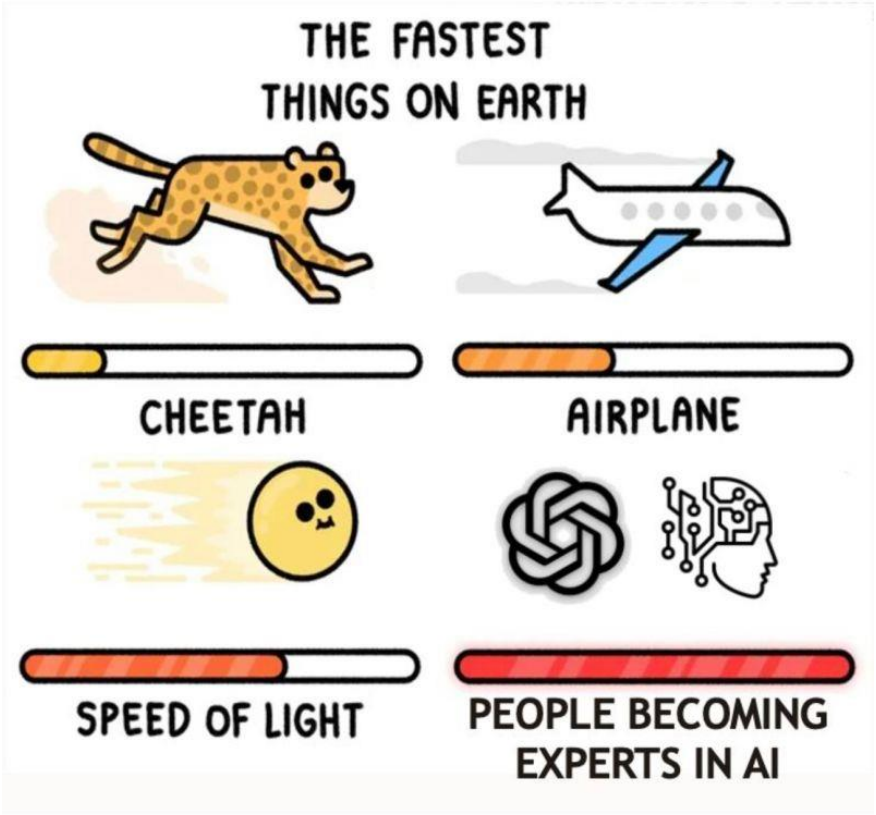
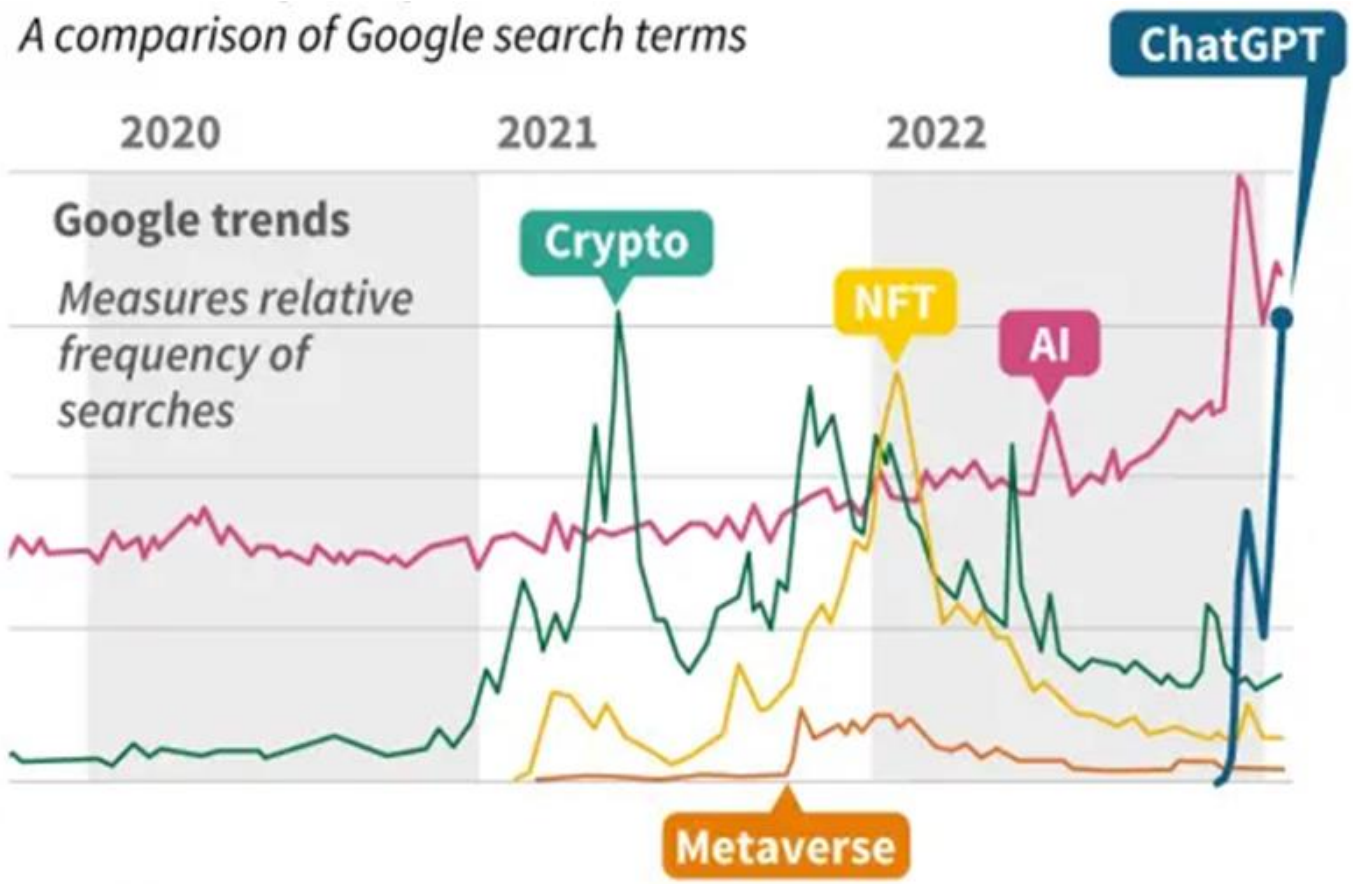
ReThinking Business: Wie die neue Generation der KI Unternehmen, Märkte und unsere Gesellschaft revolutioniert

