## Study Organization

Napkin, Dall-e



4

## Presentations

Gamma





*The target audience is marketing students at an innovative University in Klaipeda.*

*Can you help me to structure this presentation?*

*You can write a summary of it.*

I'm a teacher and I want to give a presentation on the topic: Learning processes and dynamics in the age of AI. The target audience is marketing students at an innovative university in Klaipeda. Can you help me to structure this presentation? You can write a summary of it.

Memória atualizada

Absolutely! Here's a summary and structure for your presentation titled:

---

## **Learning Processes and Dynamics in the Age of AI**


Target Audience: Marketing students at an innovative university in Klaipeda

Duration Suggestion: 30–45 minutes

---

### **1. Introduction (5 min)**

- Welcome and context
- Brief overview of the talk
- Why this topic matters now — especially for marketing students

 "We are no longer just learning about AI; we are learning with AI."





## Can you prepare a presentation on this topic?

Sure! Here's a short and clear summary (resume) of your presentation:

### Presentation Summary

**Title:** *Learning Processes and Dynamics in the Age of AI*

**Audience:** Marketing students at an innovative university in Klaipėda

In this presentation, we explore how artificial intelligence is reshaping the way we learn, both as individuals and in teams. AI tools such as ChatGPT, adaptive platforms, and automated feedback systems are transforming learning into a more dynamic, personalized, and continuous experience.

We will examine the shift from traditional learning models to AI-augmented learning environments, where human and machine collaboration enhances creativity, efficiency, and critical thinking. Special attention is given to the essential human skills needed in this new context — including ethical awareness, digital literacy, and emotional intelligence.

Finally, we discuss the specific relevance for marketing students, highlighting how AI is not only changing how we learn but also how we practice marketing. Students are encouraged to embrace AI as a partner in their learning journey and future careers, developing a mindset of experimentation, reflection, and responsible innovation.

Let me know if you want this summary adapted into a slide or as an abstract for an event/programme.



### 🎓 PowerPoint Structure – Presentation: "Learning Processes and Dynamics in the Age of AI"

#### Slide 1 – Title Slide

- **Title:** *Learning Processes and Dynamics in the Age of AI*
- **Subtitle:** A new mindset for students, teams, and marketers
- **Your name & institution**
- *(Optional: date and university logo)*

#### Slide 2 – Why This Topic Now?

- Learning is changing fast — and so is marketing
- AI is everywhere: from search to study habits
- Students today are the first true AI-native learners

💬 *"We are not just learning about AI – we are learning with it."*

#### Slide 3 – What Is AI Doing to Learning?

- Personalized learning paths
- Instant feedback and real-time assistance
- Learning becomes continuous, adaptive, and co-created



🎯 *Example: Using ChatGPT to brainstorm marketing ideas*



*Can you help me create a PPT with this structure and content?*

A screenshot of a presentation slide from Gamma. The slide features a background image of students in a modern classroom using tablets. The title is 'Learning Processes and Dynamics in the Age of AI' in a large, bold, dark blue font. Below the title is a paragraph of text: 'Explore the transformative impact of AI on learning. This presentation covers adapting to this new mindset in education, teamwork, and marketing. Let's look at the new dynamics of learning.' At the bottom, it says 'por Arnaldo Santos' with a small profile picture and 'Última edição 1 minuto atrás'. The slide is framed by a blue border with a top navigation bar containing icons for menu, undo, and redo, and a bottom right icon for a list.

# Learning Processes and Dynamics in the Age of AI

Explore the transformative impact of AI on learning. This presentation covers adapting to this new mindset in education, teamwork, and marketing. Let's look at the new dynamics of learning.



por **Arnaldo Santos**

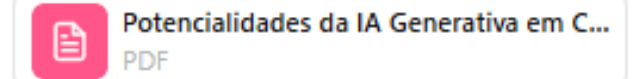
Última edição 1 minuto atrás



## And summarizing a document ...

**Example of an AMS article:**

***Potential of Generative AI in Educational Contexts.pdf***



O documento que você compartilhou, intitulado "*Potencialidades da IA Generativa em Contextos Educacionais*", aborda as capacidades transformadoras da inteligência artificial (IA), especialmente da IA generativa, no campo educacional.

Alguns pontos principais incluem:

1. **Transformação Digital na Educação:** A IA oferece abordagens de ensino mais personalizadas e acessíveis, auxiliando no suporte ao aluno, avaliação, e na criação de conteúdo digital. A IA está sendo integrada à educação para otimizar e automatizar processos.
2. **IA Generativa:** Esta forma de IA pode criar conteúdos originais, como texto, vídeo e imagens, através de padrões de aprendizado. Ferramentas como ChatGPT, Copilot e Claude são exemplos de IA generativa aplicadas na educação.
3. **Impacto e Potencial:** A IA contribui para a personalização do ensino, melhorando a experiência de professores e alunos. Ela auxilia no desenvolvimento de currículos dinâmicos e fornece feedback imediato, o que facilita a adaptação do ensino ao estilo de aprendizagem dos alunos.
4. **Desafios e Ética:** Embora traga benefícios, a IA levanta questões sobre privacidade, uso indevido e necessidade de garantir respostas éticas e imparciais.

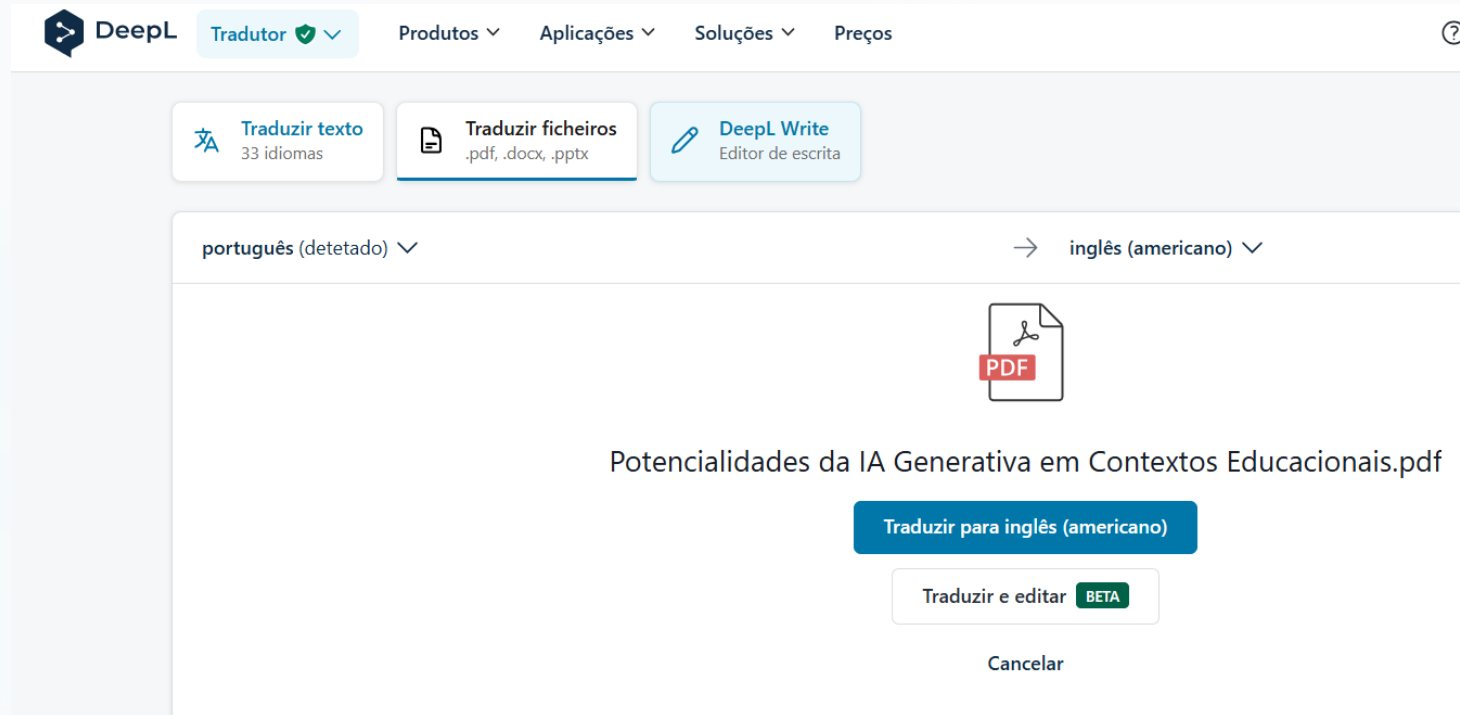
Se precisar de uma análise mais aprofundada ou uma interpretação de pontos específicos do documento, estou à disposição!





