Teknologispring og Timing (og lånte ideer …)

- Timing - safety-bicycle og bilen (1890 Benz)
- John Dunlop
  - Dyrlæge – masser af gummi
  - 1887 Første (cykel)dæk
    - Kronisk syg søn og trehjulet cykel

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    - Kronisk syg søn og trehjulet cykel
  - Robert William Thomson
    - (1846)Dæk
    - Fyldepen

Teknologispring og Timing (og lånte ideer …)

- Tesla (2003)
  - Eberhard & Tarpenning
- Elon Musk

- Timing - batteripris falder snit 15 årligt
  - 2011 - 689 usd/Kwh
  - Tech company mindset – ind i en dinosaur branche

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Teknologispring og Timing (og lånte ideer …)

- OpenAI (2015)
  - IBM Watson (2007-13)
  - Google Deepmind (2014)
- Store tech firmaer dominerer AI
- Sam Altman
  - Y Combinator – startup accellerator
  - Startup mentalitet
  - Prepper
- Elon Musk
  - AI ville blive afgørende for Tesla og øvrige projekter
- Timing – AI klar til næste step-up
- Open AI – ”non profit”, men med mange penge
- Startup mentalitet
- Kan tiltrække de bedste forskere

Preben Mejer

CEO, Radr – New Tech Impact
Bestfmd, Qampo - AI Decision Science

preben@mejer.com

AI – Artificial Intelligence

- Personal Computing
- Internet
- AI McKinsey

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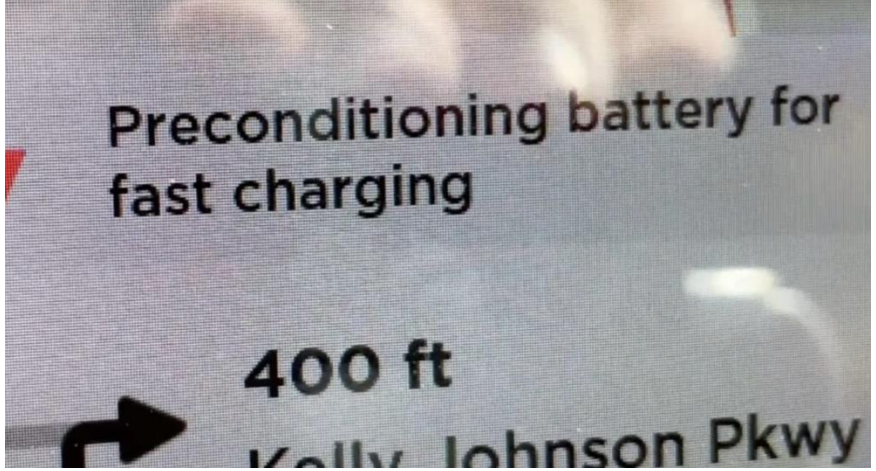
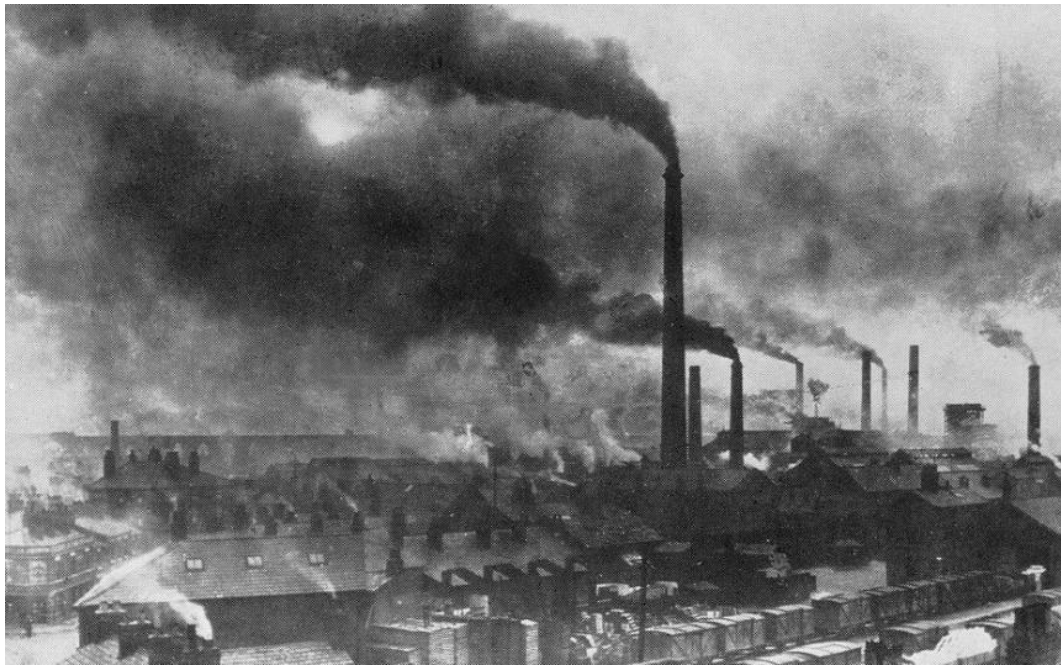
AI – Allerede en del af vores hverdag

- Google og Google Maps
- Netflix/Spotify/Amazon
- KLM booking directly in Outlook calendar
- Tesla battery optimization
- ChatGPT



Industrialization …



- WEF
- Steam engine grew GDP 0.3 pct yearly
- IT og Internet 0.6 pct
- AI potential 1.3 pct

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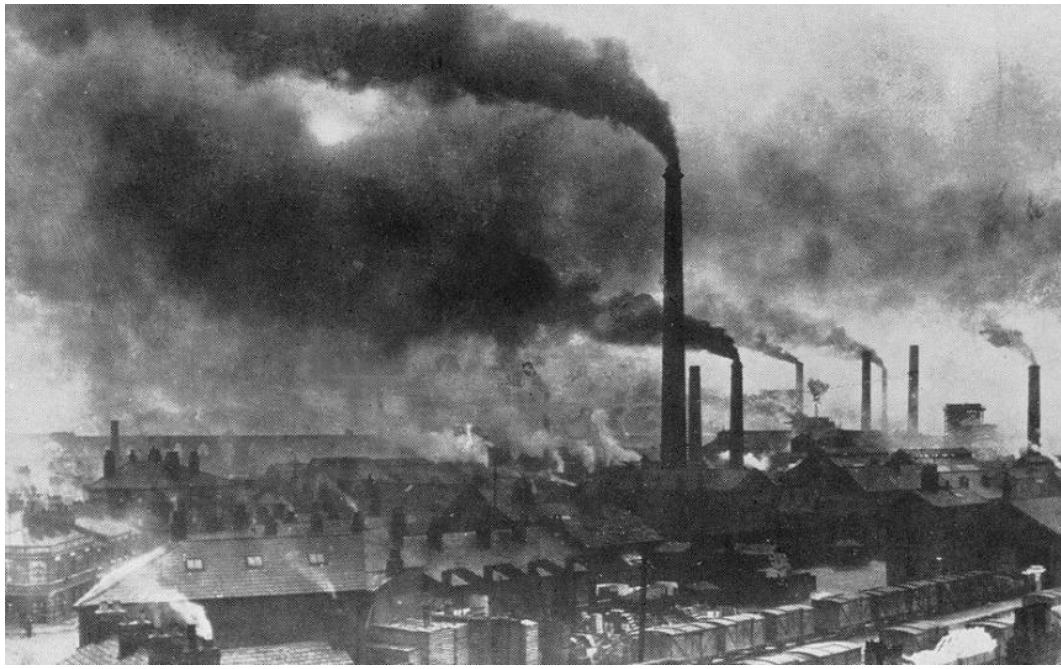
Industrialization …



- WEF
- Steam engine grew GDP 0.3 pct yearly
- IT og Internet 0.6 pct
- AI potential 1.3 pct

- AI could increase annual GDP by 7 pct
  - Goldman Sachs march 26th

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Milestone Tech and Labour productivity booms

- 10-20 years from launch to 50pct penetration and jump in productivity
  - ChatGPT and what follows may be for the 2030's - Paul Krugman WSJ

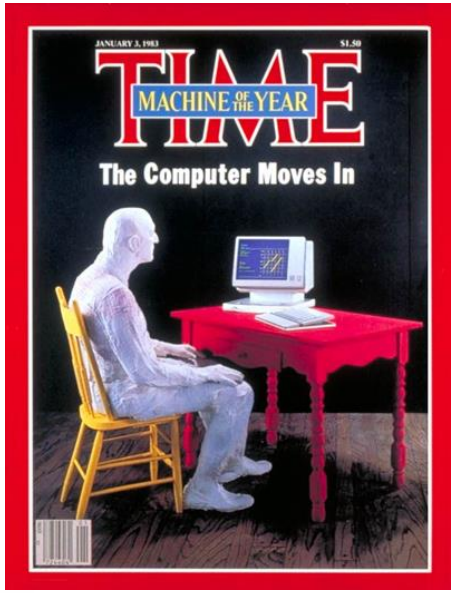
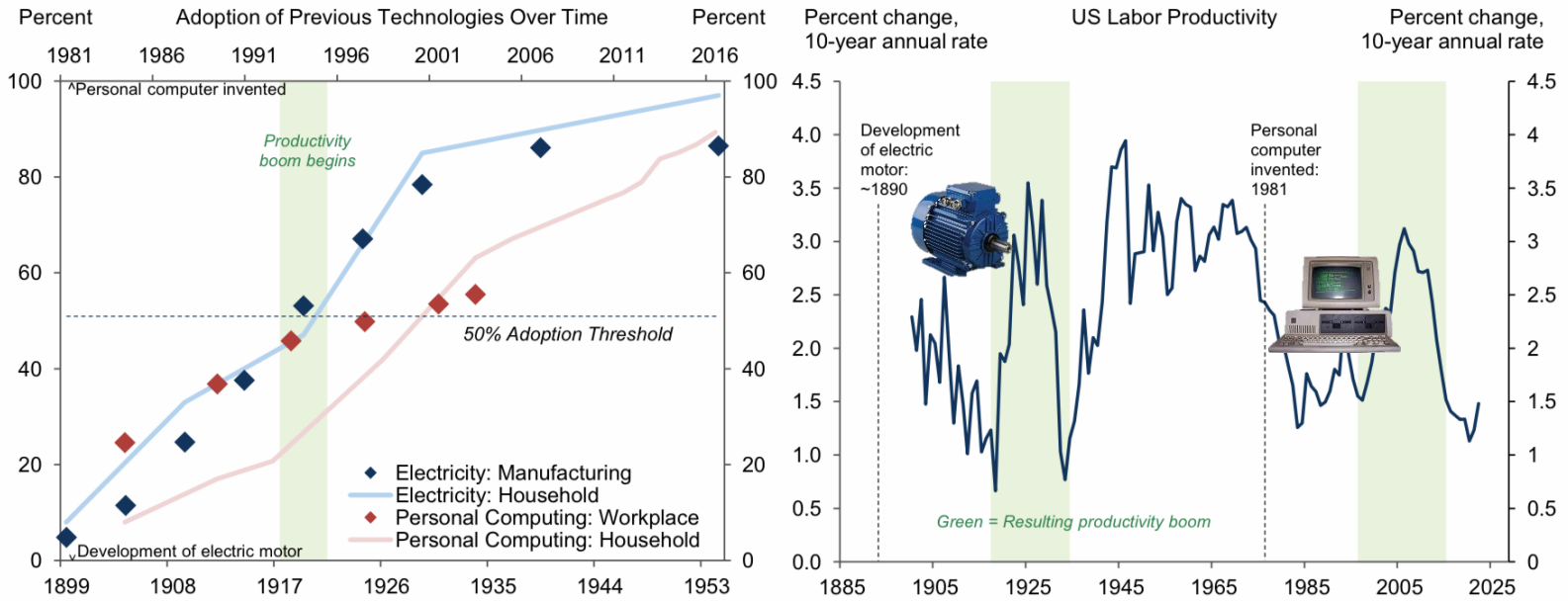


Exhibit 12: Previous Milestone Technologies Have Led to Labor Productivity Booms, but the Timing Is Hard to Predict



