

Digital Humanism

An Introduction

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(Hannes Werthner, George Metakides)

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- We live in a digital / physical world
- Public good: participation - nearly - mandatory
- Internet / Web global infrastructure – world's Operating System
- Digital transformation – complex technical social economic process

Internet / Web: more than Technology

- Economic transformation (companies, markets)
- Social „expansion“
- Law
- Politics – social media structure public discourse
- Physical spaces
-

Vilnius



Augsburg

- Internet / Web also rooted in the US counterculture (see Vardi, 2018)
 - Free information sharing and democratization of media - > huge amount of information and rise of search engines
- To sustain (monetize): advertising based business model, extended by
 - **Personalization**
 - **Recommendation** - User change behavior (Russell 2021)
 - **Individual freedom is a fiction:** what I see, what I get, what I do is defined by distance measure of a similarity matrix
- Pay with our data -> surveillance (Zuboff, 2019)
- From **citizen** to **consumer** (Stanger, 2020)
- We are **user**, **product** and **producer** (nearly an economic perpetuum mobile)

And ..

- From *IT supports business* to *IT is the business*
- Focus on automation and efficiency (no buffers), not resilience (except a famous example)
 - *Informatisation / Deconstruction of value chains* – also basis for globalisation
 - *Outsourcing* (e-commerce, self service)
 - *Privatization*: public data are “owned” by IT companies, e.g., LLMs; Google and Wikipedia (Vincent and Hecht 2021).
- With simultaneous deregulation, the web developed into **winners take it all**
- “They Don’t Represent Us: Reclaiming our Democracy” (Lessig, 2019)



Web Business Landscape - Platforms

- Google 1998
 - YouTube 2005
 - Alibaba 1999
 - Amazon 1994
 - Tencent 1998
 - Facebook 2004
 - LinkedIn 2003
 - Uber 2009
 - Airbnb 2008
 - Instagram 2010
-
- Digital platforms - market shares of up to 50-90%
 - Basis: user network and information from/about users and markets
 - Virtualization of the business and industries → scalability
 - Newcomers

Market Capitalization

March 2025, Mio USD

Apple	3,337,000
Microsoft	2,791,000
Nvidia	2,644,000
Amazon	2,016,000
Alphabet	1,895,000
Meta	1,460,000
Berkshire Hathaway	1,140,000
Tesla	833,529
Broadcom	787,247
Eli Lilly	782,950

March 2011, Mio USD

Exxon Mobil	417,166
PetroChina	326,199
Apple	321,072
ICBC	251,078
Petrobras	247,417
BHP Billiton	247,079
China Construction Bank	232,608
Royal Dutch Shell	226,128
Chevron Corporation	215,780
Microsoft	213,336

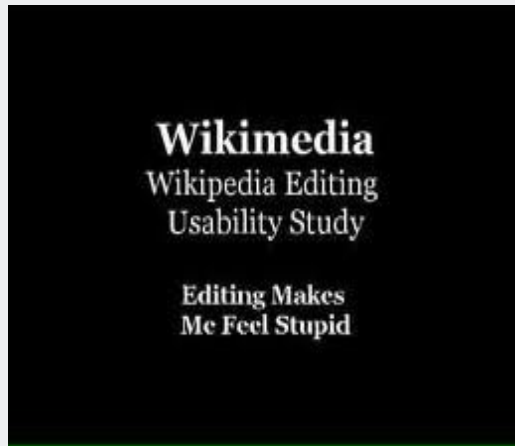
List of top publicly traded companies (Financial Times Global 500)

Platforms as new institutions

The WWW and Dreams of a new Enlightenment

A marketplace of ideas

Online deliberation/decision making/rapid mobilization



- Icelanders 'like' their crowdsourced constitution
- Citizen assemblies sprout



- **Crowdsourcing/Power to the people!**
- http://www.ted.com/talks/a_choir_as_big_as_the_internet.html
- The Arab Spring
- Innovative entrepreneurship