***And translate that document...***

***Potential of Generative AI in Educational Contexts: Concepts, Tools and Perspectives***



**Introduction**

Artificial intelligence can increasingly affect our lives and is considered a key science for the digital transformation of the information and knowledge society.

The use of digital technologies in a way that allows us to rethink and redesign the processes that are carried out, optimizing them and then, in most cases, automating them, leads to an effective transformation that is called **digital transformation**. There are several technologies that support this change: Cloud Computing, Virtualization, Virtual/Augmented Reality, Robotic Process Automation and Artificial Intelligence.

**Artificial Intelligence (AI)** is transforming education and training, promoting new personalized and accessible approaches.

Artificial intelligence systems are changing the way we live, share, work and learn. AI can offer and help in the development of new synchronous and asynchronous approaches, in student assessment and support, and in the creation of personalized digital content.

According to Professor Josh Antonuccio of Ohio University, "**Education as we know it will never be the same**". For this researcher, "**AI is here to stay and all education and training leaders must learn how to understand and take advantage of this technology**".



*And do a grammar check of that document...*

### *The Potential of Generative AI in Educational Contexts: Concepts, Tools, and Perspectives*

#### **Introduction**

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The use of digital technologies in a way that allows us to rethink and redesign the processes that are carried out, optimize them, and then, in most cases, automate them leads to an effective transformation called **digital transformation**. There are several technologies that support this change: Cloud Computing, Virtualization, Virtual/Augmented Reality, Robotic Process Automation and Artificial Intelligence.

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According to Professor Josh Antonuccio of Ohio University, "**Education as we know it will never be the same**". For this researcher, "**AI is here to stay and all education and training leaders must learn how to understand and take advantage of this technology**".

This statement may cause some people to feel uncomfortable, but it is innovative and disruptive for many others, because we are facing a scenario where machines "**help us think and do**", using Artificial Intelligence.

The screenshot shows the Grammarly interface with a list of issues. The first issue is 'education · Update all'. The second issue is 'and · Add a comma'. The third issue is 'CORRECTNESS: FLUENCY', which is expanded to show a suggestion. The original text is: 'AI can offer and help in the development of new synchronous and asynchronous approaches, in student assessment and support, and in-the creation of personalized digital content.' The suggested text is: 'AI can offer and help in the development of new synchronous and asynchronous approaches, **in** student assessment and support, and **in**-the creation of personalized digital content.' A blue button 'Replace with this version' is visible, along with a checked box for 'Highlight changes'. At the bottom, it says '47 All issues'.



## And summarizing written documents

### AI competency framework for teachers



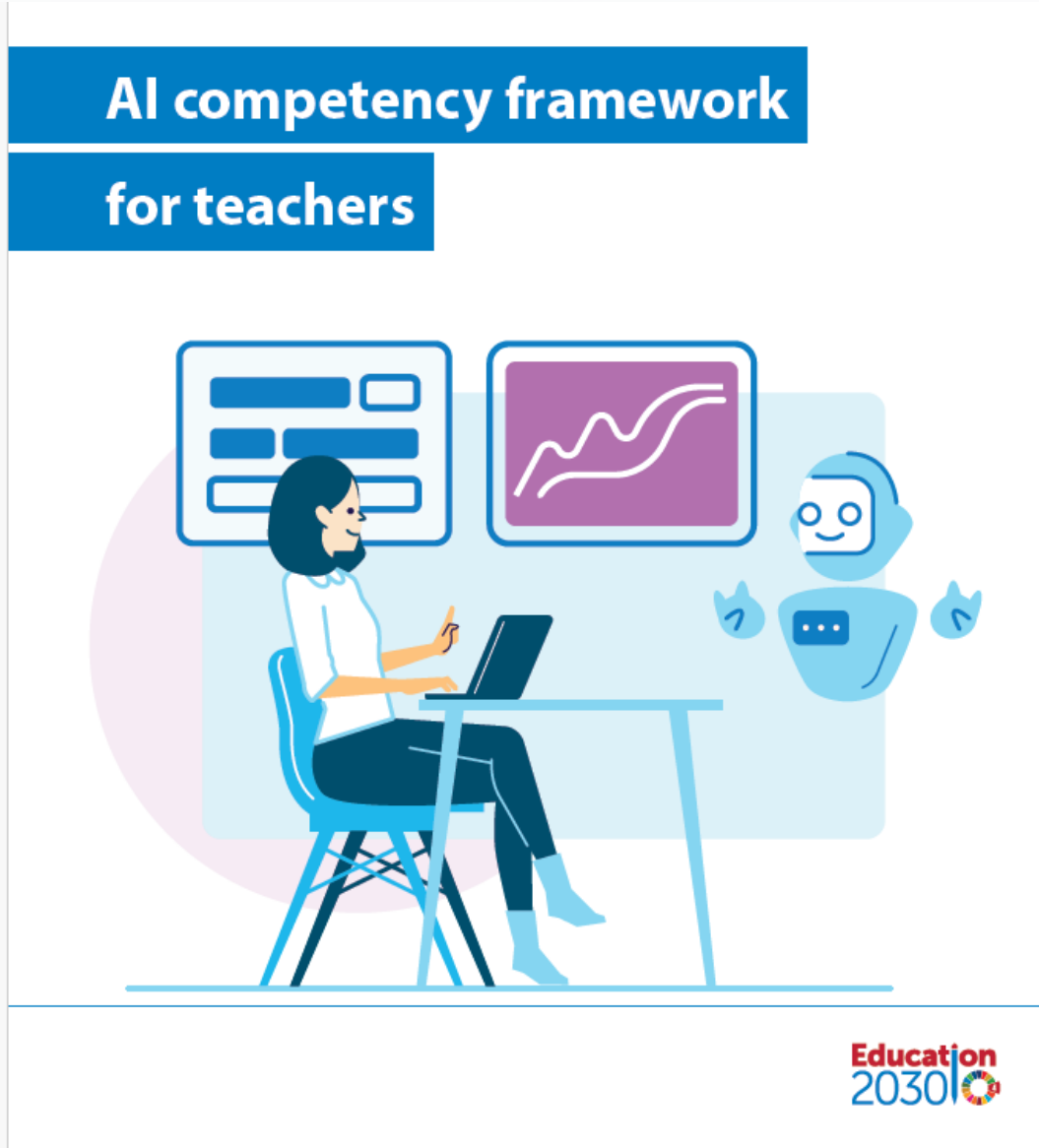
Education  
2030

O relatório "AI Competency Framework for Teachers" da UNESCO destaca a necessidade de capacitar professores para a era da inteligência artificial (IA), fornecendo um referencial global para o desenvolvimento de competências essenciais. A UNESCO reconhece que a IA tem transformado a educação, criando uma nova dinâmica entre professores, alunos e tecnologia. No entanto, a falta de orientação sobre o uso responsável da IA na educação representa um desafio significativo.

