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Artificial Intelligence (and its regulation) at Corvinus University

What every student needs to know

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Presentation for Online Student Forum

24 September 2025

Agenda (*list* of things I plan to talk about today)

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- What are the challenges higher education institutions and Students face in the age of AI?
- How is AI **regulated** and why?
  - Ethical issues
  - General regulations (EU AI Act, other recommendations…)
  - Regulating AI at Corvinus
  - Rights and obligations of students
- General ideas important for students – the **minimum** (few slides each)
  - What are Generative AI and LLM – how do they work?
  - How to use GenAI efficiently (what do you need to know about prompting)?
  - What are the impacts of GenAI you should be aware of?
    - Environmental, Societal, organizational, individual, …
- Main message: it is up to each student - **your individual and collective responsibility**
  - your learning, your (and our common) future – since you will be future decision makers

0. Why are we talking about AI…?

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The last two decades wittnessed the increasing dominance of various waves of Artificial Intelligence and related technologies

Big Data / Machine Learning	Generative Tools / LLMs	*AI Agents and Agentic Framework*

These technological innovations are not only "**disruptive**" but also have substantial impact on the *natural and societal* environment – and both technological innovations and socio-economic changes that follow are happening **very fast** causing substantial **uncertainty**

I. AI is a disruptive force in education too

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- **Generative AI** (e.g. ChatGPT, Gemini or CoPilot) **in education is a Faustian pact**:
  - can help to **learn faster & more**, being more effective

vs.

  - **delegating** tasks to AI tools **without learning** at all

- AI pose a **paradigm-shift challenge** to education
- The **legal, ethical,** and **rational answer** to this challenge can be different, because even **defining cheating is not simple**
  - translating words, correcting grammar, discussing with friends, discussing with AI...

Original slide by Róbert Pintér

What is the broader purpose of education…?

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- A paradigm shift: solving **Benjamin Bloom's two sigma problem**
  - (frontal, group education results in mediocre students,
    but personal **one-on-one teaching results** in excellent ones)
- Do students learn when using LLM-based chatbots?
  - What do you learn when using bots?
  - What are the **best and worst practices** of using bots to study?
  - When you use a ChatBot to get **quick answer and solve homework directly,** you learn **nothing**
  - Besides, how do you know that what you get **is the right answer** in that context or course?
- Can **AI** serve **as a personal tutor**?
  - https://ctse.aei.org/ai-tutors-hype-or-hope-for-education/
- The responsibility of all educators is to
  teach how to collaborate with AI as a tutor, and…
- **students' responsibility is to learn it actively**

© image: https://ctse.aei.org/

Based on a slide by Róbert Pintér

The key challenge of AI in education: brain-first

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- MIT research on **AI use and brain activity** in an educational environment
  - https://www.media.mit.edu/publications/your-brain-on-chatgpt/
- **Three groups for writing an essay**:
  1. those who could only write without IT support, using their thoughts,
  2. those who used a simple search engine,
  3. and those who used GenAI
- **Brain patterns** showed **fewer activities** in the **AI-only group**
  – they learned less than the other two groups
- Conclusion: adapt the **brain-first** approach

Original slide by Róbert Pintér

Answers to this change of the education system

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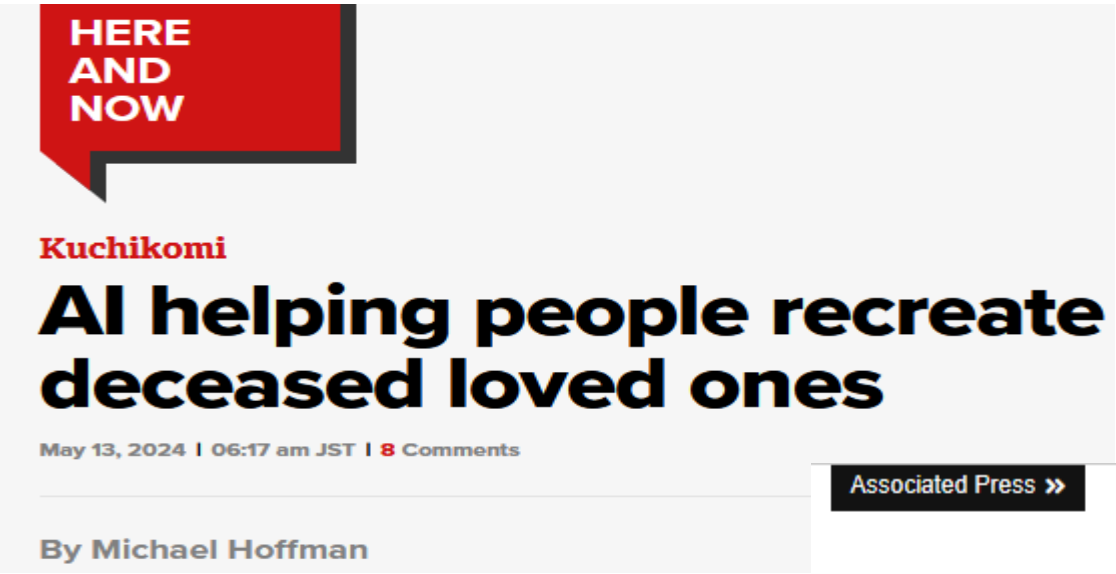
- **Individual**:
  - student: temptation for brain-free use of AI – cognitive laziness in the background
  - teacher: only changing the assessments,
    without adjusting teaching according to the purpose of education (see later)
- **Institutional**:
  ban of GenAI **vs.**
  Salman Khan's **educated bravery** (using tools in a new, effective way)
- **Societal**: what is the **goal of (higher) education** and how can we serve that best
  - serving the **needs of the job market**,
  - preparing for **competition**,
  - raising **educated citizens**,
  - (who sets the values and the goals – and can we influence the direction AI takes?)
- **Meta level**: what is the broader **purpose of learning**, and how can it be reached?