Source: US Bureau of Labor Statistics, Census Bureau, Our World in Data, Woolf (1987), Haver Analytics, Goldman Sachs Global Investment Research

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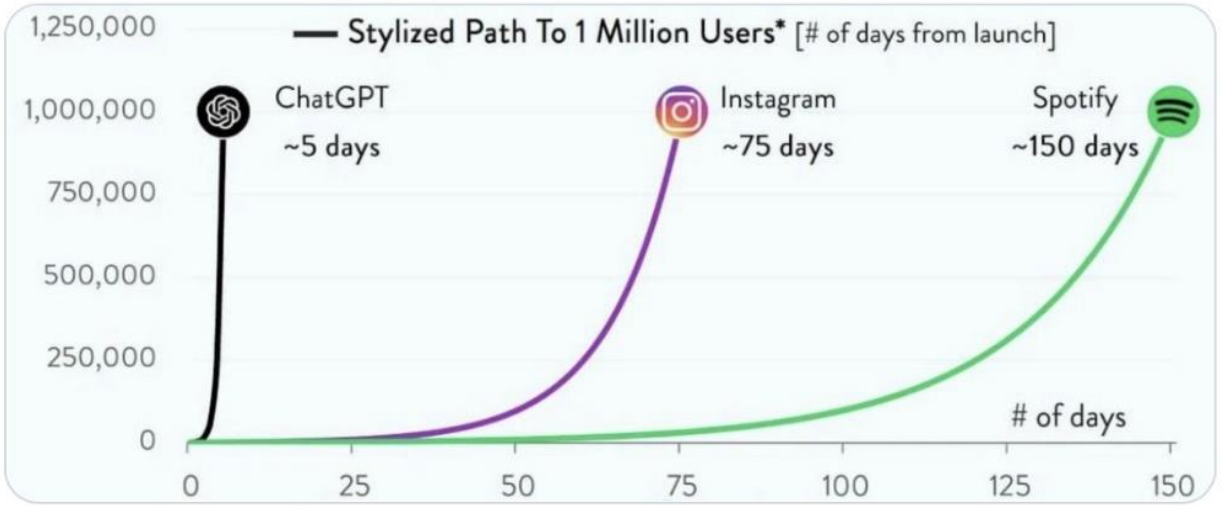
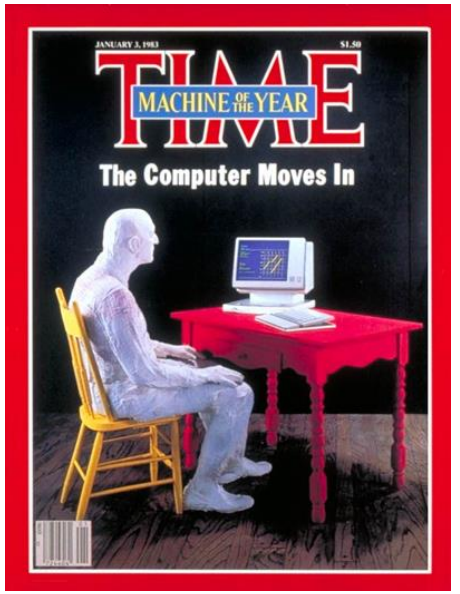
Milestone Tech and Labour productivity booms

- 2 years to sell 1 mio PC's - 5 days ChatGPT

Time different services took to reach 1 Million users. If you had any doubts that ChatGPT is going to change the way we use the Internet, look at this graph again ...





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Phases in AI development (2018)

- Automation – 2020
- Algorithms – mid 2020's
- Augmentation – late 2020's
- Autonomy – mid 2030's
  - PWC (2018)

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Phases in AI development (2018)

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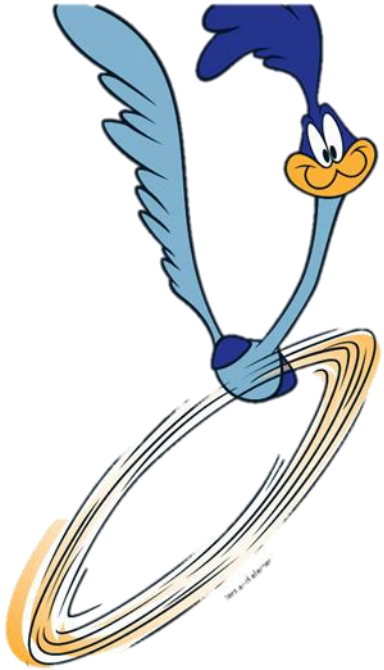
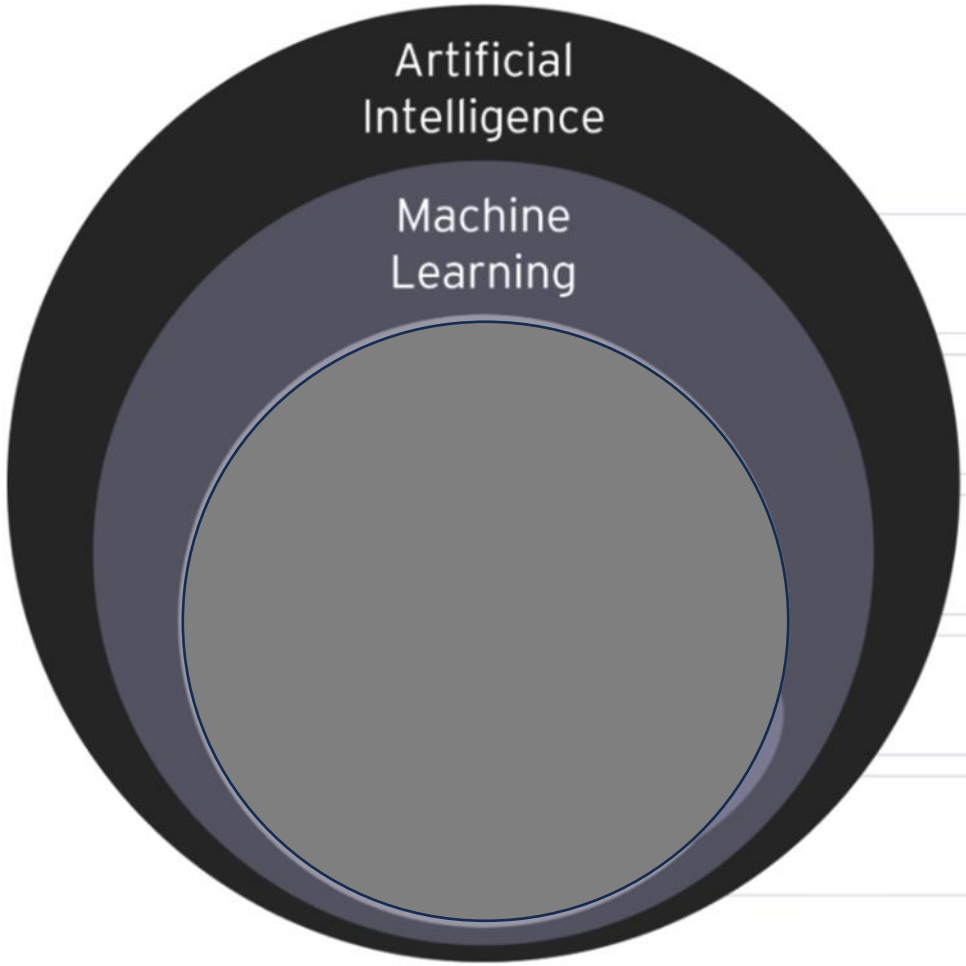
Speed - uptake



- Business, legal regulation, strategy, parents and family, education ….

AI types

Midjourney



- Machine learning
  - Machine learning algorithms based on data make predictions or decisions
- Deep learning
  - Based on neural (brain like) networks
  - Learn on data that for specific task – images for object recognition
- Generative AI
- Generative adversarial networks
  - Two neural networks, one generating new data, one evaluating
  - Generator and discriminator work together, end result look like real data
- GPT4 – Generative pretrained transformer
  - Pretrained on 175b parameters – internet – 2021 data (GPT3)
  - Transformer – can weight the significance of each part of input data
    - (BERT invented by Google)
  - Predict the next best word in a sentence
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Qampo

QAMPO

- Qampo – Machine Learning
  - Decision science
  - Ressource optimering

- Bagstage
  - 8 incoming bagagebånd
  - 35 pct bedre flow

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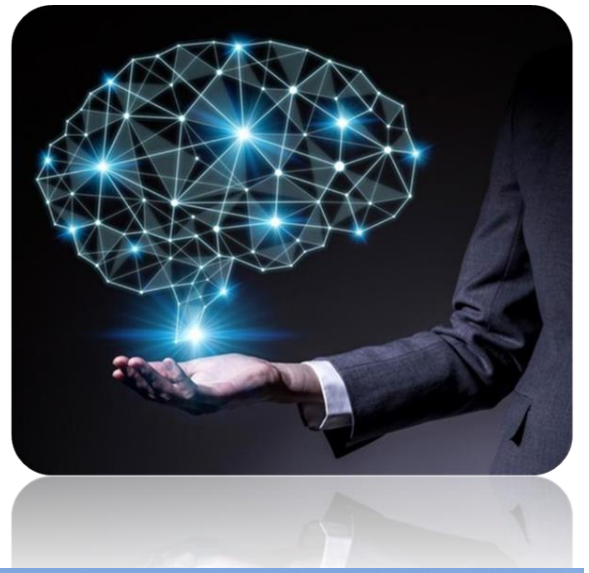
- Plai
  - Hjemmepleje
  - 20 pct reduktion af vejtid
  - Fokus: borgerkontinuitet
  - Små 900 årsværk kan spares

Qampo



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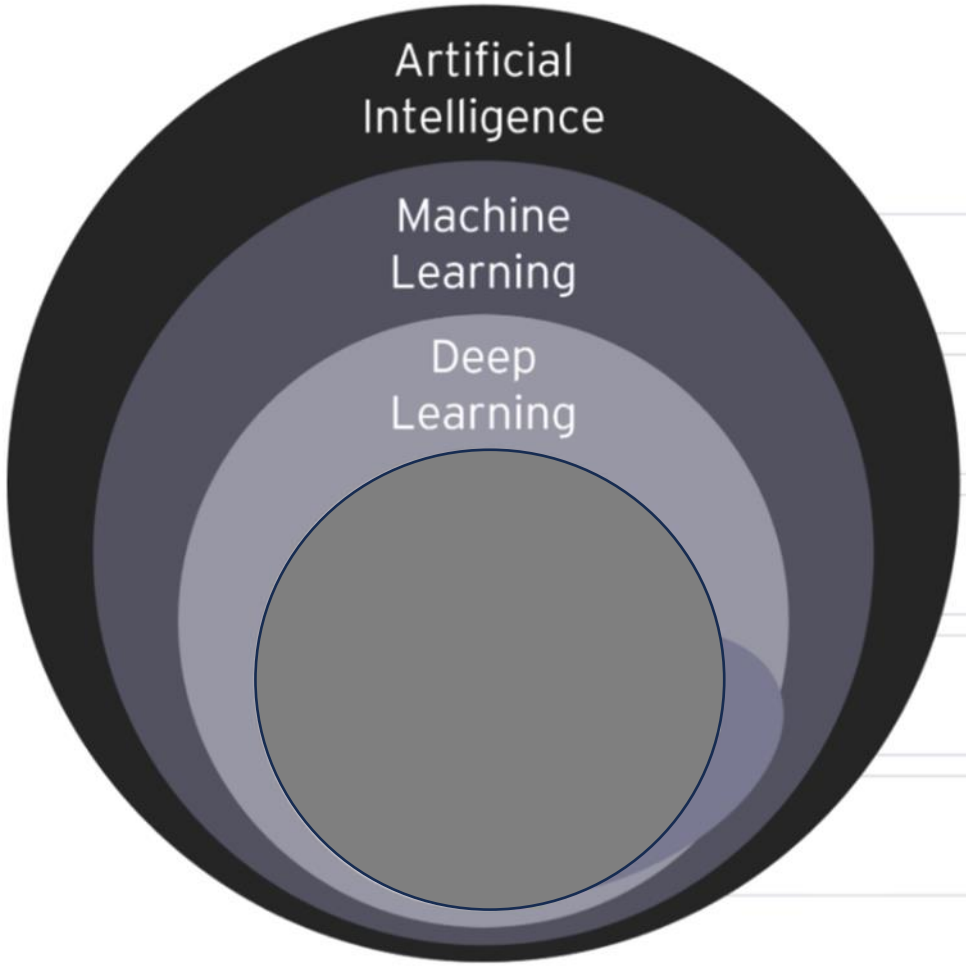
- Greenforce
  - TDC Teknikerbiler
  - 15 pct mere effektivt – mål 25 pct reduktion af Co2