O documento estabelece um quadro de 15 competências distribuídas em cinco dimensões principais: Mentalidade Centrada no Humano, Ética da IA, Fundamentos e Aplicações da IA, Pedagogia da IA e IA para Desenvolvimento Profissional. Essas competências são organizadas em três níveis de progressão: Adquirir, Aprofundar e Criar, permitindo um desenvolvimento contínuo dos professores em relação ao uso da IA.

A UNESCO enfatiza que a implementação da IA deve ser baseada em princípios éticos, garantindo a proteção dos direitos dos professores, promovendo a inclusão e assegurando a sustentabilidade ambiental. Além disso, defende que os professores sejam preparados para avaliar criticamente as ferramentas de IA, aplicá-las de maneira pedagógica e inovadora e fomentar o aprendizado contínuo.

O relatório também propõe estratégias para implementação, incluindo a regulamentação da IA na educação, a formulação de políticas adequadas, o desenvolvimento de programas de formação para professores e a criação de métodos de avaliação do desempenho docente no uso da IA. A abordagem da UNESCO visa garantir que a educação permaneça centrada no ser humano, promovendo a aprendizagem inclusiva e sustentável na era digital.



O relatório da UNESCO, *AI Competency Framework for Teachers*, aborda a integração da Inteligência Artificial (IA) na educação, focando-se nas competências necessárias para que professores usem IA de forma ética, eficaz e centrada no ser humano.

O documento apresenta uma estrutura de competências, dividida em cinco áreas principais:

1. **Mentalidade Centrada no Humano:** Fomentar valores e atitudes que priorizam direitos humanos e a necessidade de interações significativas entre humanos e IA.
2. **Ética da IA:** Compreender os princípios éticos e as normas relacionadas à IA, incluindo questões de privacidade, justiça social e diversidade.
3. **Fundamentos e Aplicações da IA:** Conhecimentos básicos sobre IA e habilidades para escolher e aplicar ferramentas de IA adequadas ao ambiente de ensino.
4. **Pedagogia com IA:** Integrar IA de maneira que suporte o ensino, a aprendizagem e a avaliação, respeitando os limites éticos e pedagógicos.
5. **Desenvolvimento Profissional:** Capacitar os professores a usarem IA para impulsionar o aprendizado contínuo e a colaboração profissional.

Estrutura de Competência em IA para Professores





*And to include images in that summary...*

Create a classroom at KvK University with 20 students and two professors talking about Artificial Intelligence.



# How can Artificial Intelligence help co-creation and research?

Elicit
How can Artificial Intelligence help co-creation and research?

Summary of top 4 papers Copy
















Artificial Intelligence (AI) has the potential to significantly enhance co-creation and research. In the healthcare industry, AI-based solutions facilitate value co-creation between technology service providers and customers, leading to improved patient care ([Leone, 2020](#)). AI can also serve as an inspiring co-creation partner in design, suggesting novel variations and enhancing creativity ([German, 2019](#)). Furthermore, AI can foster human creativity by prompting lateral thinking and supporting design and educational activities ([Liapis, 2016](#)). In the field of research, AI can aid in the co-creation of research questions, with a breadth-first approach being perceived as more creative and trustworthy ([Liu, 2023](#)). These studies collectively demonstrate the potential of AI to enhance co-creation and research across various domains.

+ Add columns
Sort: Most relevant
Filters
Export as PLUS

<input type="checkbox"/> Paper	<input type="checkbox"/> Abstract summary	
<input type="checkbox"/> <b>How does artificial intelligence enable and enhance value co-creation in industrial markets? An exploratory case study in the healthcare ecosystem</b> <small>🔗 Daniele Leone +3</small> <small>2020 16 citations <span>DOI</span></small>	Artificial intelligence-based customer-centric solutions are co-created through perceptive and responsive mechanisms in healthcare.	<div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <b>Search or create a column</b> <span>0</span>  <small>Describe what kind of data you want to extract</small>  <input style="width: 100%;" type="text" value="e.g. summary, counter-arguments"/> </div> <div style="border: 1px solid #ccc; padding: 5px;"> <small>ADD COLUMNS</small>  <ul style="list-style-type: none"> <li>+ Summary</li> <li style="background-color: #f0f0f0;">+ Main findings</li> <li>+ Methodology</li> <li>+ Intervention</li> </ul> </div>
<input type="checkbox"/> <b>Towards Artificial Intelligence Serving as an Inspiring Co-Creation Partner</b> <small>🔗 Kevin German +3</small> <small>📄 EAI Endorsed Transactions on Creative Technologies</small> <small>2019 6 citations <span>PDF</span> <span>DOI</span></small>	AI algorithms can be trained by a small sample set of shapes of a given object to propose novel shapes.	
<input type="checkbox"/> <b>Can Computers Foster Human Users' Creativity? Theory and Praxis of</b>	A computational process that can take a proactive role in such	