Original slide by Róbert Pintér

II. Broader ethical challenges – and general Law


HERE AND NOW

Kuchikomi

AI helping people recreate deceased loved ones

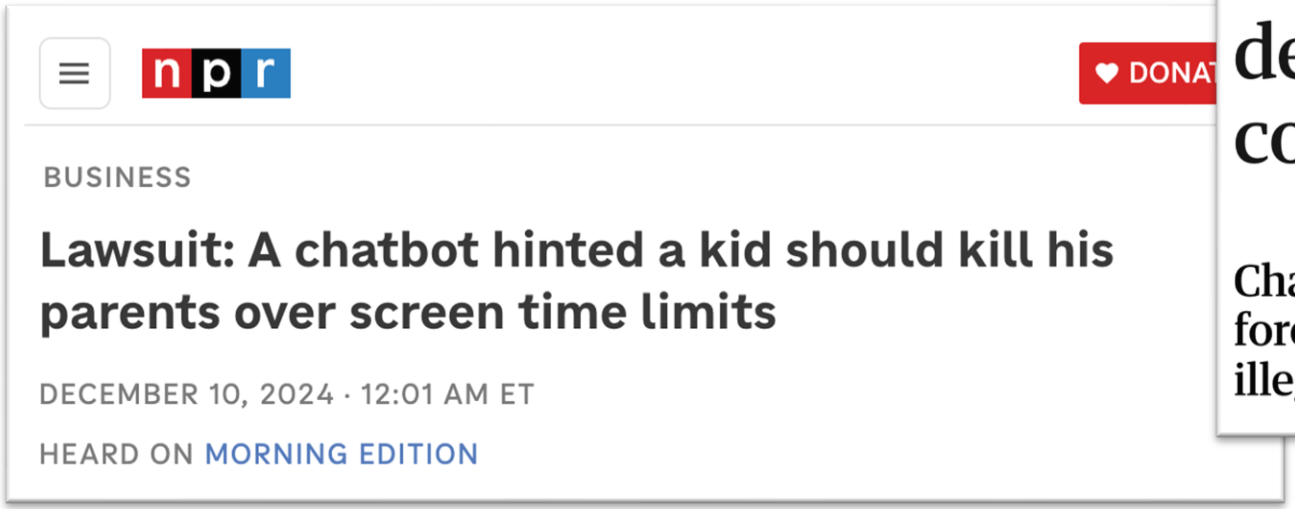
May 13, 2024 | 06:17 am JST | 8 Comments

By Michael Hoffman


Associated Press »

Mourners Can Now Speak to an AI Version of the Dead. But Will That Help with Grief?

An example of the kind of world we are building made possible by GenAI and LLMs – think about other **possible (negative) applications** and their consequences



…in 2000 [Sweeney] showed that
87 percent of all Americans could be
uniquely identified using only three bits of information:
ZIP code, birthdate, sex.

News collected by Orsolya Vásárhelyi

The Ethical issues of data – as captured in LLMs

- Ownership
  - Who owns the data that is uploaded or shared on a social media platform (HereAfter AI)
  - Including usage patterns, clicks, metadata of visits etc. (Marketing)
- Privacy
  - In ML models and their Databases: is it possible to identify individuals? (differential privacy)
  - Challenge: learning about the population vs protecting an individual
- Copyright
  - In GenAI who owns the results – and what if copyrighted material is used for training (Meta!)
- Plagiarism
  - Can material on the Internet freely used? And what if it appears in a generated result? (Mario!)
- Bias
  - non-representative training data or model used on non-matching entity – statistical distribution shift
- Inequalities
  - Unequal access, unfair consequences depending on minority group membership – small languages

EU AI Act, etc.