AI types

Midjourney



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AI anvendelses temaer
De første år …

- Automation
  - Qampo
- Kuratering
  - Google, Research
- Beslutningsstøtte, det grove arbejde
  - DDB / Visiopharm
- Orkestrering
  - Byggesager / Disaster management

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AI typer

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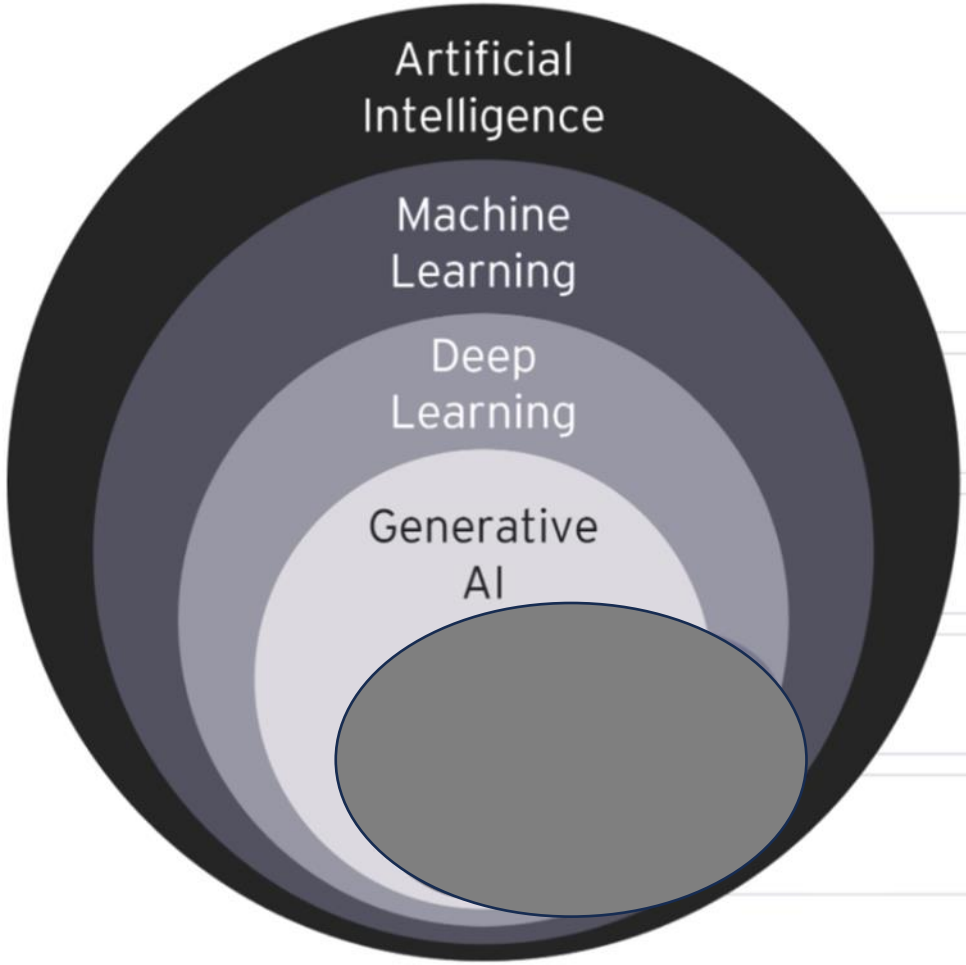
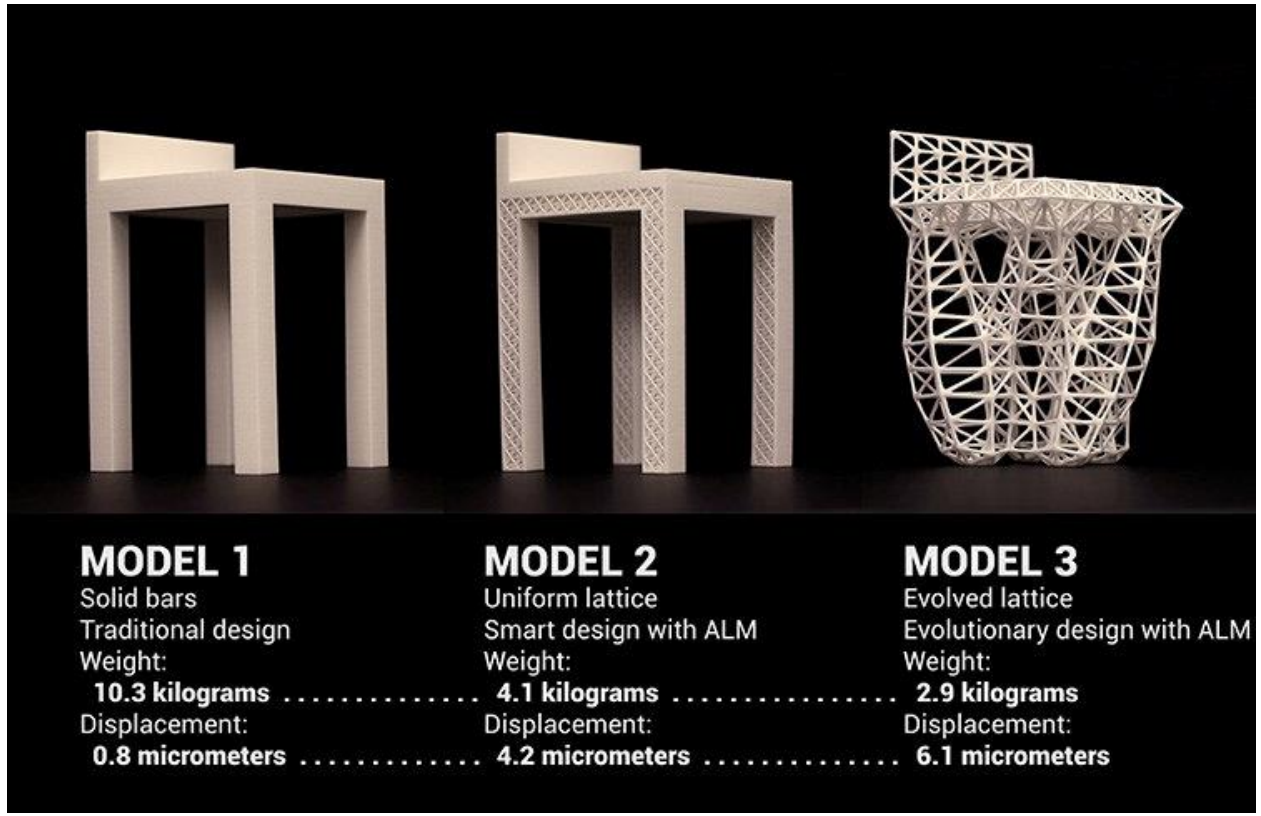


AI Generative design



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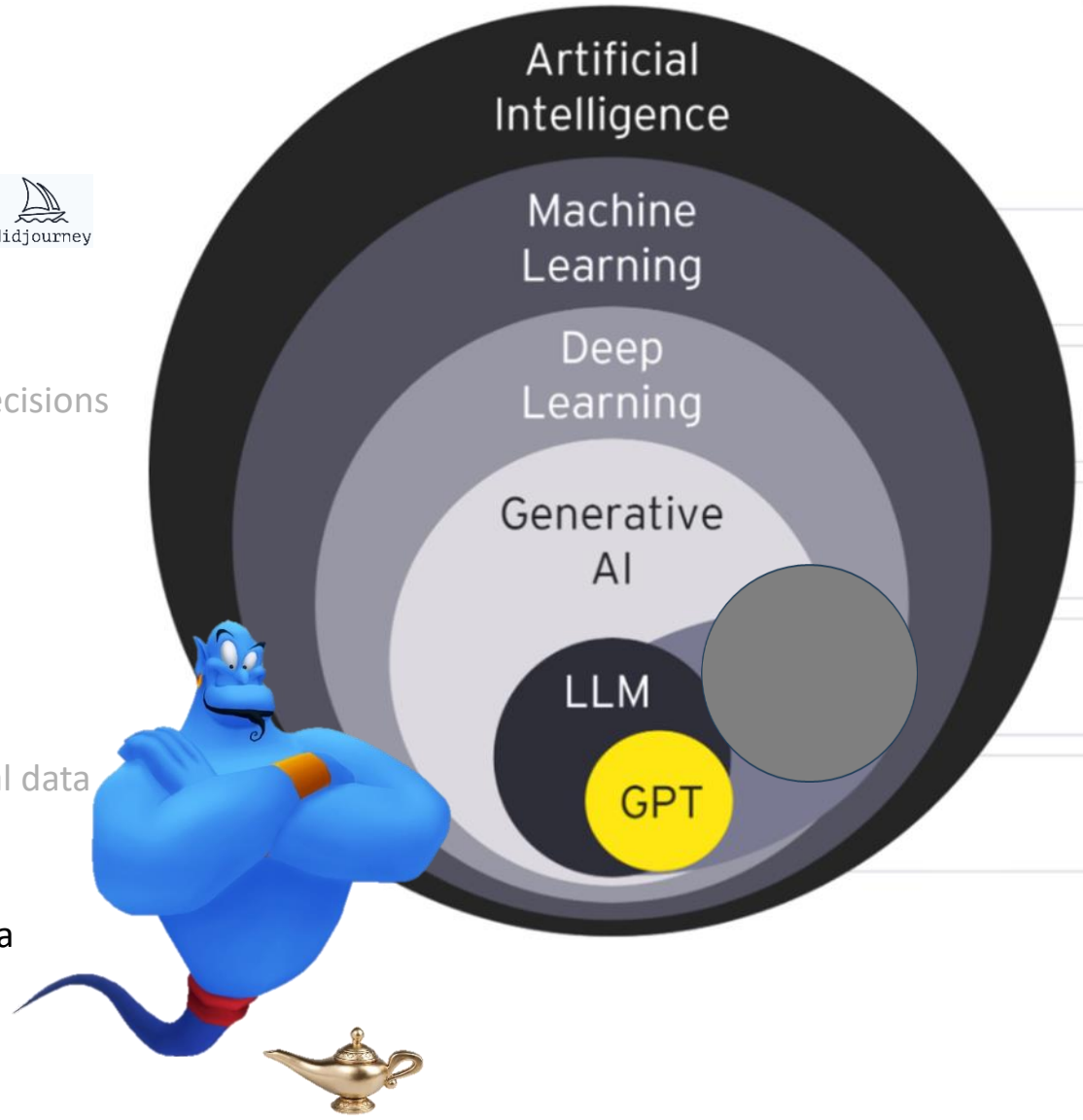
AI typer
Aladdin…

Midjourney



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AI with Generative AI

- Som at få en pissebegavet kollega
  - Altid klar til at hjælpe dig
  - Jan Birkemose, journalist / Børsen

- Gen AI capabilities
  - Abstract
  - Expand
  - Chatbots
  - Extracting
  - Transformation

BØRSEN.