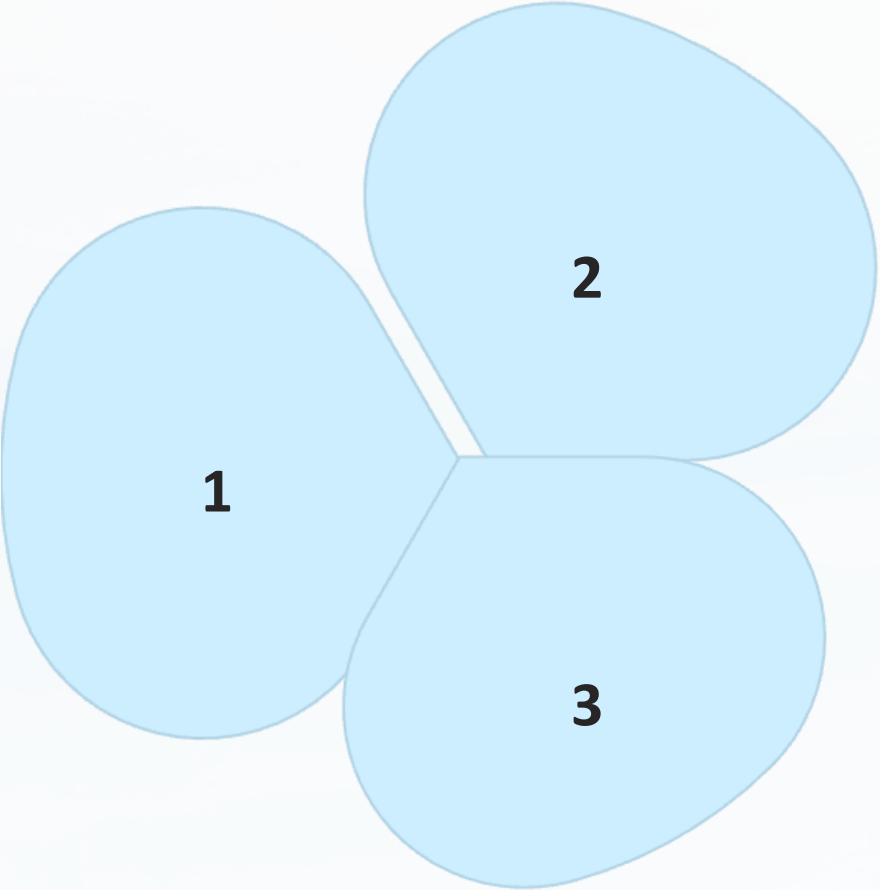
Add new step

# How can Artificial Intelligence help co-creation and research?

Paper	Abstract summary	Main findings  	Methodology  
<p><b>How does artificial intelligence enable and enhance value co-creation in industrial markets? An exploratory case study in the healthcare ecosystem</b></p> <p> Daniele Leone </p> <p>2020 16 citations </p>	<p>Artificial intelligence-based customer-centric solutions are co-created through perceptive and responsive mechanisms in healthcare.</p>	<p>- The research aims to understand how AI-based solutions support firms in co-creating value in B2B industrial markets. </p> <p>- An integrative framework with two iterative loops is proposed.</p> <p>- Implications for theory and practice are discussed, and future research ideas are presented.</p>	<p>Case study in the healthcare industry with a focus on understanding how AI-based solutions support firms in co-creating value in B2B industrial markets.</p>
<p><b>Towards Artificial Intelligence Serving as an Inspiring Co-Creation Partner</b></p> <p> Kevin German </p> <p> <i>EAI Endorsed Transactions on Creative Technologies</i></p> <p>2019 4 citations  </p>	<p>AI algorithms can be trained by a small sample set of shapes of a given object to propose novel shapes.</p>	<p>The main findings suggest that AI can significantly impact the creative process by enabling novel designs, lowering the time between intention and realization, and potentially democratizing creativity.</p>	<p></p>
<p><b>Can Computers Foster Human Users' Creativity? Theory and Praxis of Mixed-Initiative Co-Creativity</b></p> <p> Antonios Liapis </p>	<p>A computational process that can take a proactive role in such activities can not only support human creativity but also foster it and prompt lateral thinking.</p>	<p>Artificially intelligent computers can support and foster human creativity by prompting lateral thinking, human input and initiative can constrain the search</p>	<p>The methodology involves discussing the impact of artificially intelligent computers on design, play, and educational activities, as well as reviewing four mixed-initiative</p>

# Artificial Intelligence

**Processes and Dynamics in  
the Age of Artificial Intelligence**



**AI for Product Business Model**

**Challenge and Opportunities**

# AI - AI for Product Business Model

**Challenge: BMC + BP + SWOT**

The aim of this assignment is to invest in a product's valorization strategy.

To do this, you will need to follow the fundamentals of Osterwalder Alexander's Business Model Generation and Value Proposition Design (Strategyzer.com).

The result will be:

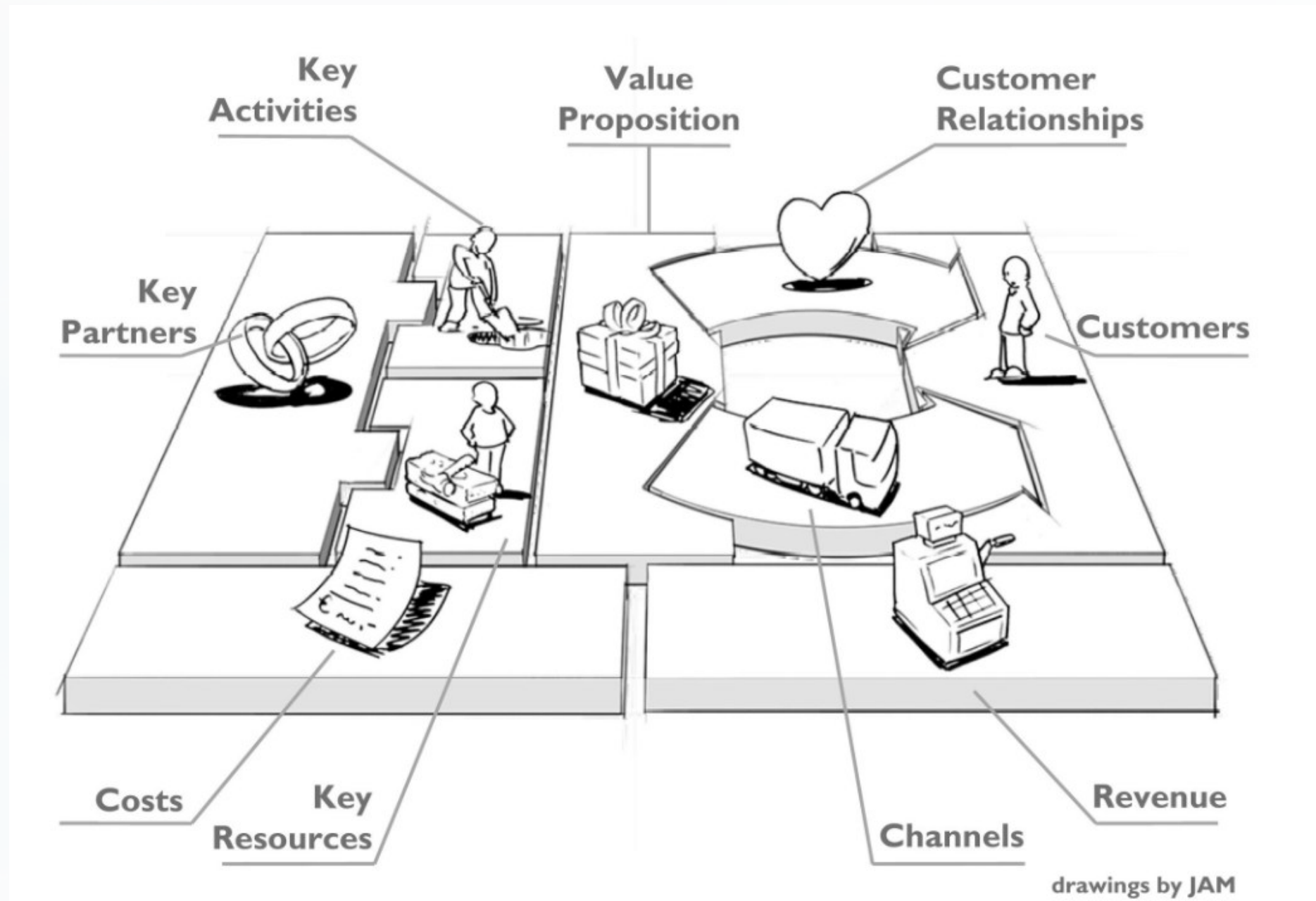
1. A slide with a **presentation of the product** (what it is! and what it's for!)
2. A slide with the Product **Business Model Canvas** of the Product
3. The Product **Value Proposition Canvas**
4. The Product **SWOT Analysis**

The product chosen could be **Nespresso** or another.