- Regulation (EU) 2024/1689 of the European Parliament and of the Council
  - of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (AI Act)
  - Builds on GDPR
  - **Risk-based** – four categories
  - AI Officer – national and organisational
- Ethical Principles (**value-based** approach)
  - Openness and **Dialogue** on issues and concerns
  - Initiative with Professional and academic **integrity**
  - Human **oversight** and responsibility (Human on-the-loop)
  - Autonomy with Responsibility and **Transparency**
  - Ensuring **equal opportunity** and Data **protection**
  - **Sustainability**

III. Basic principles of Corvinus regarding GenAI

- Corvinus University of Budapest is committed to technological innovation and supports using artificial intelligence (AI) tools
  in all its activities, including **learning, teaching, research and operations**

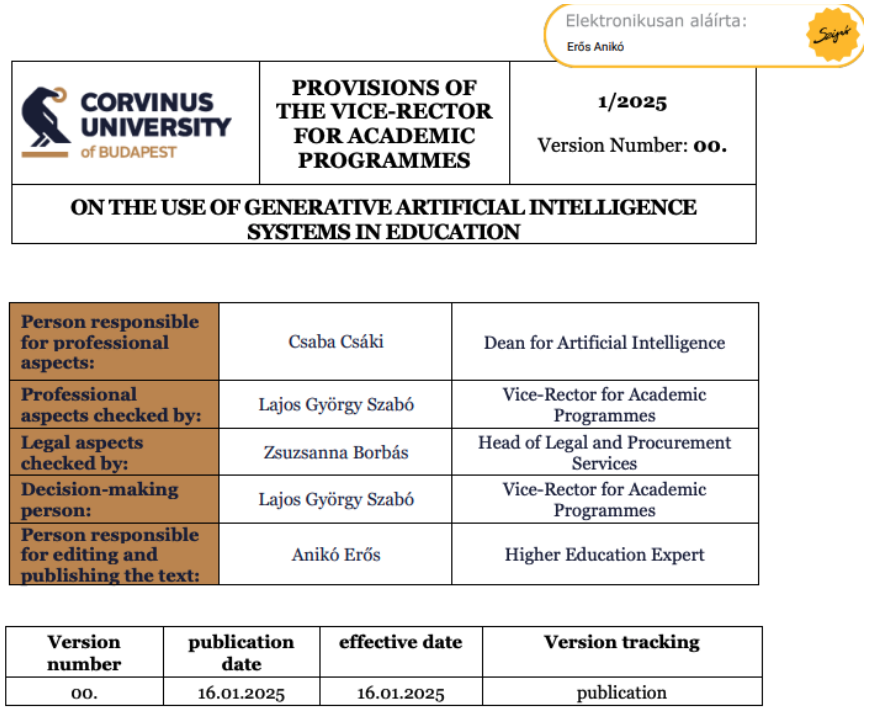
- In the context of the rapidly evolving field of generative artificial intelligence (GenAI), the University **encourages its students and staff to explore,** experiment with and learn more about the use and development of these tools.

6/2025 VRAP regulation on GenAI in Education – January (1/2025)/September 2025

- Every Corvinus community member is responsible **for the ethical, efficient and sustainable application of generative AI** in learning and teaching

- To achieve this and to clarify the rules of responsible use, the **Vice-Rector for Academic Programmes** (VRAP) has published the **regulations** that guide the use of AI in the context of education

- "***6/2025 Provisions*** *by the Vice Rector for Academic Programmes on the use of generative artificial intelligence systems at Corvinus University in education*" is in force and available on the university web page



Elektronikusan aláírta: Erős Anikó

CORVINUS UNIVERSITY of BUDAPEST	PROVISIONS OF THE VICE-RECTOR FOR ACADEMIC PROGRAMMES	1/2025 Version Number: 00.
ON THE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE SYSTEMS IN EDUCATION		

Person responsible for professional aspects:	Csaba Csáki	Dean for Artificial Intelligence
Professional aspects checked by:	Lajos György Szabó	Vice-Rector for Academic Programmes
Legal aspects checked by:	Zsuzsanna Borbás	Head of Legal and Procurement Services
Decision-making person:	Lajos György Szabó	Vice-Rector for Academic Programmes
Person responsible for editing and publishing the text:	Anikó Erős	Higher Education Expert

Version number	publication date	effective date	Version tracking
00.	16.01.2025	16.01.2025	publication

https://www.uni-corvinus.hu/downloads/bmcf.dv0g6g/6-2025-orh-rendelkezes-mi-hasznalat-00-en-sgd.pdf

https://www.uni-corvinus.hu/downloads/bmbm.gxqlcb/6-2025-orh-rendelkezes-mi-hasznalat-00-ai.pdf

What is in the regulation (6/2025 VRAP)

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- We encourage all **students to familiarise** themselves with these **rules** and **use generative AI responsibly**.

- **Subject leaders declare in writing** – in the syllabus or **no later than the first week of lectures** in some other form – ***how students may use generative AI in the context of that subject***.

- Students should **only use GenAI** in completing **performance evaluation exercises** if it is **clearly allowed by the subject leader or teacher**.

What is in the regulation (6/2025 VRAP)

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- Subject requirements may specify **the need for ethical statements regarding the use of AI** during the completion of assessments, projects or exams
  - the statement could be about **a declaration** that **the student did not use GenAI**,
  - or, **if use is allowed**, the requirements will clarify up front **which tools may be used, for what** and what data is required in the statement.

- If something not clear or in case of doubt, please **ask the course leader or lecturer** for clarification.