Digital Humanism Workshop in 2019

- 100 participants - worldwide – informatics, philosophy, history, anthropology, law, economics, political science, mathematics, sociology
- Started from international Advisory board of Informatics / TU Wien



Popper (1969) “Moral Responsibility of the Scientist”

Digital Humanism

Describe, analyze and, above all, try to influence the complex interplay between IT and humanity - for a society that respects human rights and environment

- Technical development not automatic and "God-given"
- Technology according to our values and needs
 - We are the designers & developers
- We humans (all) have the freedom, right and responsibility to use our own minds
- We are the authors of our own lives, human agency
- Also refers to enlightenment

VIENNA MANIFESTO ON DIGITAL HUMANISM

- It is a call for reflection and **action**, also a research program
- Some core principles:

Democracy

- Digital technologies should be designed to promote democracy and inclusion
- Fairness, responsibility and transparency of software programs and algorithms

Regulation

- Action / intervention against tech monopolies
- Decisions affecting human rights must be made by humans

The role of Research, Science, and Academia

- The connection of different scientific disciplines is essential
- Universities (create new knowledge, enhance critical thinking) have a particular responsibility

Education

- Academic teaching needs to combine humanities, social sciences and engineering
- Education on Informatics and its societal impact must start as early as possible

The Initiative (dighum.org)

- Manifesto – signatures from 45 countries, 8 languages
- Created **informal international intellectual interdisciplinary core**: authors of manifesto and books, members of lecture's Program Committee, speakers
- Digital humanism Online lectures (80 free available, every month)
- Books and conferences
- DigHum Award
- UNESCO chair on Digital Humanism at TU Wien
- 4. ACM Summer Schools + **1. African Summer School (Rwanda)**
- Public campaigns: **petition supporting EU AI Act, now EP Petitions Committee, July 16**



- In governmental programs and declarations
- Activities of Austrian BMEIA
- Research programs (EU) + Fellowships (IWM)
- DigHum Conference Nov 2025 (**dighum.org**)



Informatics

Digital Humanism – Interdisciplinary Science and Research Conference

Vienna, November 20-21, 2025



November 20th
– 21st
2025

IMPORTANT INFORMATION

- **Submission Deadline:** July 15, 2025
- **Notification:** September 15, 2025
- **Proceedings:** Published in Springer's LNCS series
- **Submit your paper**

And now

And now ... AI

Help other travelers choose the best!

Using generative AI, we've crafted a possible review based on your inputs:

Amazing Stay!

Our stay at the Oriental Jade Hotel was absolutely amazing! From the moment we arrived, we were impressed by the value for money, convenient location, exceptional cleanliness, friendly staff, and excellent facilities. The hotel exceeded our expectations in every way. The rooms were comfortable and well-maintained, with all the necessary amenities. The hotel's central location made it easy for us to explore the surrounding area and visit nearby attractions. The staff were incredibly helpful and went above and beyond to ensure our stay was enjoyable. The facilities provided were top-notch, offering everything we needed for a comfortable and convenient stay. We highly recommend the Oriental Jade Hotel to anyone looking for a fantastic experience. We can't wait to return!

We hope the suggestion above inspired you. Now, you can write the review you'd like to post:

Surprising Performance

Outperforms humans in many tests and areas

Scientists were surprised, e.g., **Geoffrey Hinton**

Promise: intelligent, flexible and easily usable tools that are complementary to human decision-making, technical work and creative tasks, e.g.,

- Summarizing / generating text and support in programming
- Creating machine-based “artistic” works in image, text, audio, or video form
- Increases productivity – especially workers with lower productivity (Noy and Zhang 2023)
-
- Mathematics at very good graduate student level (Scientific American, June 2025)

AI as General Purpose Technology: many (infinite?) fields of applications, e.g., medicine

Forecast: annual economic growth of up to 1.2 % (PwC, McKinsey) (?)