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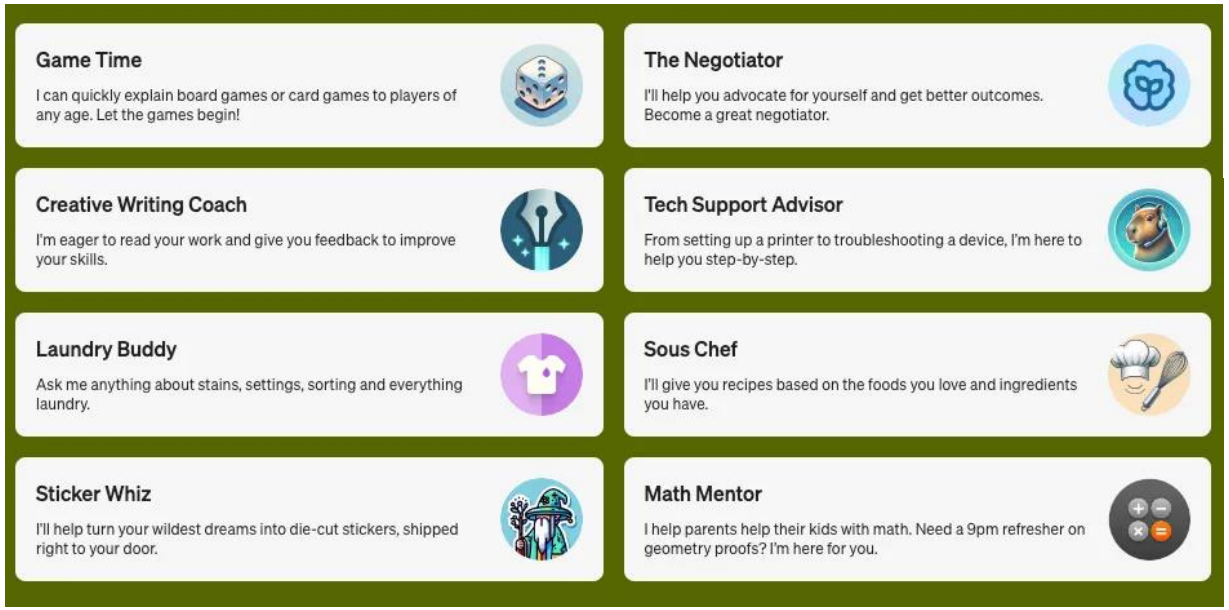
AI app store ?
GPT Store

- Generative AI as a new computing platform with an “app store”



GPTStore.ai

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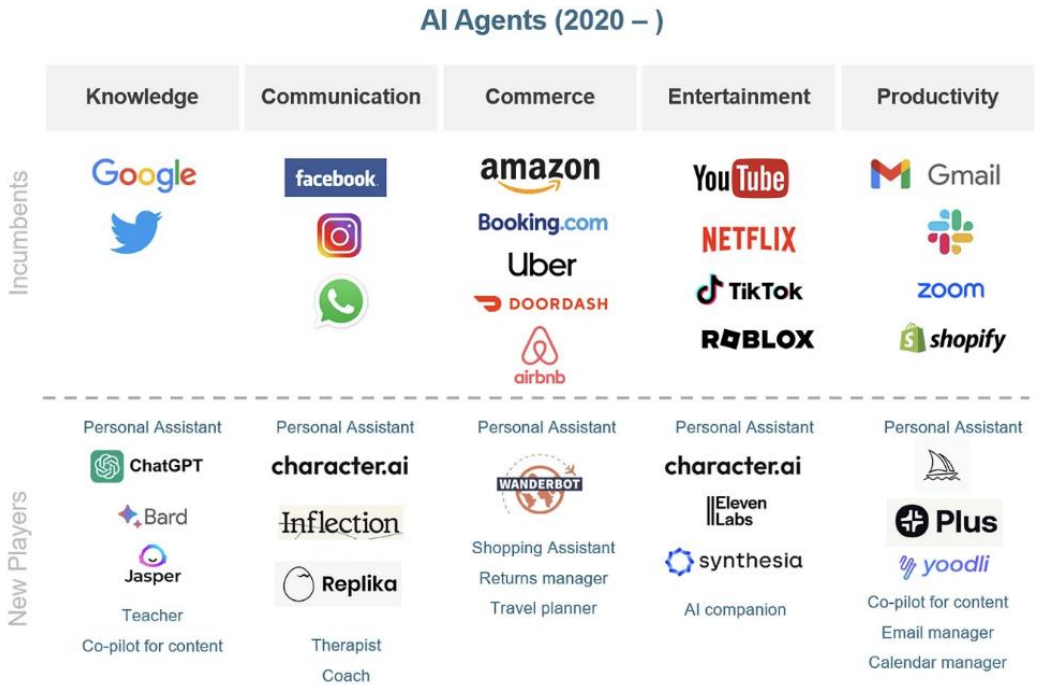
Personal Assistant

Paradigmeskift

Pejlemærker

- “whoever wins the personal agent is the big thing - you will never go to a search site, productivity site, Amazon again” Bill Gates

- Book restaurants, doctor appointments, coordinate calendars, shop, book travel
- Digital Companion – Character, Replika
- Therapy – chooce favourite celebrity as personal coach
- Research Assistant – McKinsey estimate 20 pct of time spent on research
- Personal education
- Content generation
- Restaurants / Travel – discovery, shortlisting, booking, cancellation, change
- Medium

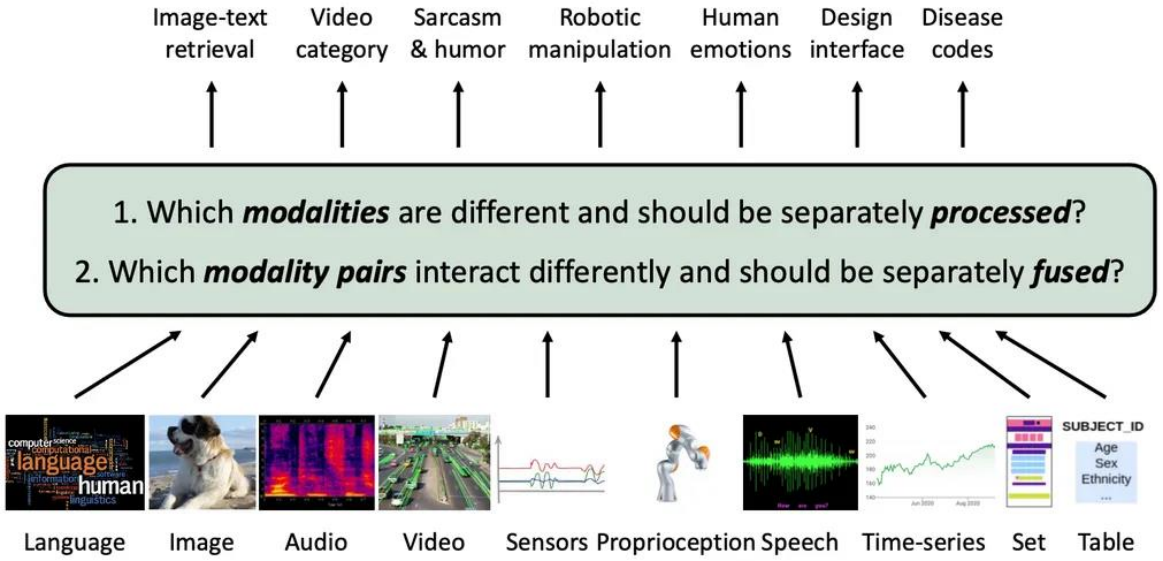


Generative AI will far surpass what ChatGPT can do

- Large language models are very one-dimensional as they only see the world through text
  - Text is turned into a quantified mathematical representation
  - Program then has to find what is missing from the phrase, this brings about the paragraphs ChatGPT is spitting out
    - Same with images the diffusion process corrupts images with noise and then recreates – Stable Diffusion

- Moving to multiple modalities
  - Text, image, physical space, items, sounds, computer functions, smart applications
  - For some reason performance continues to improve with each modality added

- ZDNet - Tiernan Ray



Carnegie Mellon 2023 High-Modality Multimodal Transformer

80

Cambrian explosion AI and IoT..

- 521 mio years ago
- SoftBank Masayoushi Son
    - Eyes, ears, senses, brain activity

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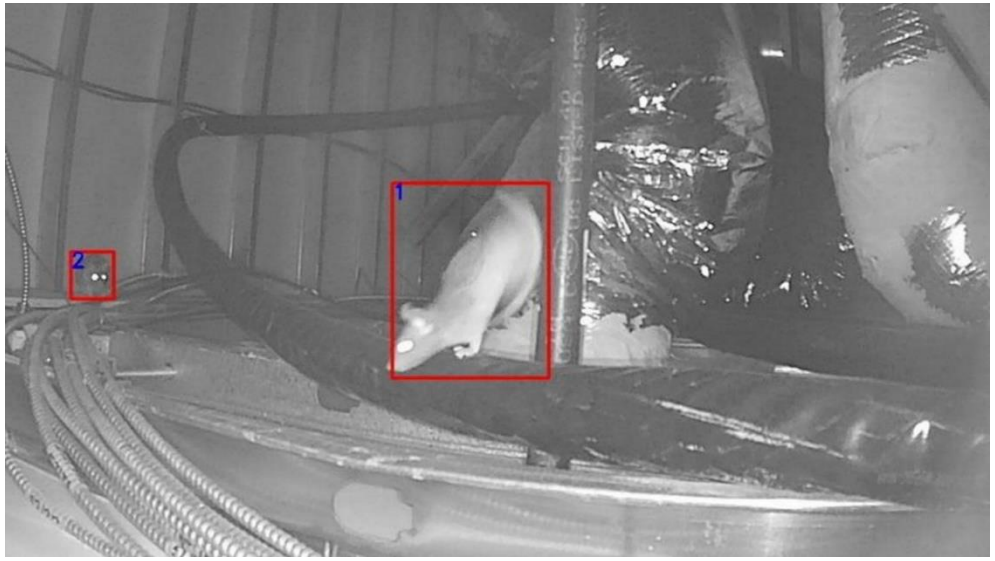
AIoT

- Rat facial recognition
  - Where do they come from, who is returning, who is making the damage
  - Rentokil
    - Guardian



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AIoT

- Dent detector
  - Real time detect dents, scratches, smoking
    - Accelerator sensors and AI trained algorithms
    - identify potential damage in 9 zones and
    - classify from cosmetic to severe
    - Robert Bosch WSJ

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Google Deepmind RT2

- Google Deepmind RT2 Robotics-transformer model
- Robots that can follow real-time instructions
    - Medium

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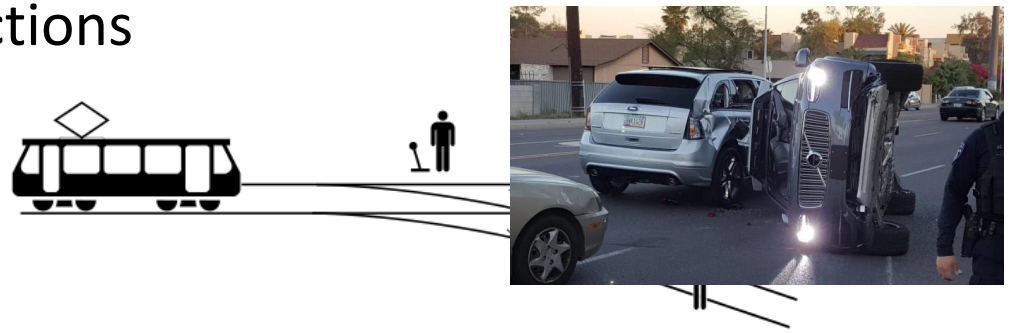
Robot stand off

- Robots must learn to get along
- Changi hospital Singapore 50 robots, not uncommon to find two delivery robots in standoff outside elevator
- They freeze, and await for the other to move first
- Humans have to intervene
- Implementing Open Robotics software, to let robots negotiate safe passage
- Wired

Mgl social intelligens

- 5-600 AV I San Francisco 600 “indicents” på et år
- Go or give way, basic question in traffic and elsewhere
  - Relies on social interactions trained from we begin to walk
- 18 hours of uploaded Youtube videos from backseat passengers
- Problem is inability to understand social interactions
- Kbh Universitet
- Moralsk baserede beslutninger
- “ The trolley problem” –
  - Den der udfører> (u)dåden og> konsekvensen
- 8 scenarier, mange personer vægter moralsk adfærd 1-10
- 3 filosoffer fra North Carolina State University
  - Forælder holder for gult på vej med barn I skole, men når det on time
  - Udvikle AI algoritmer
  - moralsk funderede beslutninger I selvkørende biler