- To ensure that no suspicion arises regarding the disallowed use of GenAI (and to show progress), **students may consider saving versions of their work or using tools that track their activity**.
  - It is advisable to discuss such options with your lecturers.

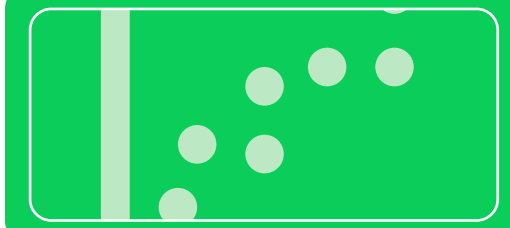
Update of the regulation (September): key changes for students

- It is acknowledged that **GenAI is** now more and more **used in co-creation**
  - §7 (3) c): application and declaration are **context-dependent** (i.e. may vary by **subject**)

- It is now clarified that in case of **suspicion of non-permitted use** (§18 (6))
  - A) lecturers may initiate a **dialogue** with the student to clarify
  - B) students may offer **evidence** to prove lack of wrongdoing

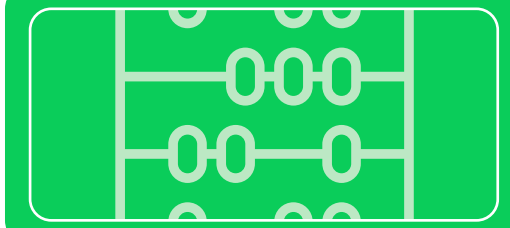
- New, **simplified declaration** examples are provided (Appendix)
  - These may be modified by subject leaders as necessary

IV. How are GAI/LLM Trained? („Learn”)



'Learning' is about recognising - and storing – **statistical patterns** between tokens (set of characters) on the input data set

✓Using ***positional encoding*** (special form of embedding key words along with their context)



That is, **no rules** are given when training the system and it does not recognise rules

✓Although lexical help is usually provided in the token input

A huge token-based **stochastic data space is created** (the model),

✓LLMs are **not Databases** – there are **no facts stored** – only pieces of texts

The (tokenised) input is mapped **along the learned probability space** (the model) into (tokenised) output

✓Output always needs to be **critically assessed – be discerned**

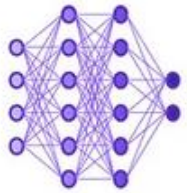
Completing the sentence "*The best thing about AI is its ability to...*"

Based on https://medium.com/data-science-at-microsoft/how-large-language-models-work-91c362f5b78f

After training: We can generate text by predicting one word at a time

"The best thing about AI is its ability to"

Input



LLM

Word	Probability
speak	0.065
generate	**0.072**
politics	0.001
learn	**0.069**
walk	0.003

Output at step 1

Word	Probability
ability	0.002
text	0.084
coherent	**0.085**
...	...
ideas	0.041

Output at step 2 / a

Word	Probability
ability	0.002
text	0.084
patterns	**0.087**
...	...
ideas	0.041

Output at step 2 / b

LLMs are an example of what's called "Generative AI"

GAI characteristics

- ✓ Due to the nature of storage and operation, **it is not possible to say** exactly how an input will result in an output
  - ✓ **Several** statistical forecasts are generated and selected
  - ✓ Difficult to control, difficult to monitor
- ✓ Ability to „learn” (**recognise patterns, memorise**)
  - ✓ Usually developed off-line
  - ✓ But it can connect in real time to Internet search engines (Copilot, ChatGPT4)
  - ✓ Self-learning experiments are already under way
    - ✓ still very weak - see Air Canada, DPD, MS Tay chatbot fiascos
- ✓ **They make mistakes**
  - ✓ there will be repetitions in the longer text
  - ✓ weaker answers may be useless or incorrect
  - ✓ the overall effect is what we call a "hallucination„ (facts being put into wrong context or made up)
  - ✓ these are part of the nature of technology - quite different from the issue of poor data, wrong corpus

V. Using LLMs – Prompting basics

- ✓ Prompting is not science, may be a bit engineering, but mostly it is **common sense**
- ✓ Need to **practice**
  - ✓ You can use different free tools to practice
  - ✓ But be aware, that each tool might have its own prompting style it works best with
  - ✓ Same prompt might lead to different answers
- ✓ Some key **techniques**
  - ✓ STAR: Situation, Task, Appearance, and Refine (Collin Scotland)
  - ✓ AUTOMAT: Act as, User, Targeted action, Output, Mode (tonality/style). Atypical cases, Topic whitelisting
  - ✓ COSTAR: Context, Objective, Style, Tone, Audience, Response
  - ✓ Other: TIDD-EC, SMART, CRISP(E), PACE, ROCKS, CISCO, …
- ✓ Links
  - ✓ https://colinscotland.com/the-star-method/
  - ✓ https://medium.com/the-generator/the-perfect-prompt-prompt-engineering-cheat-sheet-d0b9c62a2bba
  - ✓ https://www.promptingguide.ai/techniques
  - ✓ https://www.forbes.com/sites/lanceeliot/2024/05/09/the-best-prompt-engineering-techniques-for-getting-the-most-out-of-generative-ai/
  - ✓ https://outshift.cisco.com/blog/prompt-engineering-techniques-genai-power-users

Prompt engineering 1.