But no free lunch

- **A story machine, not a truth machine**
- **Black box**
- **Bias** – mirrors our prejudices
- **Misinformation** / fake news, threats to democratic



Duolingo

723.373 Follower:innen

4 Tage • Bearbeitet •

+ Folgen ...

Below is an all-hands email from our CEO, [Luis von Ahn](#) – we are going to be AI-first.

Just like how betting on mobile in 2012 made all the difference, we're making a similar call now. This time the platform shift is AI.

What doesn't change: We will remain a company that cares employees.

- We'll gradually stop using contractors to do work that AI can handle
- AI use will be part of what we look for in hiring
- AI use will be part of what we evaluate in performance reviews
- Headcount will only be given if a team cannot automate more of their work
- Most functions will have specific initiatives to fundamentally change how they work

Issue: augment humans or automate



Informatics

AI Discussion

- Between **dystopia** and **utopia**
- AI pessimism in the West, more optimistic view in the countries of the South
- Critique on **anthropomorphic** notion Artificial Intelligence (J. Lanier)
- **Business as usual**
- **Amazement and enthusiasm**
 - Something unexpected happened
- **Existential threats warnings**
 - **AGI** with threat of human extinction
- **Hype warners** (Whittaker, Gebru): Don't fuel the hype, it's about other things (surveillance, ..)
- **Cautious ones**: potential good uses, but look at social disruption, democracy.....
- **Answers**: continue as “usual”, moratorium, regulation, public alternatives, role of UN

AI: Hard to Define

- Complex SW systems, or **brand** for some related technologies? (Thomas Haigh)
- Simulation of human behavior, machines showing “intelligent” behavior
 - „Automation of Thinking” / materialized in code
 - What is intelligence, all in the brain - or embodied (and socially/culturally embedded)
- 1956 Dartmouth Conference with *Artificial Intelligence vs Cybernetics*
- Symbolic AI or logic based vs Subsymbolic AI - data based

- Currently data / learning approach dominant
- Success based on technology and methods:
 - Big Data – ...Web, Google
 - Hardware – and “cheap” GPUs (graphics processing units) and parallization
 - Software – improved methods