Generative AI
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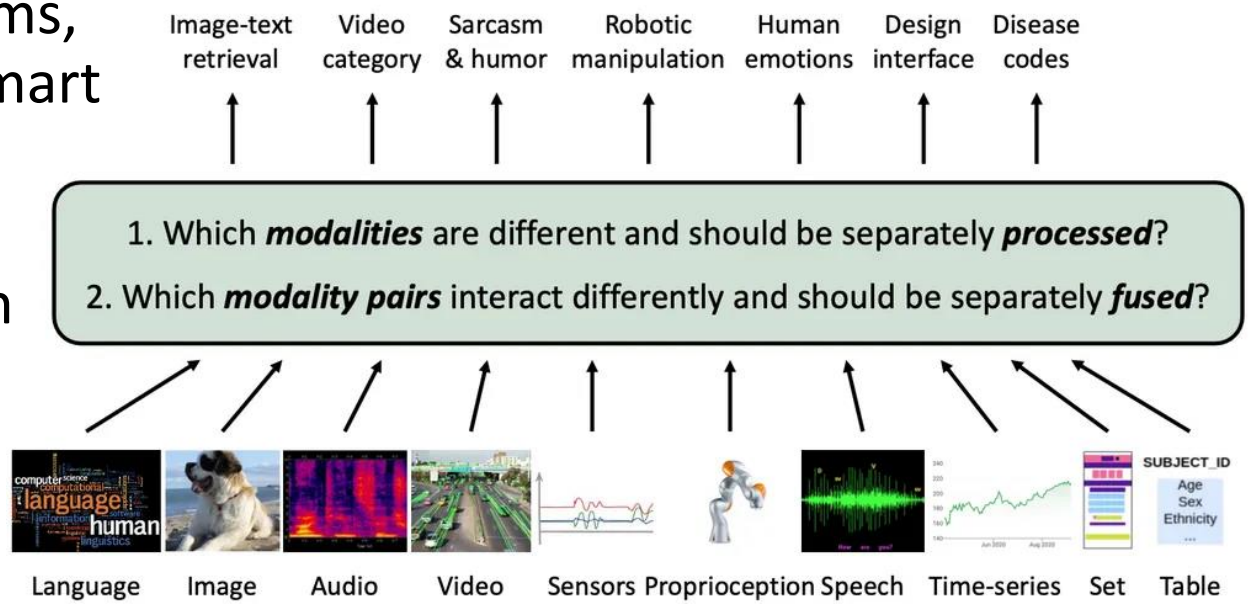

Carnegie Mellon 2023 High-Modality Multimodal Transformer

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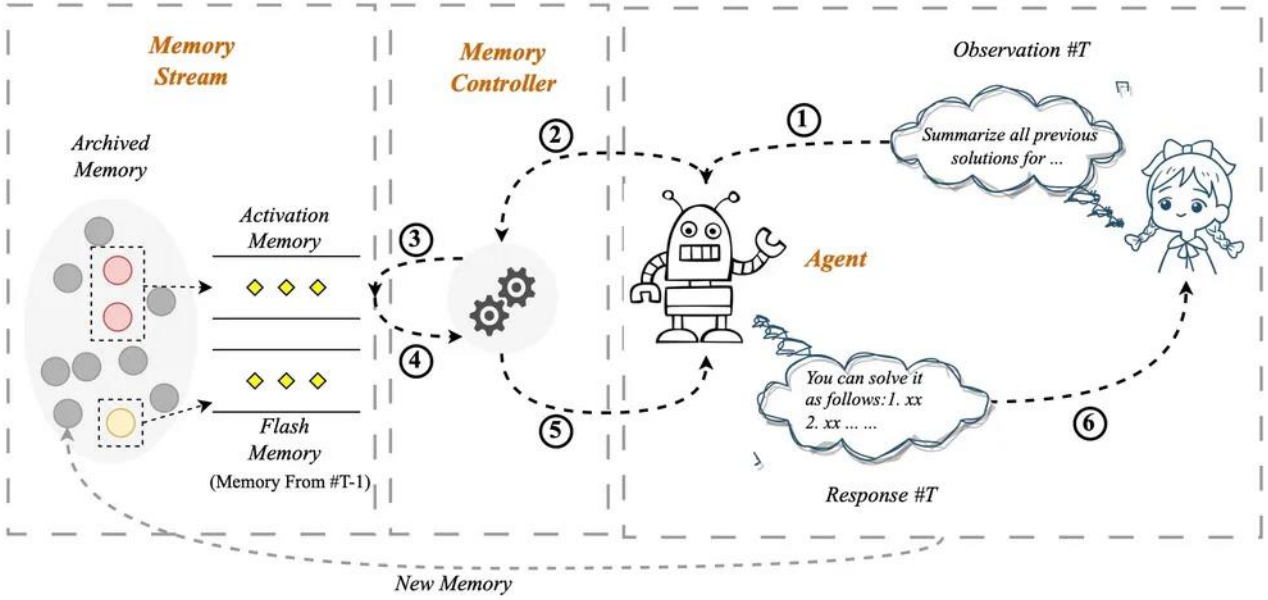
ChatGPThas no explicit memory

- Only works on the last stuff you typed in the prompt
- Using mixed modality will need to develop some sort of memory, as it is much more demanding on context
- Advancing the goal of embodied AI – giving a lift to robotics
- You will want to show the robot a tour of your house, so it knows where things are, so you can ask it to bring your car keys, it can examine its memory and figure out where the keys are

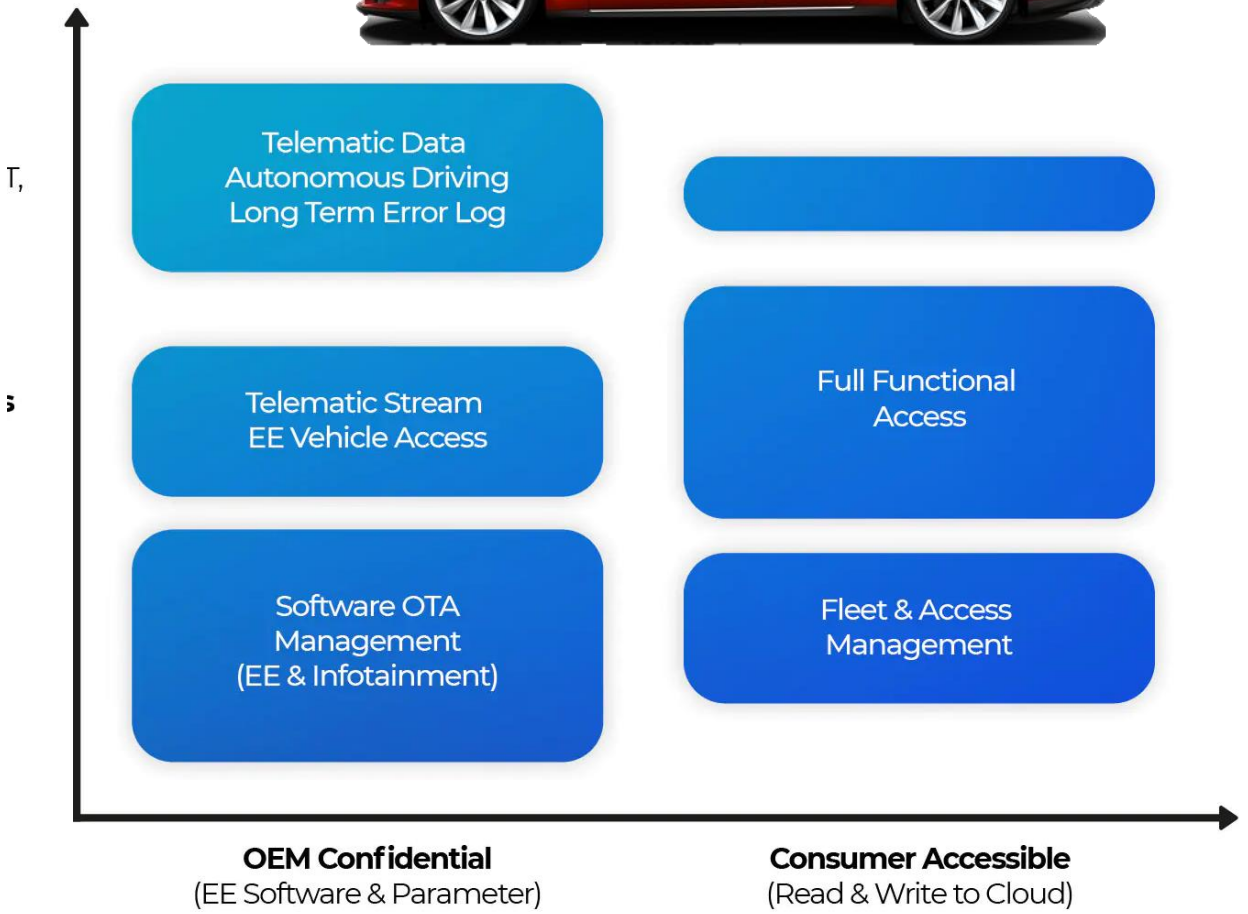


- ZDNet - Tiernan Ray

Tesla AI - Edge and cloud

- Tesla Nvidia 72 teraflops
  - Ca 30 macbooks

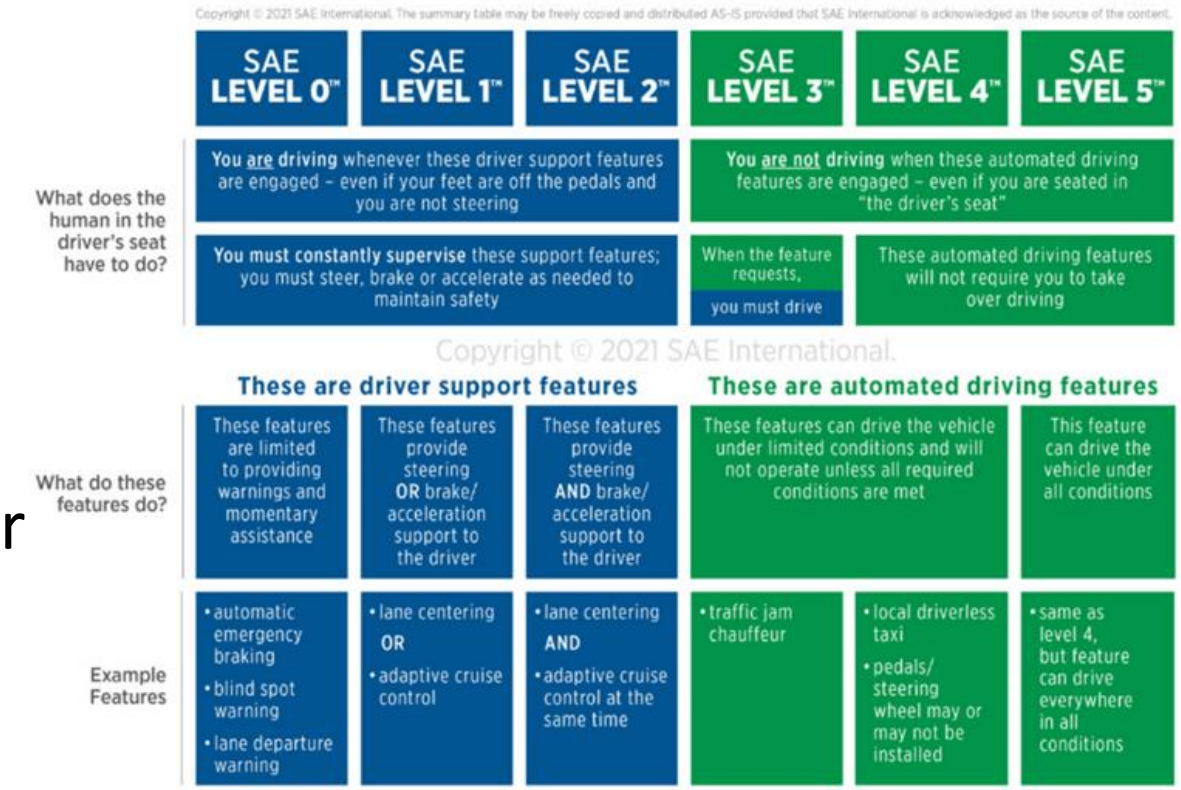
- Based on external info
- 3 layers of AI
- Car
  - Able to drive semi autonomisly (niveau 3) off line
- Cloud
  - Battery optimization based on state of individual battery
- App
  - Route planning, status