1. Role
   - ✓ who you are (the ChatBot) - or who I am
2. Level
   - ✓ social, organisational, etc. context, the task
3. Goal
   - ✓ what I need or want to achieve, why I ask
4. Personalisation
   - ✓ what is your specific interest, setting the framework
5. Constraints
   - ✓ this is typically negative, what we don't want to be, what we don’t need
6. Few or even one exemplary aid, training
   - ✓ Few-shot or One-shot prompting
     - one or two concrete examples, link included

Prompt engineering 2.

- ✓ Interactive, iterative process
- ✓ Give lots of information in the prompt:
  - ✓ define the audience,
  - ✓ the style of the answers,
  - ✓ give an example
- ✓ Ask what information a chatbot needs to give a better answer
- ✓ Re-using part of the chatbot's response in a different way can also be useful
- ✓ Answers can also be requested in the form of a table
- ✓ (Note that Bots eventually forget what was written in previous conversations (the length of which varies))

VI. Impacts of GenAI – society and organizations

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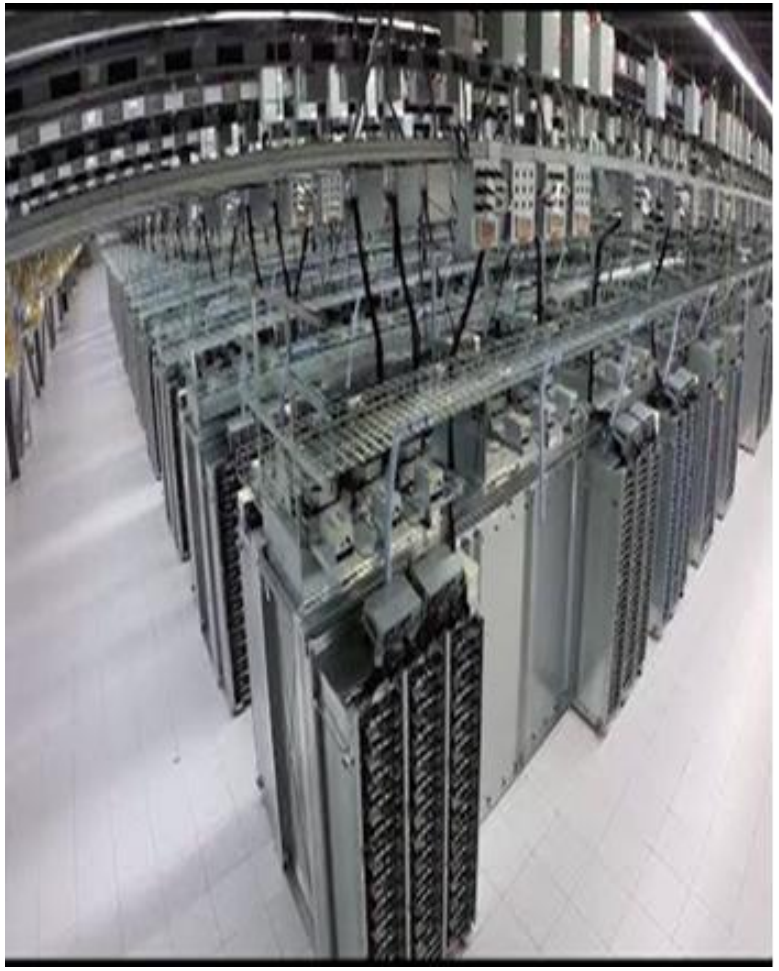
- It is „disruptive” – but is it taking our jobs?
  - What are the right questions to ask (instead)?
  - But there are still **massive risks** we need to talk about
  - It changes the skillset and how we do work
    - The assumption is that in the next few years 1/3 of skills (competences) will be affected.
    - This is particularly challenging for those, who are already working ...
    - And even white-collar, degree-dependent jobs and roles may be affected
  - Co-creation (using AI effectively to improve efficiency + drop mundane tasks (?))
  - What kind of AI do we want?
    - Can we influence the course AI technology and its use take – or are we suffering big-tech?
- How **organizations** should react
  - GenAI is **bottom-up**: anyone can use it – so create a safe setting (and team subscriptions)
  - Shadow AI
  - Concerns of privacy and Intellectual property (see also Ethics…)

What are the general risks?



Powerful machines are needed to train LLMs (GenAI)

- ChatGPT 3.5: **10,000** A100 80GB (1 million laptop size)

Other issues of the training process

- Large buildings (to house server farms) are needed
- Huge energy consumption - up to 10-15 megawatts
- Uses a lot of cooling water - or special coolant
- Serious environmental impact

Huge capacity is also needed for operations

- Unique 'language' chips are being made - NVidia B200

Even during use, CO2 emission is significant –

- 1 prompt 1-4 grams of CO2!