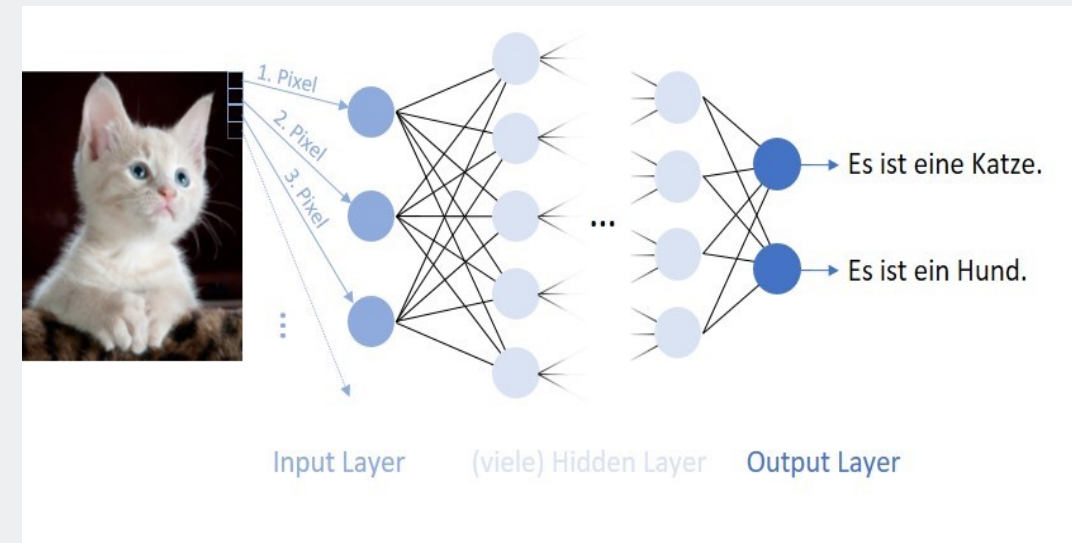
Two Approaches

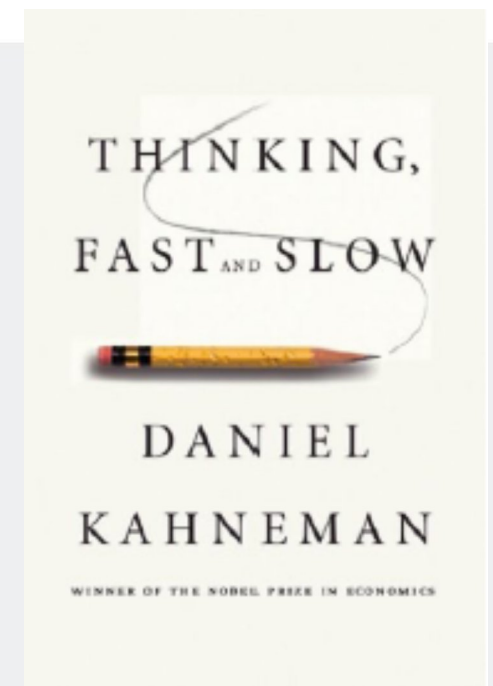
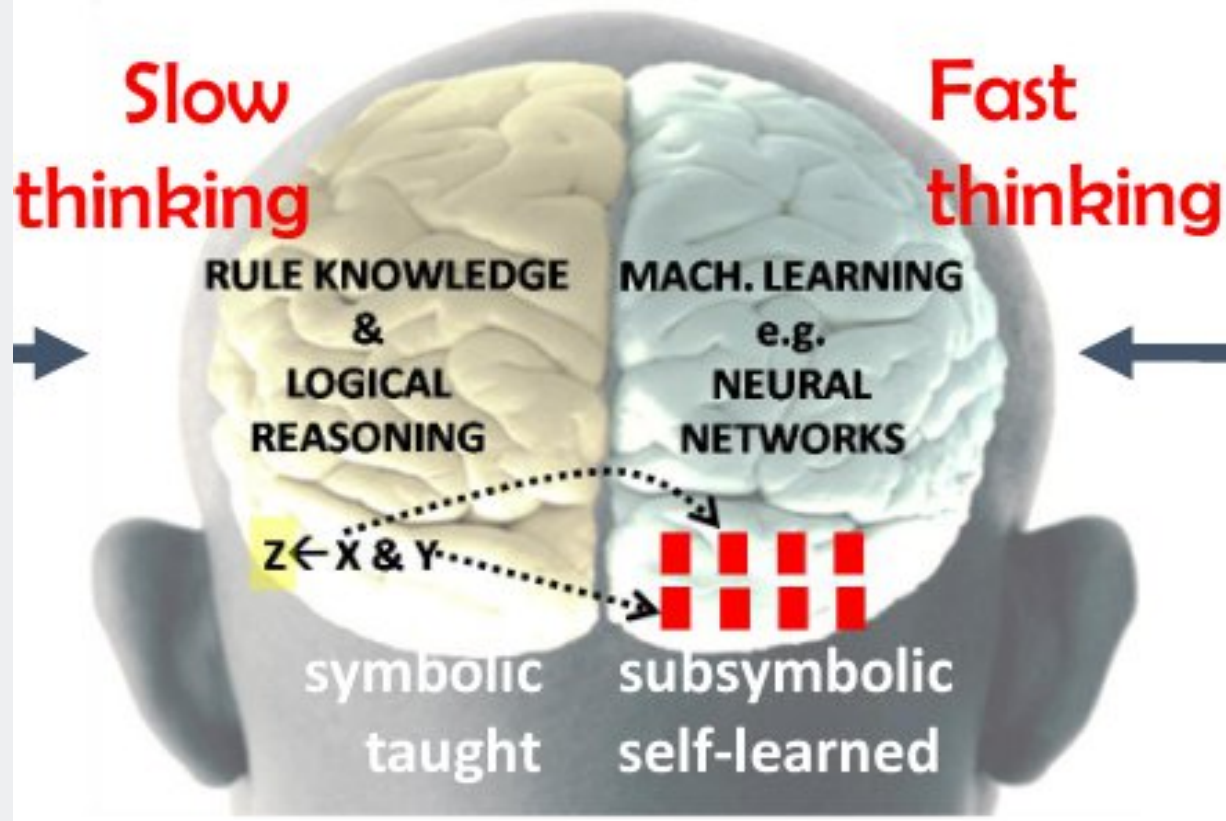
➤ Symbolic AI - logic based