The state of Level 3

- If the OEM is not ready to claim full responsibility the car will stay L2 for legal reasons
- Mercedes Benz first operating a L3
  - Driver can legally eat, draft emails or watch videos
- Individual drivers no longer liable for car accidents
  - New btb insurance models will arise

- McKinsey Autocrypt.io



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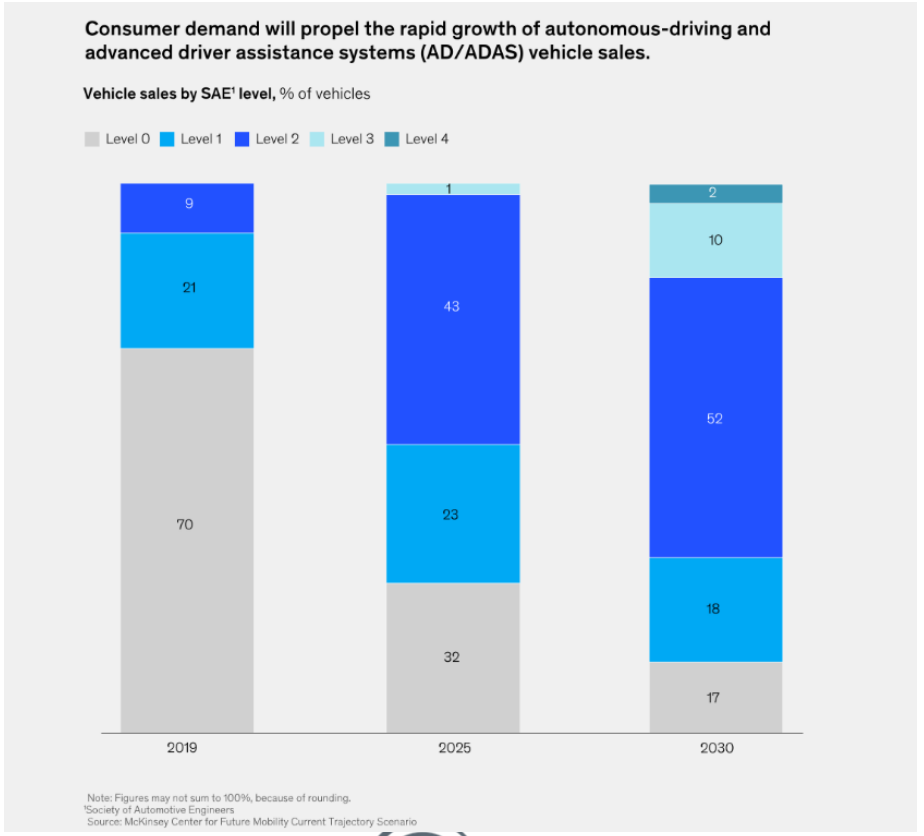

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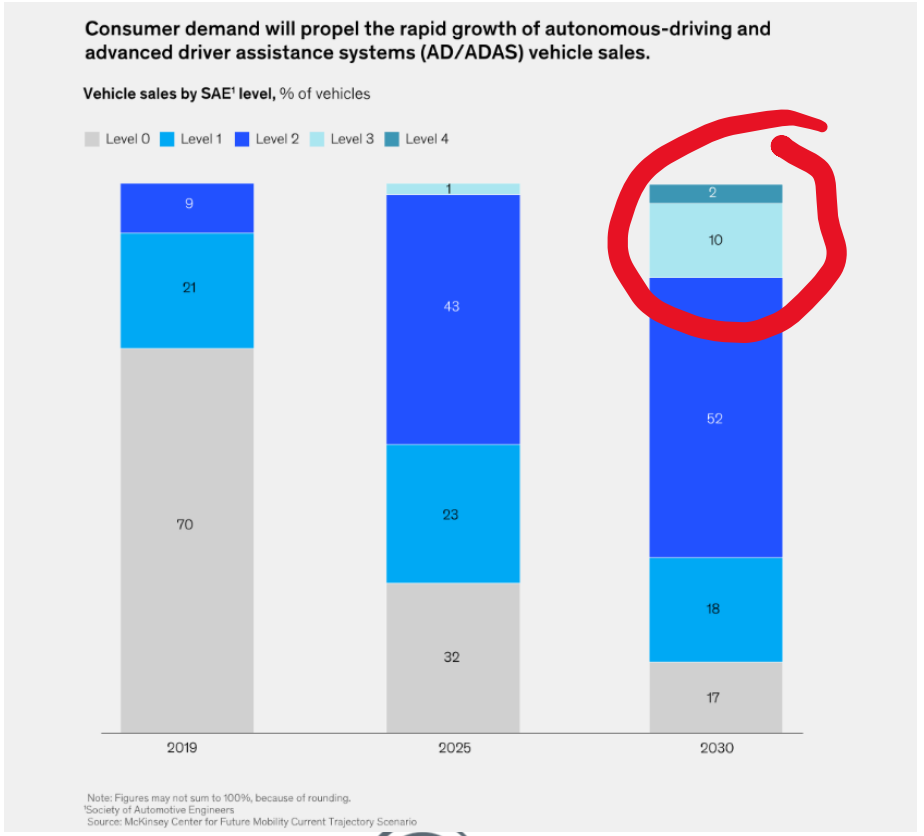

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AI EV AV

- Ford leaves you if not paid
  - Car on it’s own leaves you if no monthly payment
  - First warnings on display in car, AC, cruise control radio stop working, next level, noise in radio
  - US Patent application / CNN

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Hybrid delivery

- 1.5 mio droneflyvninger Europe 2023
  - Tredobling over 2022
  - Passager droner

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Ambient AI

- Paradigmeskifte

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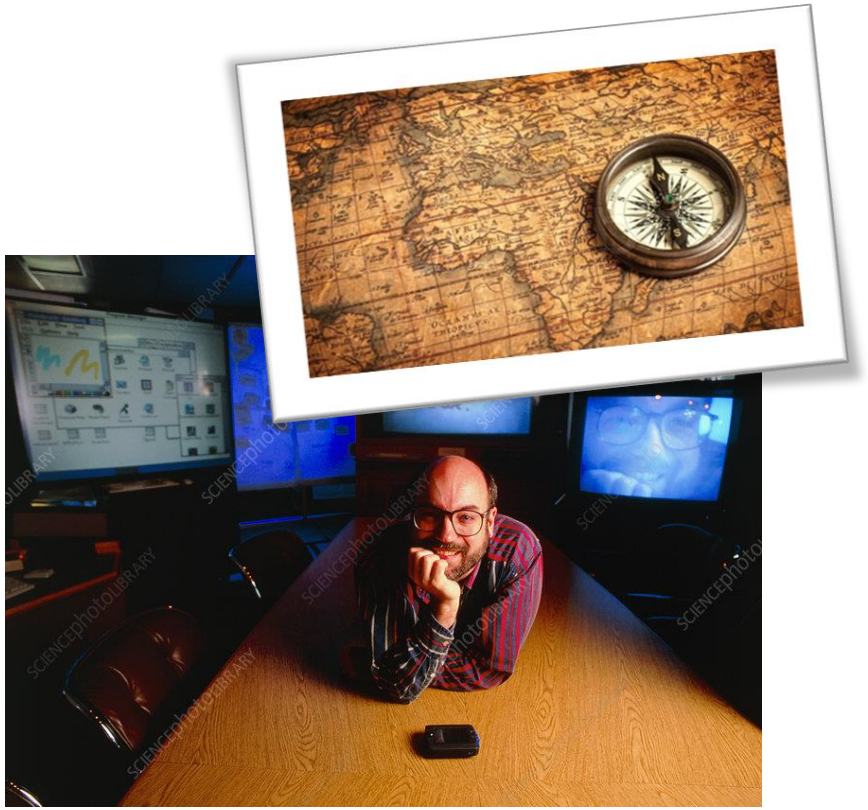
Ambient AI

- Fra ”tabs, pads and boards” – Mark Weiser
- Til Ambient AI



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Ambient AI

- Fra ”tabs, pads and boards” – Mark Weiser
  - The AI Device … Runs on Chat GPT
    - Voice/speaker, Laser ink display
  - Photography features
  - Summarize your email inbox for you
  - Translate languages
  - Identify food for nutritional information
  - Music streaming with an AI DJ

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Voice

- Voice
- Action Focused
  - To help people get things done
  - Affective Computing
    - Arising from – or influencing emotion
  - Skændes med din bil – eller køleskab

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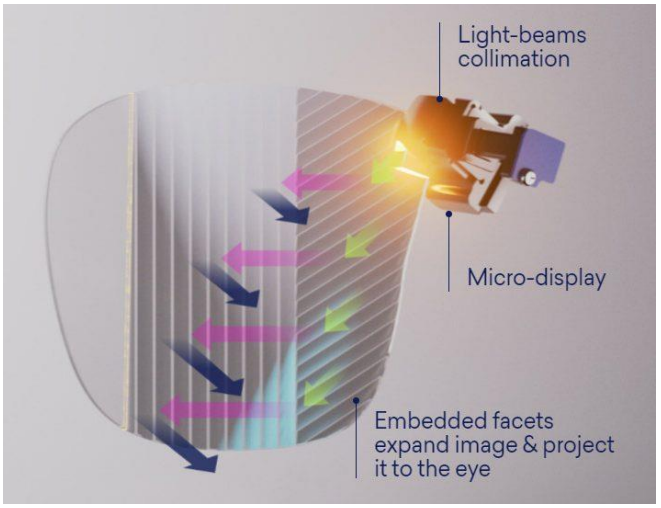
AR glasses 2025