Environmental issues

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CO_2 emission

- Email, data storage, social media, crypto, NFT, google search, LLM prompt, image

Energy usage

- GigaWatt per model - TeraWatts per industry

Water usage

- Cooling water evaporation (a small lake per new model trained)

Rare materials

- Building and computer parts – batteries (Lithium mines?)

Inequalities

- Models in rich northern countries – climate change affects southern poor

Environmental impact – Energy

Environmental impact of select models

Source: AI Index, 2024; Luccioni et al., 2022 | Table: 2024 AI Index report

Model and number of parameters	Year	Power consumption (MWh)	C02 equivalent emissions (tonnes)
Gopher (280B)	2021	1,066	352
BLOOM (176B)	2022	433	25
GPT-3 (175B)	2020	1,287	502
OPT (175B)	2022	324	70
Llama 2 (70B)	2023	400	291.42
Llama 2 (34B)	2023	350	153.90
Llama 2 (13B)	2023	400	62.44
Llama 2 (7B)	2023	400	31.22
Granite (13B)	2023	153	22.23
Starcoder (15.5B)	2023	89.67	16.68
Luminous Base (13B)	2023	33	3.17
Luminous Extended (30B)	2023	93	11.95

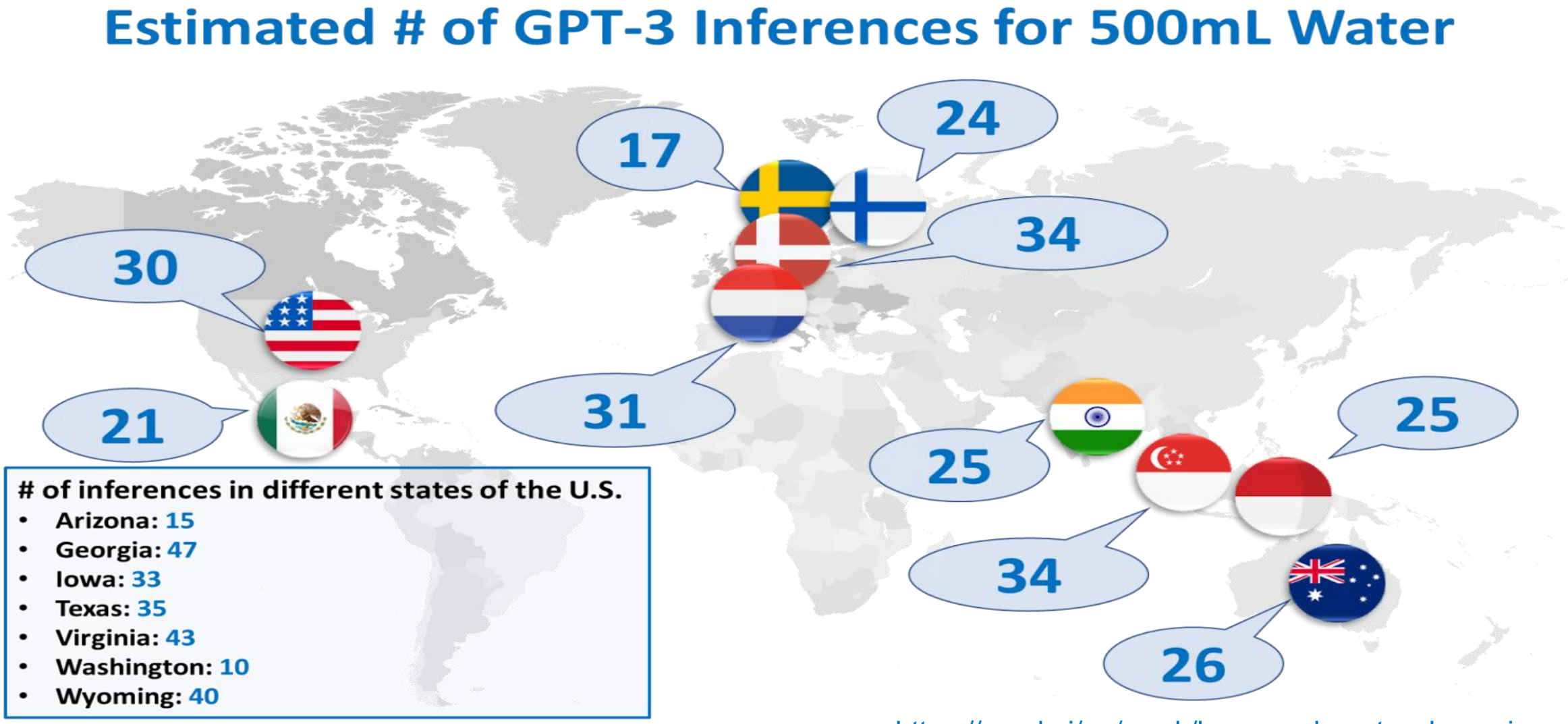
Training has just as drastic an impact as usage

(users get more and more regular – lot of market pressure to develop newer, bigger, better models: each main player has one **every six months** or so)

https://oecd.ai/en/wonk/how-much-water-does-ai-consume
https://hai.stanford.edu/ai-index