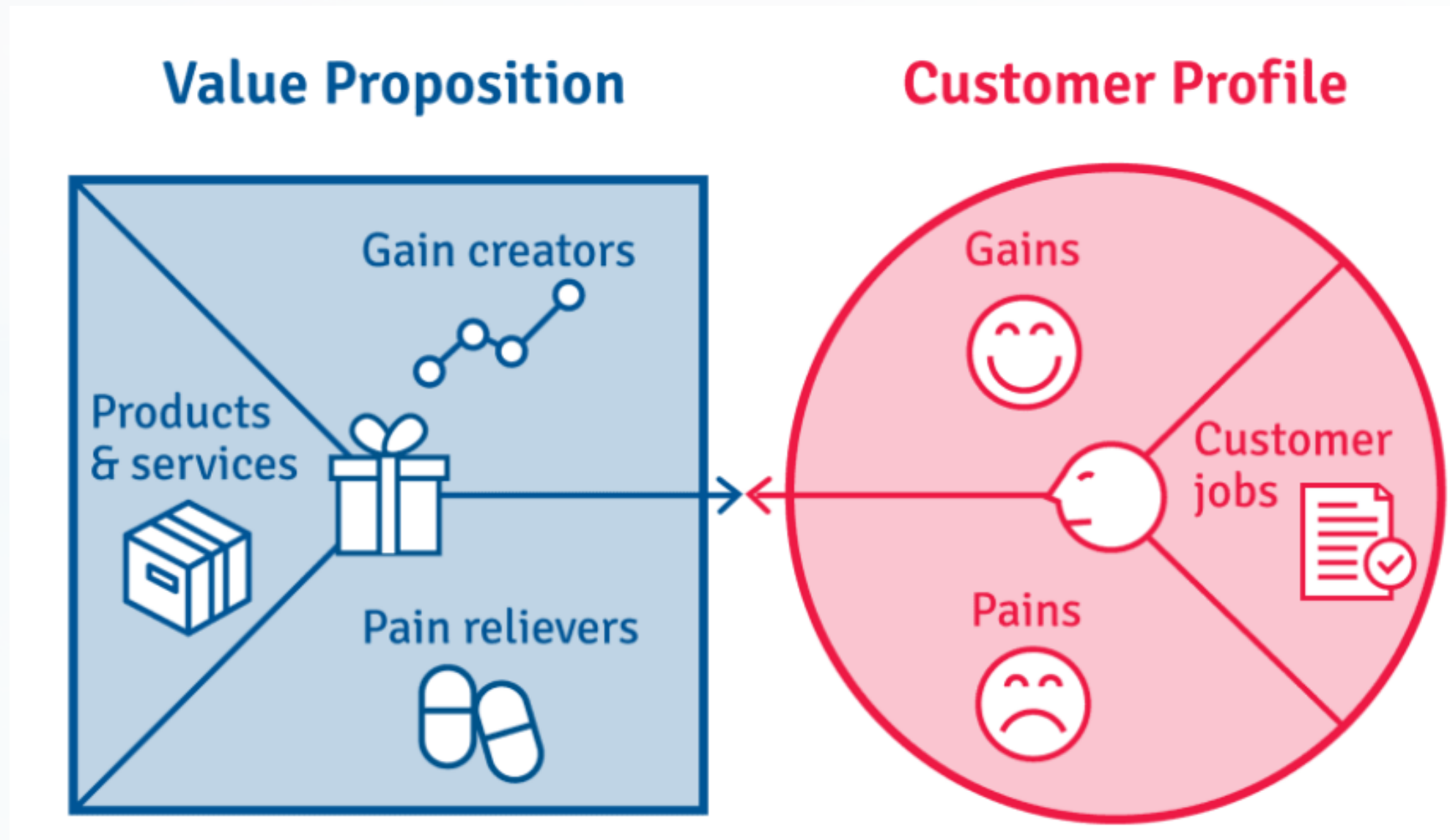
# AI - AI for Product Business Model

## Business Model Canvas



# AI - AI for Product Business Model

## Value Proposition Canvas



# AI - AI for Product Business Model

## SWOT Analysis



# Business Model Canvas - Nespresso

ChatGPT 3.5

Absolutely! Here's the structured summary of your presentation in English, designed for marketing students at an innovative university in Klaipėda. The tone is engaging, educational, and relevant to young marketing minds.

---

## **Title: “Nespresso: Value Strategy and Innovation in a Cup”**

---

### Slide 1 – Introduction to the Product

**Objective:** Briefly introduce the product and the purpose of the presentation.

- **What is Nespresso?**  
A premium capsule coffee system that combines high-quality coffee with elegant machines.
- **What's the purpose?**  
To offer a premium, consistent coffee experience at home or at the office.
- **Engagement hook:**  
“Did you know Nespresso turned something as simple as coffee into a symbol of affordable luxury?”

ChatGPT 4.5

### Slide 1: Nespresso Product Overview

What is Nespresso?

- Nespresso is an innovative espresso coffee system developed by Nestlé, consisting of compact coffee machines and proprietary capsules containing premium single-serve coffee.

What is it for?

- To deliver a quick, convenient, and consistently high-quality espresso coffee experience at home or in the office, offering consumers the feel of a specialty café.

# Business Model Canvas - Nespresso

ChatGPT 3.5

ChatGPT 4.5

## Slide 2: Business Model Canvas – Nespresso

Canvas Segment	Description for Nespresso
Customer Segments	Premium home users; office environments; premium hospitality (hotels, restaurants).
Value Proposition	Convenience, consistent quality, exclusivity, premium experience, continuous innovation.
Channels	Own-brand boutiques, e-commerce, selected retail partners, home delivery service.
Customer Relationships	Premium, personalized via Club Nespresso, loyalty programs, exclusive services and rewards. ↓
Revenue Streams	Capsule sales, coffee machines, premium subscriptions (recurring services), accessories.
Key Resources	Strong global brand, exclusive patents, specialized distribution network, own-brand boutiques, capsule and machine technology/design.
Key Activities	Capsule and machine production/design, premium branding and marketing, product innovation, boutique management.
Key Partnerships	Sustainable coffee producers, machine manufacturers (e.g., Krups, DeLonghi), logistics and premium distributors.
Cost Structure	Capsule and machine production, marketing and branding costs, boutique maintenance, logistics and distribution expenses.

### ✓ 2. Slide – Business Model Canvas (BMC)

Bloco	Conteúdo (Nespresso)
Proposta de valor	Café premium, rápido e fácil de preparar em casa ou no trabalho
Segmentos de clientes	Amantes de café exigentes; consumidores urbanos; empresas/escritórios
Canais	Lojas Nespresso; loja online; retalhistas parceiros
Relacionamento com clientes	Personalização através de clubes; apoio premium; marketing sensorial
Fontes de receita	Venda de máquinas; venda recorrente de cápsulas; acessórios
Recursos principais	Marca forte; tecnologia das cápsulas e máquinas; rede de distribuição
Atividades principais	Produção e design de cápsulas/máquinas; marketing; logística
Parcerias principais	Fabricantes de máquinas (ex: De'Longhi); fornecedores de café; retalhistas
Estrutura de custos	Produção, inovação tecnológica, logística, marketing, operação de lojas físicas

# Value Proposition Canvas - Nespresso

ChatGPT 3.5

## ✓ 3. Value Proposition Canvas

### Customer Profile:

- **Jobs to be done:** Tomar café de qualidade rapidamente, em casa ou no escritório.
- **Pains:** Falta de tempo; café de má qualidade; pouca variedade.
- **Gains:** Conveniência, sabor consistente, imagem sofisticada.

### Value Map:

- **Products & Services:** Máquinas, cápsulas, acessórios, serviço de subscrição.
- **Pain Relievers:** Preparo rápido, limpeza simples, cápsulas recicláveis.
- **Gain Creators:** Experiência premium, grande variedade de sabores, exclusividade.

ChatGPT 4.5

## Slide 3: Value Proposition Canvas – Nespresso

### Customer Segment: Premium Home Users

Customer Jobs	Customer Pains	Customer Gains
Quickly and effortlessly prepare premium coffee at home. Offer premium coffee experience when hosting guests.	Time-consuming traditional coffee preparation. Inconsistent coffee quality with manual methods. Limited variety.	Consistently high-quality coffee. Easy and quick preparation. Premium experience and variety of coffee choices.

### Nespresso's Value Proposition

Products & Services	Pain Relievers	Gain Creators
Exclusive coffee machines and capsules. Wide variety of premium coffee flavors. Club Nespresso loyalty program.	Fast and simple coffee preparation. Consistent flavor and quality every time. Easy-to-clean system (single-use disposable capsules).	Premium at-home experience. Exclusive access to personalized products and services. Sense of exclusivity and status associated with the brand.