- World described by a set of a priori given facts and rules
- From this “automatic” causal inferences
- Problems: Can everything be described? World free of contradictions?
Number of rules / facts explodes

➤ Subsymbolic AI - data based

- Machine learning (e.g. neural network)
- Recognizes only patterns, no rules
- **Now great success**
 - Machine learning classifies
 - LLM generates





Similarity to human way of thinking: slow & conscious or fast & automatic

System 1: Intuitive, fast, inexplicable decision-making

System 2: rational decision process

Neural networks like system 1, logic-based approach like system 2

Don't we Expect Too Much?

- Human beings are also limited
- Rational process: step-by-step thinking according to the rules of logic.
- We can only process a few steps and very limited data - Herbert Simon (1981)
- **Bounded rationality**
- We often find explanations in retrospect
- Overestimate frequencies of rarer events – framing
- Not all options can be grasped



- GPT 4 has 300 billions parameters – that’s the “**knowledge**”, not the software (knowledge encoded in networks)
- GenAI **THE** approach to AI
 - No “model”: example Google Deepmind weather forecast
 - From certainty to probability - new computation paradigm?
 - Science without model?
- AI economic landscape – highly concentrated (high costs)
- **No end of Big Tech – on the contrary**
- Universities are lagging behind

AI - Who takes part

- 2023 32 important industry modles, only three from academia (HAI 2023)
- Start Ups – reflect private investments

Number of Newly Funded AI Companies by Geographic Area, 2013–22 (Sum)