Environmental impact –Water

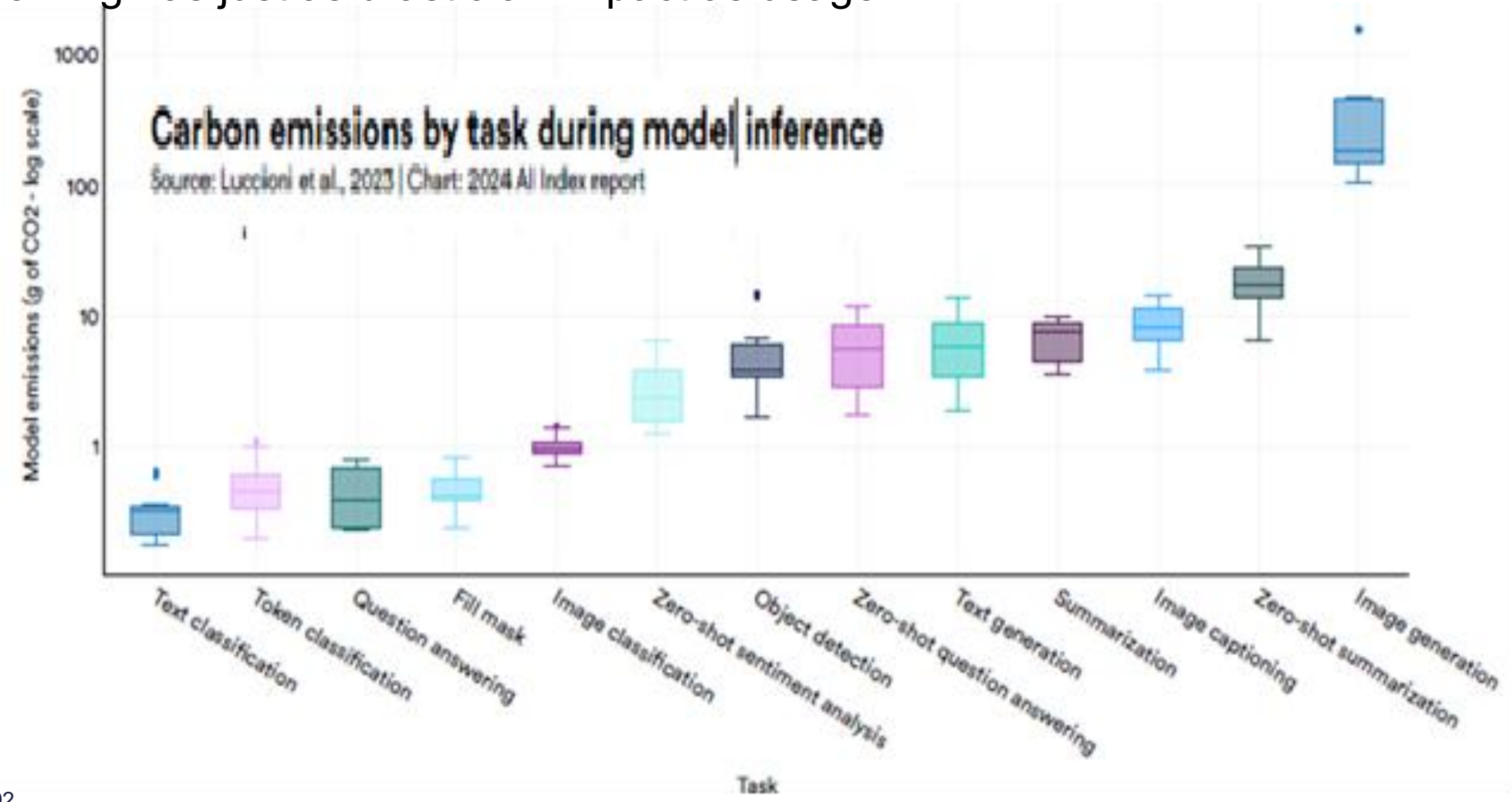
training a large language model like GPT-3 can consume millions of litres of fresh water



https://oecd.ai/en/wonk/how-much-water-does-ai-consume

Environmental impact – CO2

Training has just as drastic an impact as usage…



Environmental impact – CO2 (cont.)