# SWOT Analysis - Nespresso

ChatGPT 3.5

## ✓ 4. Análise SWOT do Produto

### Forças (Strengths)

Marca reconhecida globalmente

Design premium e elegante

Sistema conveniente e limpo

Variedade e exclusividade

### Fraquezas (Weaknesses)

Preço elevado comparado com concorrentes

Dependência de cápsulas próprias (fechadas)

Sustentabilidade questionada em alguns mercados

Difícil reciclagem para alguns utilizadores

### Oportunidades (Opportunities)

Crescente procura por conveniência e luxo acessível

Expansão para novos mercados e parcerias

Tendência de personalização e clubes de fidelização

### Ameaças (Threats)

Concorrência de marcas com cápsulas compatíveis

Percepção negativa sobre uso de plástico/alumínio

Crescente preferência por métodos artesanais

ChatGPT 4.5

### Strengths

- Strong, globally recognized premium brand.  
<br/>- High product consistency.<br/>- Strong customer loyalty via Club Nespresso.<br/>- Extensive flavor variety and continuous innovation.

### Opportunities

- Market expansion through more sustainable product options.<br/>- Growth in premium consumer segments in emerging markets.<br/>- Enhanced personalization and technological innovation in machines and capsules.

### Weaknesses

- Reliance on proprietary capsule system.<br/>- Relatively high cost per capsule.<br/>- Perceived negative environmental impact due to capsule waste.

### Threats

- Increased competition from cheaper compatible capsule alternatives.<br/>- Rising consumer environmental awareness.<br/>- Potential instability in coffee prices and supply due to climate factors.



# Business Model Canvas - Nespresso

## Sketch Out Your Hypothesis

■ Nespresso Machines  
■ Nespresso Pods

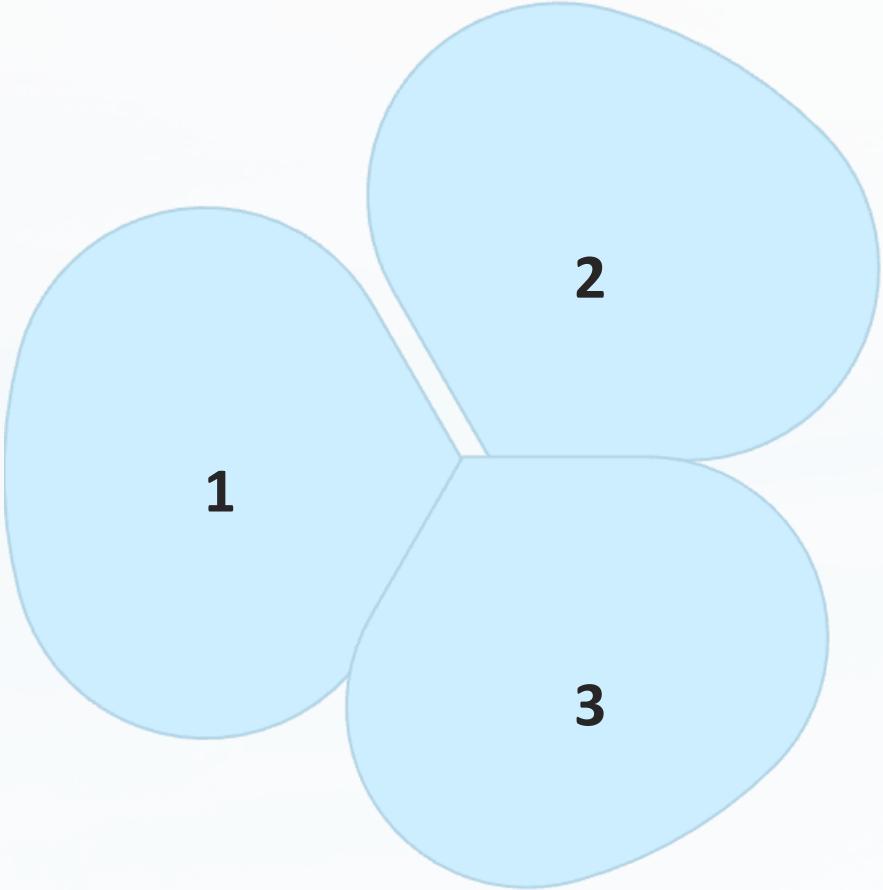


The business model canvas lets you look at all nine building blocks of your business on one page. Each component of the business model contains a series of hypotheses that you need to test.

KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITIONS	CUSTOMER RELATIONSHIPS	CUSTOMER SEGMENTS
Machine manufacturers	Production	Nespresso machines	Acquire & lock-in	Households
Coffee growers	Marketing & branding	Nespresso pods		
	B2C distribution			
	<b>KEY RESOURCES</b>		<b>CHANNELS</b>	
	Distribution channels		Retail	
	Patents		Mail order & call center	
	Coffee		Nespresso.com	
	Production facilities		Nespresso stores	
	Marketing & branding			
<b>COST STRUCTURE</b>			<b>REVENUE STREAMS</b>	
Production			1 x machine sales	
Marketing & branding			Repetitive pod sales	
B2C distribution				

# Artificial Intelligence

**Processes and Dynamics in  
the Age of Artificial Intelligence**



**AI for Product Business Model**

**Challenge and Opportunities**

# Challenges and opportunities

1

Although AI has numerous **advantages**, it also raises important **ethical** considerations.

- Issues such as **data privacy**
- Lack of guarantee of **impartial and fair responses**

2

We must ensure **responsible use** and continuous monitoring in order to reap the benefits of this technology **ethically and safely**.

3

## Digital Education Action Plan (2021-2027)

- <https://education.ec.europa.eu/pt-pt/focus-topics/digital-education/action-plan>
- According to the EU report, AI can affect our lives, and is considered a key science for the digital transformation and knowledge society

4



# Challenges and opportunities

1

According to the **EU Report**, AI can affect our lives, and is considered a key science for the digital transformation and knowledge society.

2

3

4



COMISSÃO EUROPEIA

Bruxelas, 21.4.2021

COM(2021) 206  
final

2021/0106(COD)

Proposta de

**REGULAMENTO DO PARLAMENTO EUROPEU E DO CONSELHO**

**QUE ESTABELECE REGRAS HARMONIZADAS EM MATÉRIA DE INTELIGÊNCIA ARTIFICIAL (REGULAMENTO INTELIGÊNCIA ARTIFICIAL) E ALTERA DETERMINADOS ATOS LEGISLATIVOS DA UNIÃO**

{SEC(2021) 167 final} - {SWD(2021) 84 final} - {SWD(2021) 85 final}

# Challenges and opportunities

1

- Less development of cognitive abilities (**mentally lazy?**)

2

- Academic integrity due to increased risk of **plagiarism**

3

- Cognitive bias (Tools **do not distinguish good from evil** - censorship, *freedomgpt* moralism)

4

- **Digital Divide** (those with more financial power have access to better tools)



## Some examples of **ongoing research at UAb** (DW PhD)

- *AI Strategies and Models to Stimulate Student Engagement in Higher Education*
- *The impact of Artificial Intelligence on a learning management system (LMS) in a higher education context*
- *Personalization of a learning environment for vocational training*
- *Developing a Virtual Assistant for Scientific Libraries: Integrating NLP and LLMs to Enhance Catalogue Accessibility*
- *Digital Strategies for Rural Fire Prevention: Using Web Information to Reduce Risky Behaviors*
- *Enhancing Recruitment with Large Language Models and Chatbots*