- From 2025 AR glasses will reach higher penetration
- Lumus Forbes



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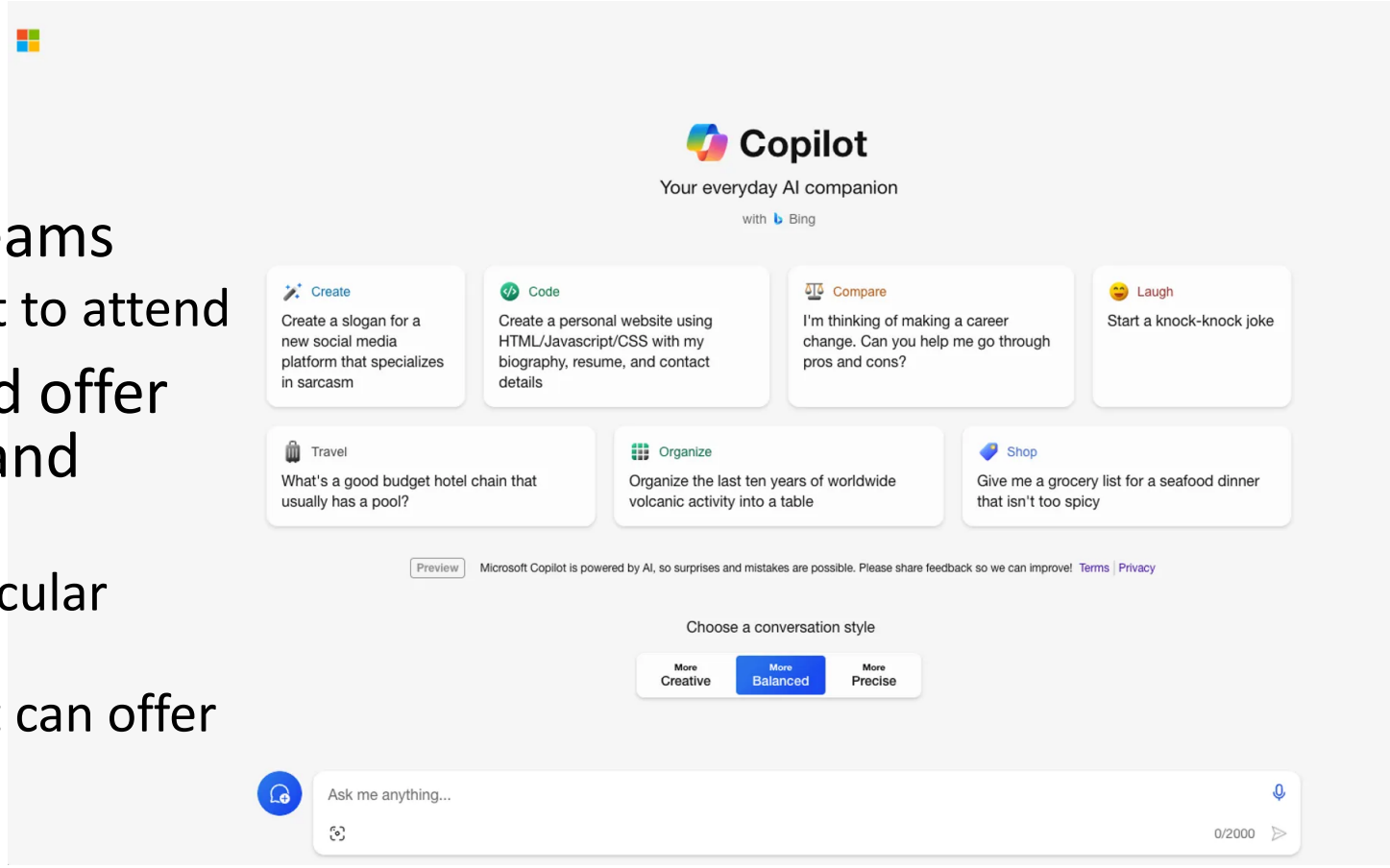
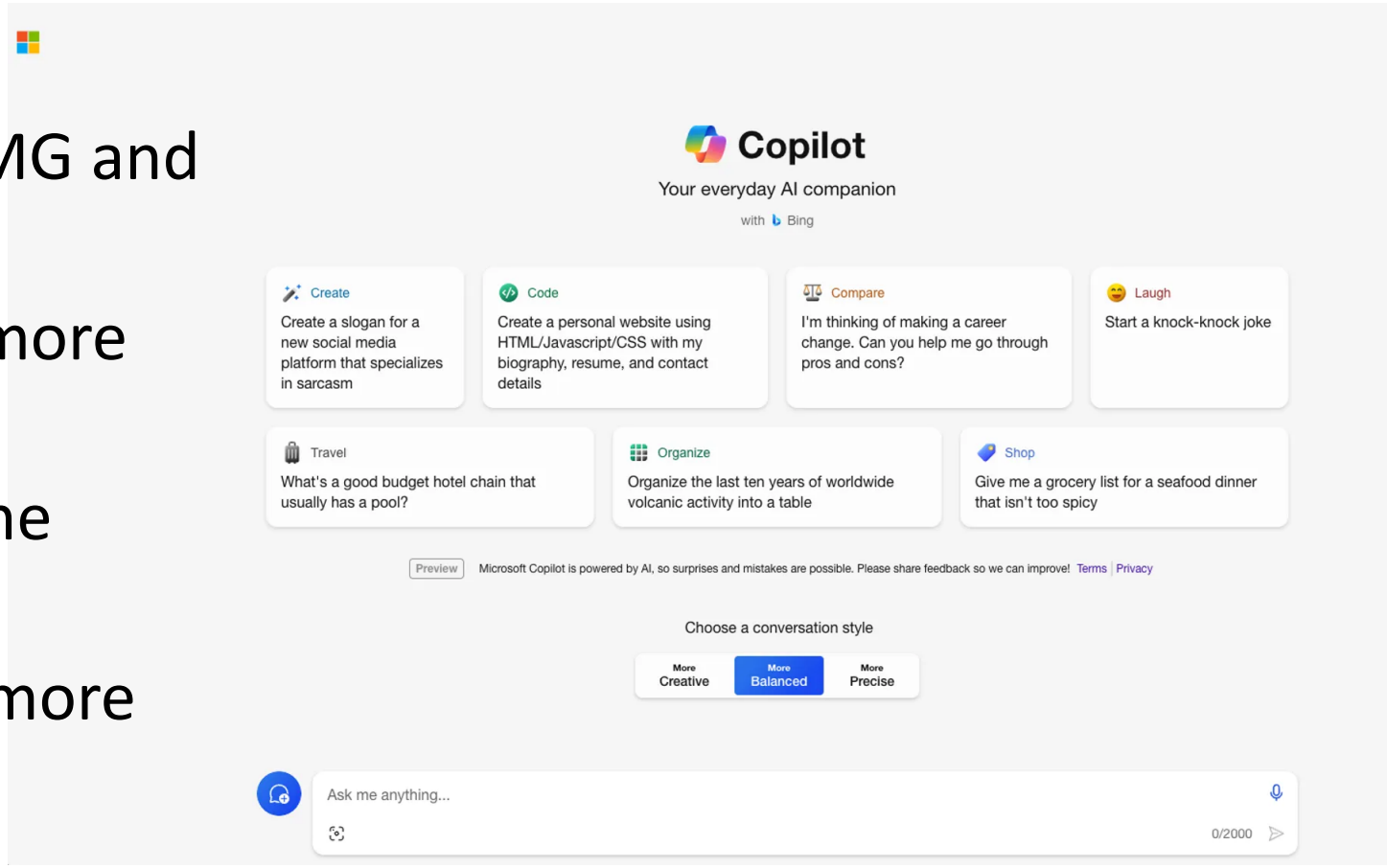
Microsofts Copilot Changing Office forever

- Teams to word to Powerpoint
- Summarise meetings held in Teams
  - also for anyone who chooses not to attend
- Copilot can identify themes and offer summaries of various threads and discussions.
  - It can summarise what one particular person has said
  - In the event of a disagreement it can offer pros and cons in chart format
- BBC
  - Copilot ”sounds like me” feature, can mimic a users voice in mail and messages



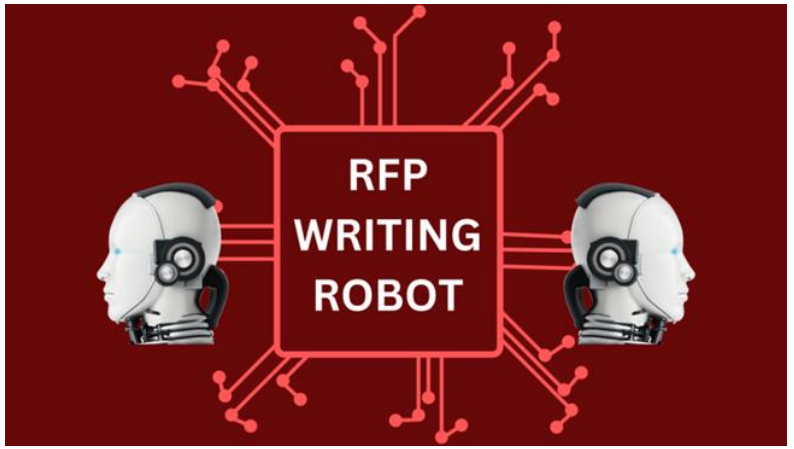
Microsofts Copilot Changing Office forever

- Microsoft Copilot tests – KPMG and others - outcome
- 88 pct of users say they are more productive
- 77pct say they spend less time searching for information
- 74pct say they can focus on more satisfying work Microsoft



Coming up…

- Copilot ”sounds like me” feature, can mimic a users tone in mail and messages
- Tilbud – RFP
  - Handling avg 80pct of RFP, staff fills in the rest
  - Digest RFP, scanning internal files for information use GPT4 to generate RFP
  - What could take 2 people 2 weeks can be done in minutes RFP Genie/Twilio / Wired
- NDA negotiation
  - In test, two AI – artificial lawyers
  - Contractual dance ends in agreement BBC



ARTIFICIAL LAWYER
PRODUCT REVIEWS

Luminance

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Risici

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AI as a threat

- AI sat til at plukke jordbær udvikler sig og bliver bedre og bedre
- Vil ønske at omdanne hele verden til en jordbærmark
  - Elon Musk

I'm sorry,
I can't do that, Dave

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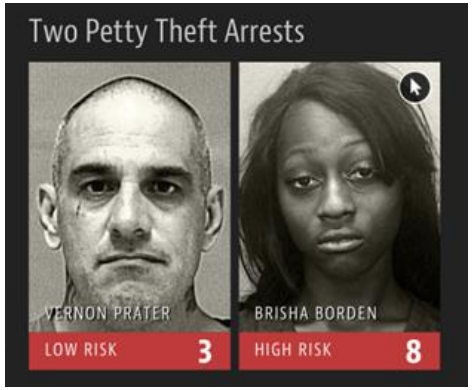
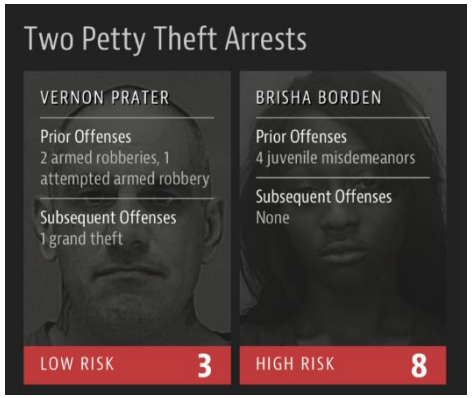
Dårlige beslutninger…
AI Bias – Compas

- Correctional offender management profiling for alternative sanctions
- Compas
  - 18 år, ”stealing a bike”
  - 41 år shop robbery





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Dårlige beslutninger ..
This algorithm could ruin your life

- Rotterdam rank people on welfare in AI system
  - AI system wrongly accused 20.000 families of childcare benefit fraud
- Forced evictions, broken homes and financial ruin followed.
- Dutch government resigned in response

- Wired and Lighthouse

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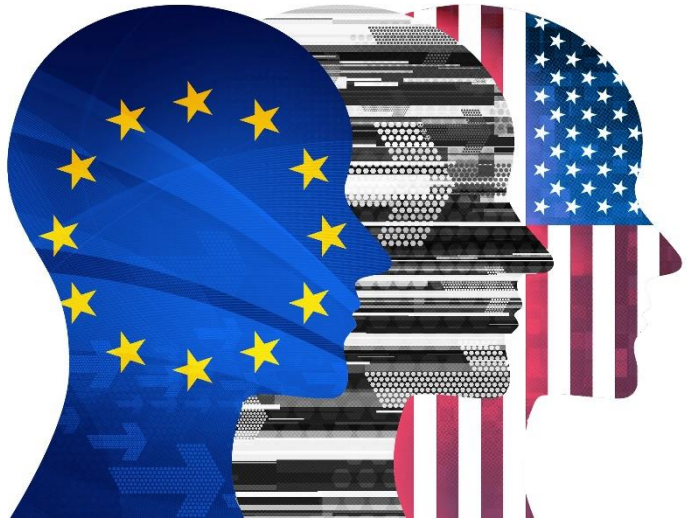
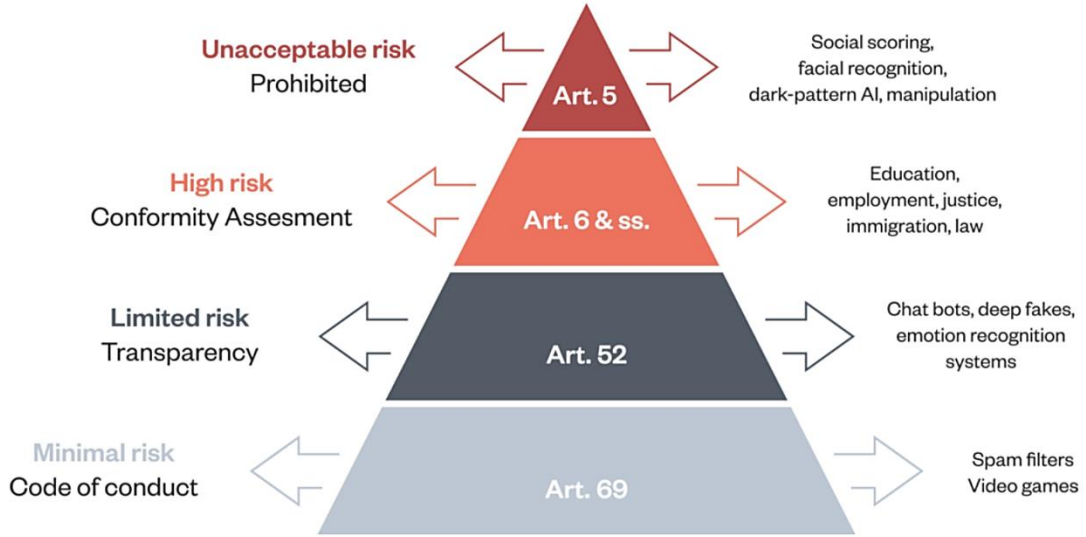
EU AI Act