Source: NetBase Quid, 2022 | Chart: 2023 AI Index Report

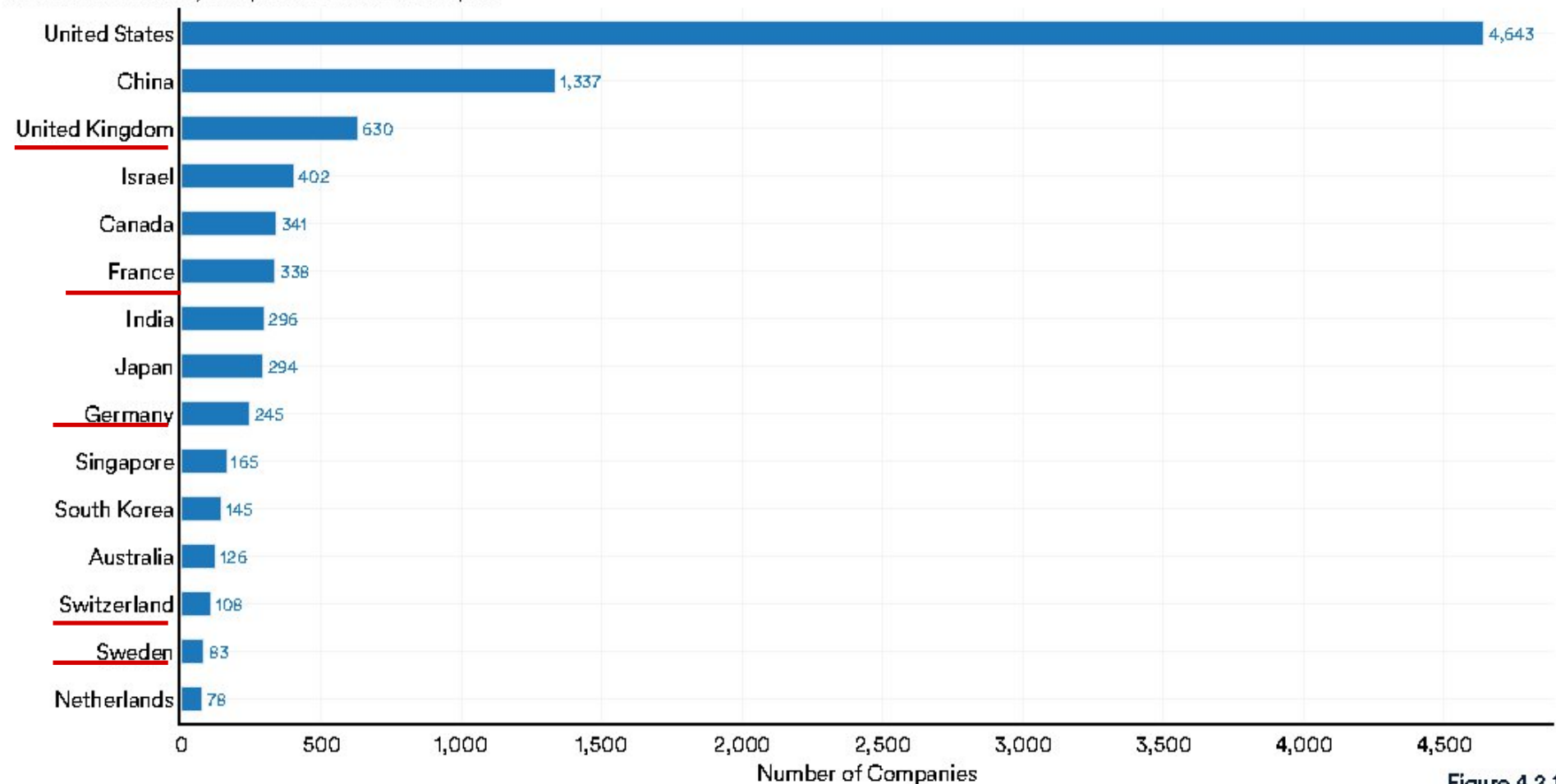


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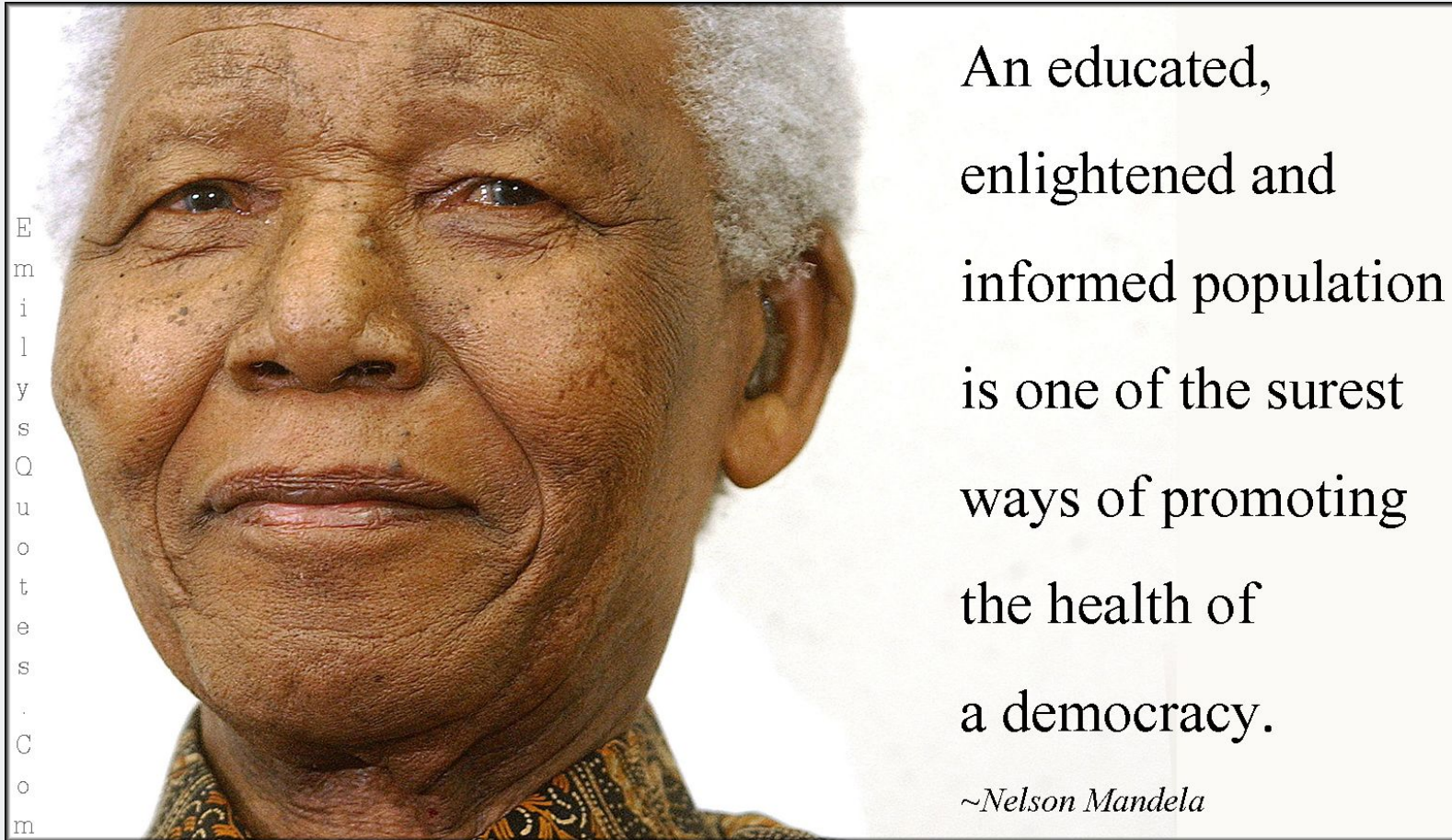
Attacks on Digital Regulation
From several angles

- **Ideological** : Ultra-liberal
- (Harm principle rejected)
- General deregulation agenda
- “Enhanced Games” spirit.
- **Corporate self-interest /Profit**
(Zuckerberg/Musk decrying
“censorship”)
- “Regulation stifles innovation” (false
dilemma)
- **Geopolitical**
- “ EU Regulation used to “tax” our
companies”