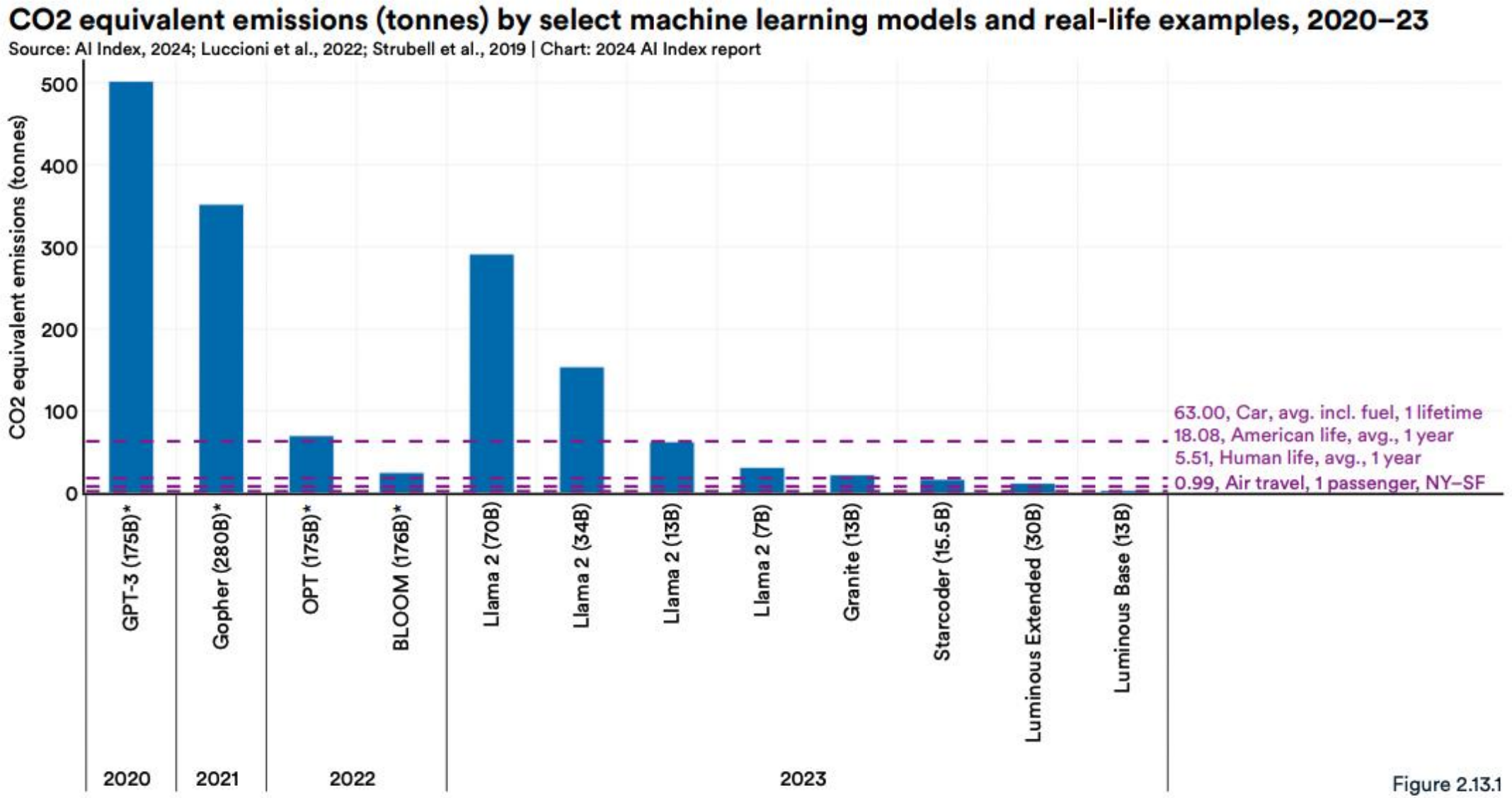


Figure 2.13.1

21 In its technical report on Llama 2, Meta notes that it offsets all the carbon emissions generated during the model's training process.

https://hai.stanford.edu/ai-index

VII. To summarize…

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Generative AI (GAI) tools face many **problems and challenges**

- **Legal** issues: copyright of training content, data protection, etc.
- **Ethical** issues: biased and unclear data, unknown sources, lack of transparency
- **Quality** problems: no fact checking, these are not databases, stochastic samples
- **Environmental** concerns: huge energy and water consumption, CO2 emissions

A lot of **uncertainty in the market**: investments, start-ups and business models - consolidation is expected – new „bubble”?

- **Speed**: announcements keep coming (Google, Microsoft / Open AI, Meta, xAI, etc.)
- **Developers**: business models, fee and licence structures are unclear and different
- **Users**: even big companies are cautious- huge investment, substantial impact
- **Labour market**: which jobs and industries could be affected - and how?

How to be a conscious user?

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- Be aware of the invisible costs of using AI models
- Before committing to a model, search its efficiency metrics — CO_2, energy, operational efficiency
- Use smaller models, if possible
- Use hardware that is efficient to reduce energy costs
- Before you use an AI bot, use basic google search (10% emission) – and use your **brain**
- **Always exercise Critical Thinking – be discerned about input / output**

Useful tools and further help from the Dean of AI

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- A list of useful GenAI tools and additional guides can be found on our website
  - https://www.uni-corvinus.hu/main-page/research/university-library/artificial-intelligence/?lang=en
  - Online Presentations about AI tools
  - AI guides, tutorials
  - AI-tools request form
  - List of AI Tools Recommended by CUB

- Furthermore, we will soon make **training materials available** on the university's Moodle platform to support the responsible use of GenAI.

- If you have questions, please feel free to contact the Dean for Artificial Intelligence (Dean.AI@uni-corvinus.hu)

Thank you!

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