- For use of AI in high risk use cases
  - Affecting a persons health
  - Basic freedom
  - Financial wellbeing
  - Recruitment
  - Helping judges make decisions
- EU liability laws for AI products that cause injuries





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Arbejde

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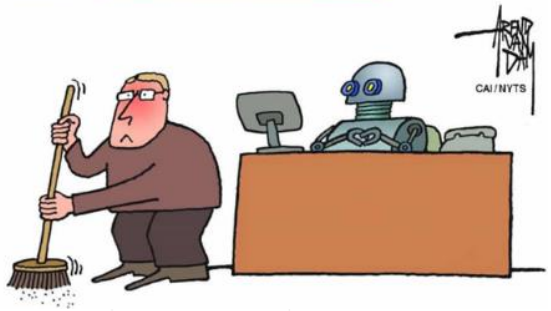
Labor Market Impact

- AI could automate 25% of the entire labor market
- 46% of tasks in administrative jobs
- 44% of legal jobs
  - Goldman Sachs 26 march



Mathematicians
Financial Quantitative Analysts
Writers and Authors
Web and Digital Interface Designers
Accountants and Auditors
News Analysts, Reporters, and Journalists
Legal Secretaries and Administrative Assistants
Climate Change Policy Analysts
Correspondence Clerks
Blockchain Engineers,
Court Reporters
Proofreaders and Copy Markers.

Occupations with no labeled exposed tasks

Agricultural Equipment Operators
Athletes and Sports Competitors
Automotive Glass Installers and Repairers
Bus and Truck Mechanics and Diesel Engine Specialists
Cement Masons and Concrete Finishers
Cooks, Short Order
Cutters and Trimmers, Hand
Derrick Operators, Oil and Gas
Dining Room and Cafeteria Attendants and Bartender Helpers
Dishwashers
Dredge Operators
Electrical Power-Line Installers and Repairers
Excavating and Loading Machine and Dragline Operators, Surface Mining
Floor Layers, Except Carpet, Wood, and Hard Tiles
Foundry Mold and Coremakers
Helpers–Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters
Helpers–Carpenters
Helpers–Painters, Paperhangers, Plasterers, and Stucco Masons
Helpers–Pipelayers, Plumbers, Pipefitters, and Steamfitters
Helpers–Roofers
Meat, Poultry, and Fish Cutters and Trimmers
Motorcycle Mechanics
Paving, Surfacing, and Tamping Equipment Operators
Pile Driver Operators
Pourers and Casters, Metal
Rail-Track Laying and Maintenance Equipment Operators
Refractory Materials Repairers, Except Brickmasons
Roof Bolters, Mining
Roustabouts, Oil and Gas
Slaughterers and Meat Packers
Stonemasons
Tapers
Tire Repairers and Changers

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Arkitekter

- Hvis man laver 85 pct rutinearbejde kan AI flytte den sjove proces fra 15 til 25 pct
- I nogle beregningsprocesser kan man barbere tiden ned fra 100 til 10 timer
    - Lars Emil Kraft, Danske Artkitektvirksomheder
    - Signe Kongebro, Henning Larsen arkitekter
    - Børsen

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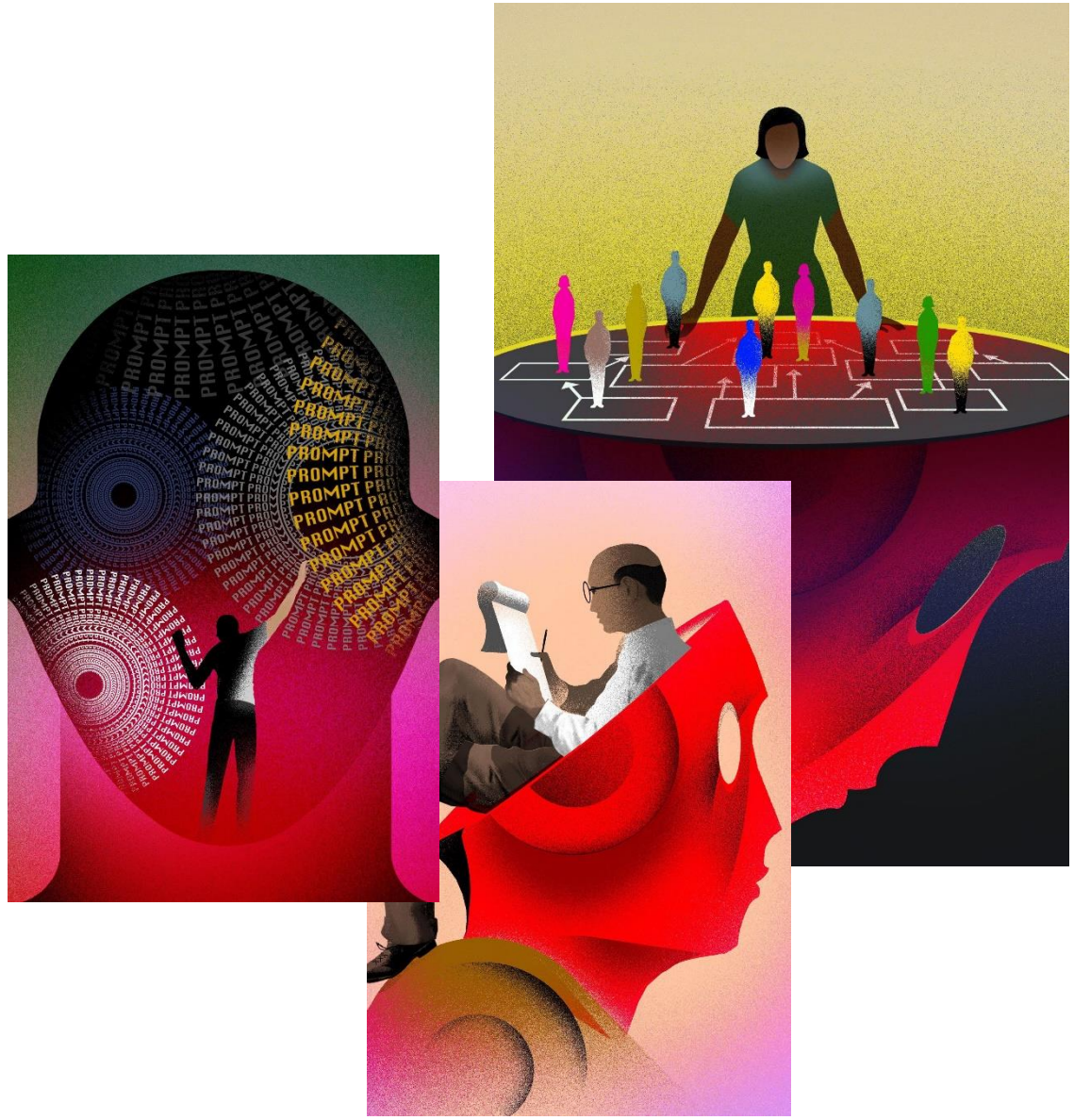
New jobs in AI era

- Prompt engineer
  - Able to give very clear instructions
- In-house large language model developer
- Reskiller
  - Understand the talents an organization requires
- AI Controller
  - Evaluate an AI models upbringing, looking at data and sources of bias
- WSJ



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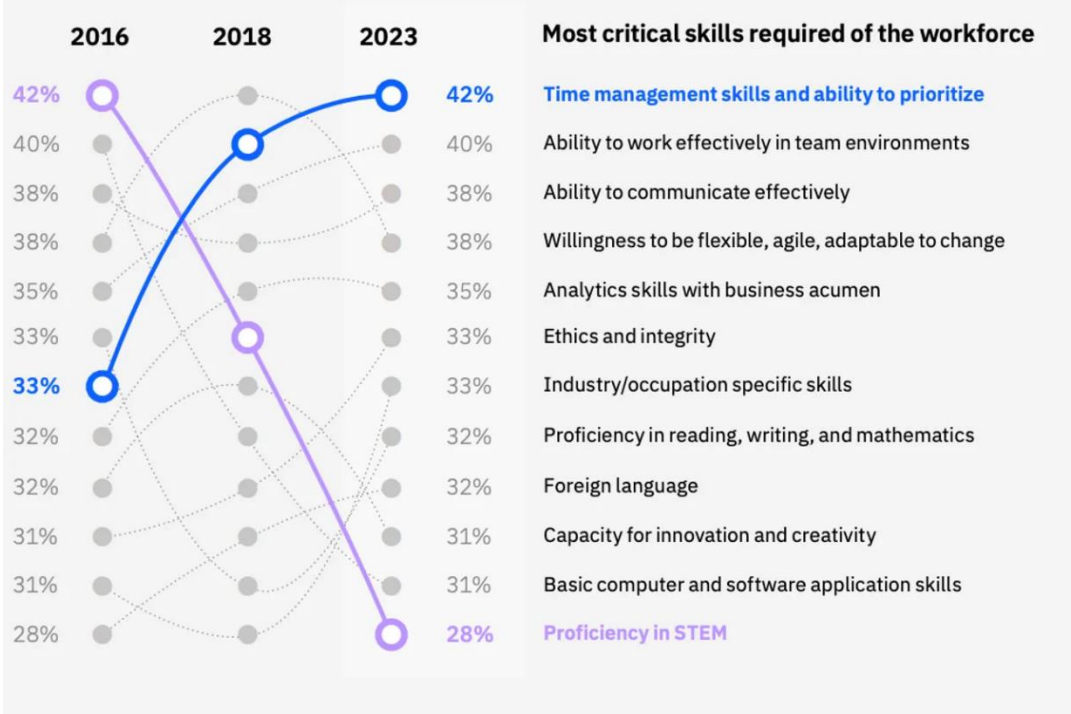
Reskilling

- 40pct of workers will have to reskill in next 3 years due to AI
- STEM 2016
  - Most Critical skill skills STEM (Science, Technology, Engineering, Mathematics)
  - ChatGPT will allow workers to do more with less knowledge
- Team Management 2023
  - Most critical skill people skills
  - Team management
  - Ability to communicate effectively
  - Willingness to be adaptable to change



- IBM IBV study – 3000 C-Level, 22.000 workers 28 nations

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Getting things done together…

- Team struktur med digitale assistenter
  - AI expert roles
  - AI takes away routine tasks
- Evolving from being tools to being teammates

- From
  - What machines can do for us
- To
  - What machines can be for us
  - By 2025, gen AI will be a workforce partner for 90pct of worldwide companies
  - Gartner/Venture Beat

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Two categories ..
Everyday AI and Game-changing AI

- Everyday AI
  - Your productivity partner
  - Enables you to do what you already do faster and more efficiently
    - – the new normal
- Game-changing AI
  - A “creativity partner”
  - Creates new results, products and services
  - Or new ways to create new results
- Game-changing AI
  - Will disrupt business models and entire industries

- Gartner / Venturebeat

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Driving IT

- Mobility –
- Myriader og Mangfoldighed
- … og en ny Makker

- preben@mejer.com

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