The Dighum open letter and beyond; A civil society engagement use-case

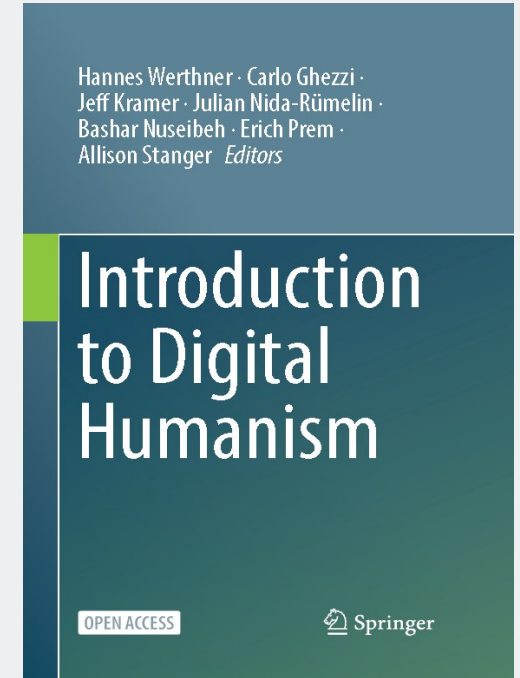
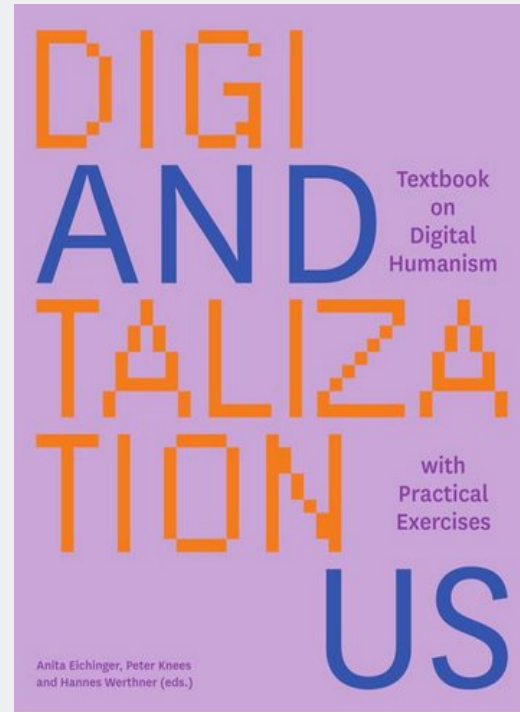
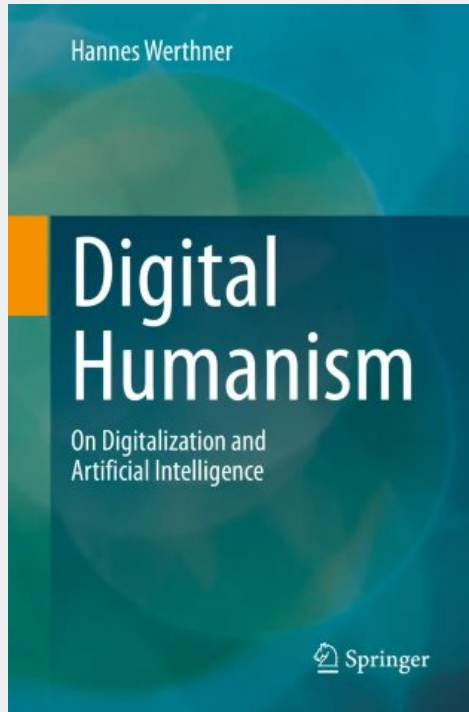
- Open letter : A civil society pushback against deregulation tsunami.
- Submitted to the European Parliament's Petitions Committee.
- Hearing at July 16 under the urgency procedure.
- July 1: U.S. Senate votes 99-1 to allow states to regulate AI
- This offers immense political help to our effort!
- Texas has already adopted the Texas AI Act (an adaptation of the EU AI Act). Now it will stay as LAW!
- Other US states will follow as will other countries (e.g Brazil)
- LESSONS:
 - Fight back. The “wait and see” time is over. Get involved! Get engaged!
 - Try to learn to explain the need for all this better to young people

In today's classrooms sit tomorrow's societies



Conclusions

- World rolls back to nationalism, primitive conflict resolution strategies (incl deregulation), while IT/AI are global and require cooperation (if we don't want to cause harm).
- IT will not stop
 - Further technology and „service“ waves
- Development is not deterministic or „god given“
- It's up to us
- Not money and efficiency - but people, society and nature at the center
- *Who has the power ?*
- Digital humanism provides a comprehensive answer



dighum.org
Thank you