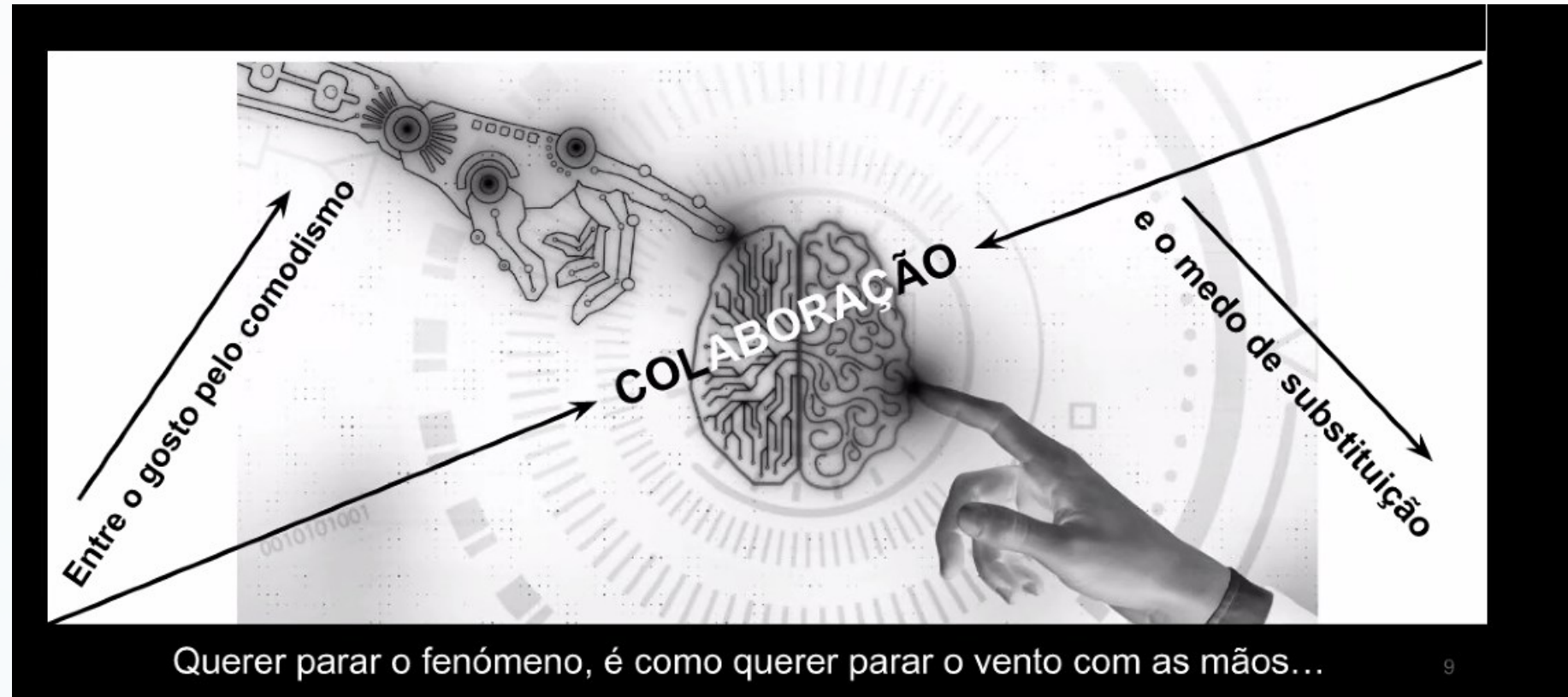
**utad** UNIVERSIDADE  
DE TRÁS-OS-MONTES  
E ALTO DOURO



UNIVERSIDADE  
**AbERTA**   
www.uab.pt



## *Adapt or Resist?*



*Trying to stop this phenomenon is like trying to stop the wind with your hands*

**Do you fear AI ?**





**NICK BOSTROM**

# **SUPERINTELLIGENCE**

Paths, Dangers, Strategies



## **Question - Superintelligence is possible?**

University of Oxford philosopher Nick Bostrom defines superintelligence as

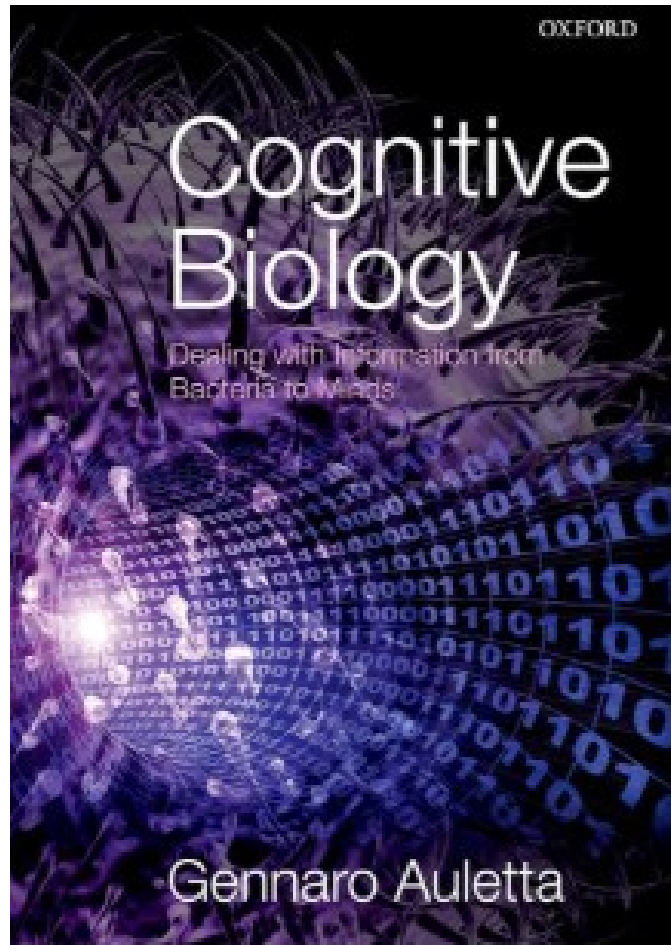
*"any intellect that greatly exceeds the cognitive performance of humans in virtually all domains of interest"*

Pathways

- 1. Biological Cognition**
- 2. Whole Brain Emulation (WBE)**
- 3. Artificial Intelligence**

<https://research.aimultiple.com/artificial-general-intelligence-singularity-timing/>

# Biological Cognition - Biological Neural Networks



- “Hardware”
  - The elemental computing units of the nervous system are the **neurons**, or nerve cells.
  - The human brain has between **86 billion** ( $86 \times 10^9$ ) and  $10^{11}$  (one hundred billion) neurons;
  - Each neuron is connected to hundreds or thousands of other neurons.
  - It is thought that the number of **connections** is **between  $10^{13}$  and  $10^{15}$**  (1 quadrillion (1,000 trillion) connections)
  - Neurons cooperate and compete with each other.

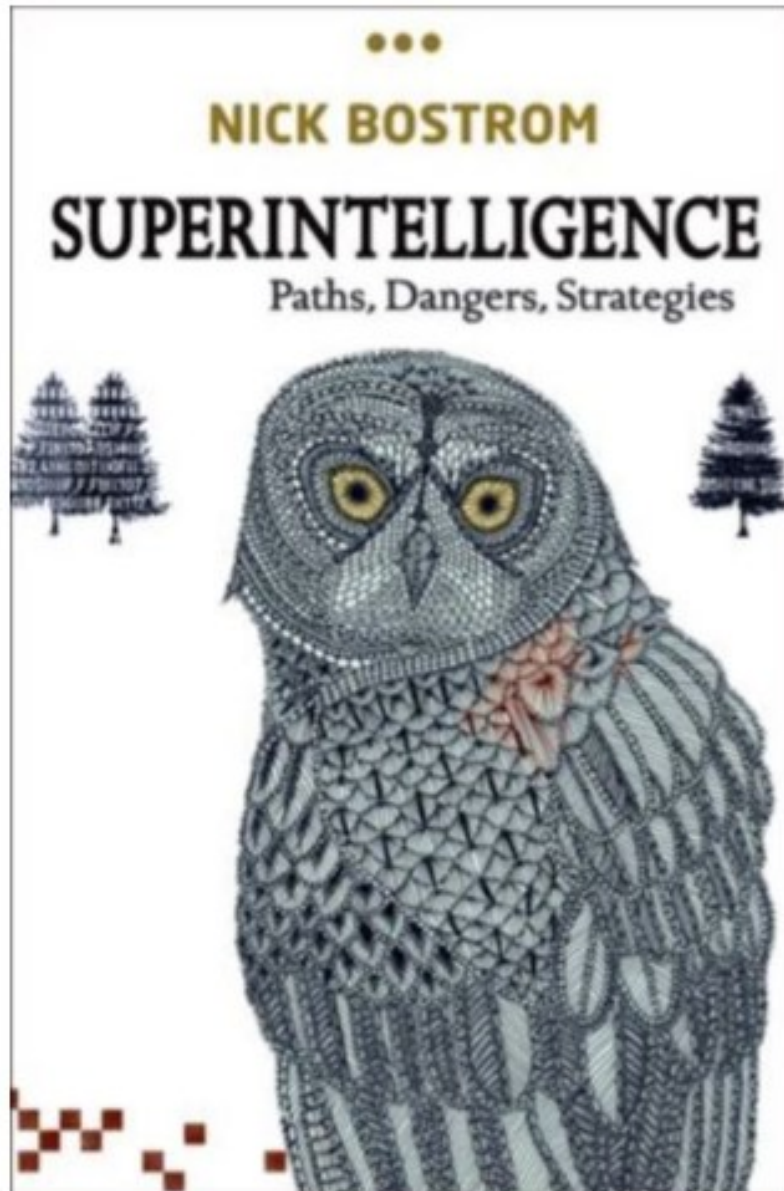


**GPT 3 - 60 to 80 billion neurons**

**GPT 4 - 100 billion neurons (over 100 layers) and 100 trillion synapses**

**GPT 5 - ?**

# Forms of Superintelligence



- **Speed Superintelligence**
  - A speed superintelligence is an intellect that is just like a human mind but faster. This is conceptually the easiest form of superintelligence to analyze
- **Collective Superintelligence**
  - A collective superintelligence is a system composed of a large number of smaller intellects such that the system's overall performance across many very general domains vastly outstrips that of any cognitive system
- **Quality Superintelligence**
  - A system that is at least as fast as a human mind and vastly qualitatively smarter

Source: **Bostrom, Nick**. Superintelligence. Oxford

# Whole Brain Emulation (WBE)



Whole brain emulation (WBE) is a strategy for creating a kind of artificial intelligence by replicating the functionality of the human brain in software.

It seems likely that we'll be able to emulate brains this century - unless other forms of AI are created first...

NEW YORK TIMES BESTSELLER

RAY  
KURZWEIL

author of HOW TO CREATE A MIND

THE  
SINGULARITY  
is NEARER

When We Merge  
with AI

# Ray Kurzweil



American inventor and futurist. In January 1999 published the book "The Age of Spiritual Machines" where he presents his vision on the future of technology.

In it, Kurzweil argues that one day we will create machines more intelligent than humans. It argues that the increased capacity of computers is only one component in creating artificial intelligence.

It predicts that in 2029 **AI will reach human level intelligence.** Nanotechnology will "enlarge" our bodies and cure cancer.

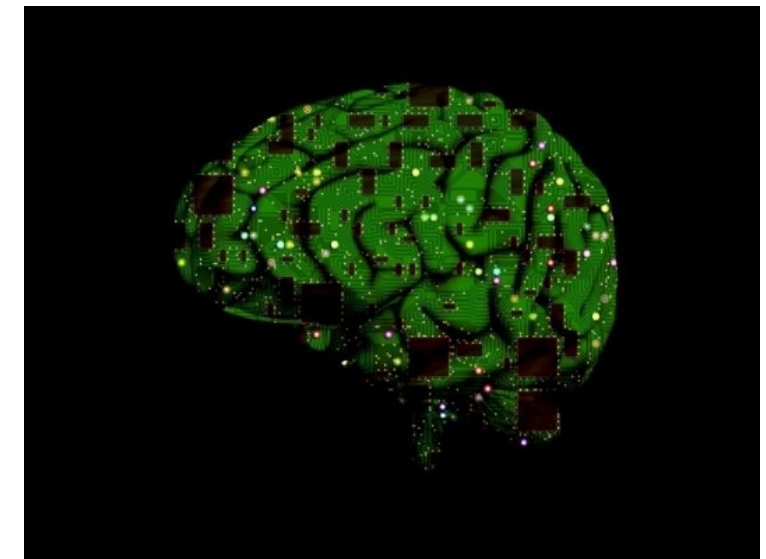
Humans will connect in real time to computers through direct neuronal interfaces. Human beings will live forever because humanity and its machines will become oneself. It predicts that intelligence will expand out of the earth and be powerful enough to influence the fate of the universe.

# Antonio Damasio



- USC neuroscientist Antonio Damasio argues that feelings and emotions are what make up human intelligence, consciousness and the capacity for cultural creation. A map of the computational mind, he says, is not the same as being human
- Human intelligence can't be transferred to machines

<https://ngp.usc.edu/usc-neuroscientist-antonio-damasio-argues-that-feelings-and-emotions-are-what-make-up-human-intelligence-consciousness-and-the-capacity-for-cultural-creation-a-map-of-the-computational-mind-he-says/>



**However, when it comes to paths to achieving  
Superintelligence, one stands out for its disruptive power -->**



## *Adapt or Resist?*

Thank you



*Trying to stop this phenomenon is like trying to stop the wind with your hands*

## Ref.

Russell, Stuart, and Norvig, Peter. Artificial Intelligence: a Modern Approach, 4th Edition, Prentice Hall, 2020.

Makridakis, S. (2017). The forthcoming Artificial Intelligence (AI) Revolution: Its impact on society and firms. 90, pp. 46-60. doi.org/10.1016/j.futures.2017.03.006.

Buchanan, Bruce G. (Winter 2005), "A (Very) Brief History of Artificial Intelligence" (PDF), AI Magazine, pp. 53–60

Chitta Baral, "Knowledge Representation, Reasoning and Declarative Problem Solving", Cambridge University Press, 2003

Costa, Ernesto & Simões, A. Inteligência Artificial. Fundamentos e Aplicações. Lisboa: FCA.

Almeida, R. (2020). Uso De Algoritmos De Inteligência Artificial Na Gestão De Redes Sociais E O Seu Impacto Nos Processos De Difusão Do Conhecimento.

Riikinen, M., Saarijärvi, H., Sarlin, P. & Lähteenmäki, I. (2018). Using artificial intelligence to create value in insurance, International Journal of Bank Marketing Vol. 36 No. 6, 2018 pp.1145-1168.

Khurana, D., Koli, A., Khatter, K & Singh, S. (2017). Natural Language Processing: State of The Art, Current Trends and Challenges. <https://arxiv.org/abs/1708.05148>.

Kshetri, N., Dwivedi, Y., Davenport, T., Panteli, N. Generative artificial intelligence in marketing: Applications, opportunities, challenges, and research agenda. International Journal of Information Management, 75. (2024) <https://doi.org/10.1016/j.ijinfomgt.2023.102716>