Peter Gentsch — 18.06.2023

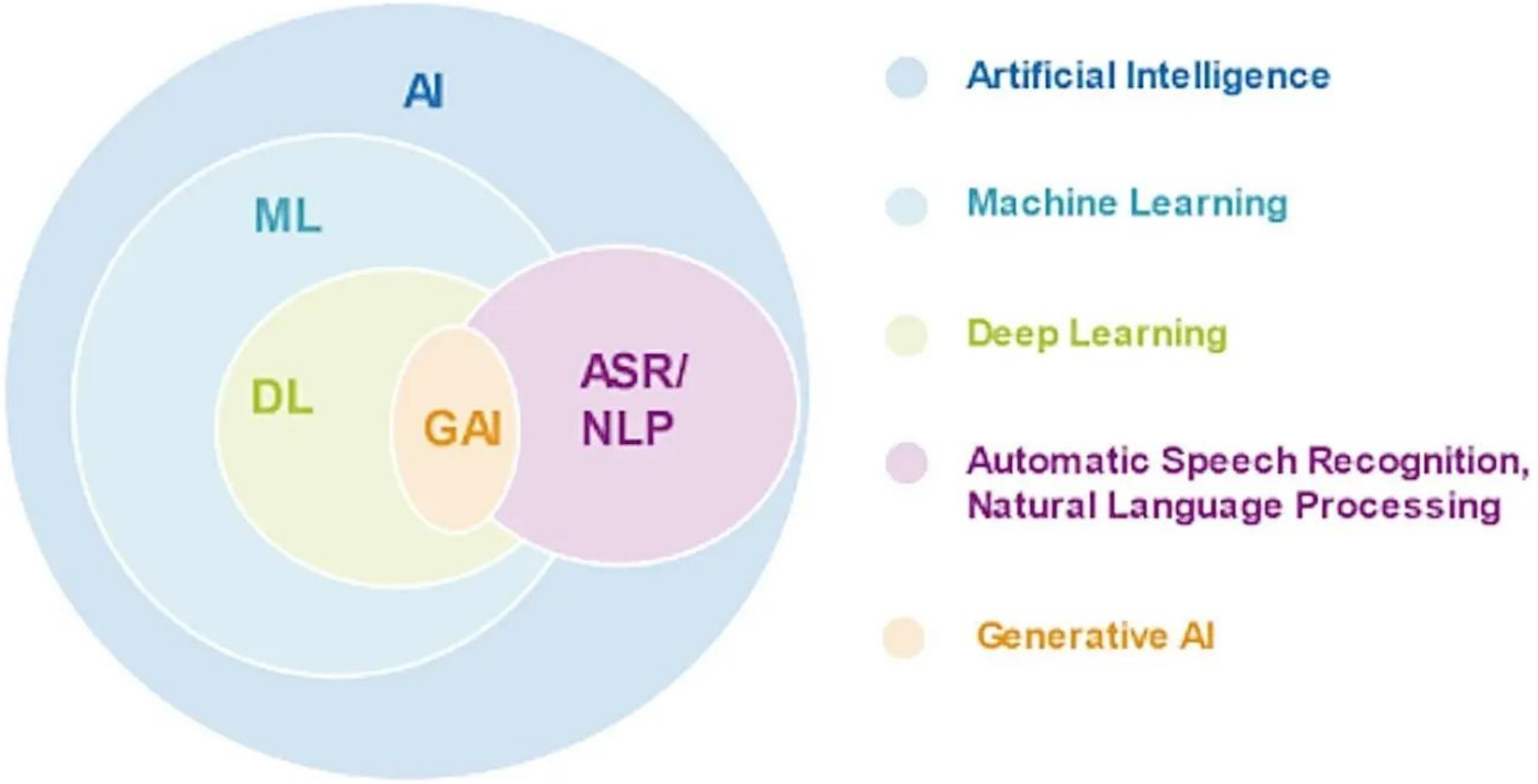
Generative AI is as Mega-Trend in all the media

ChatGPT & Co – the hype is on!





ChatGPT & Co as Generative AI is just one part of AI



Google set up 2017 foundation for Transformer Models

Google Research Philosophy Research Areas Publications People Tools & Downloads

BLOG ›

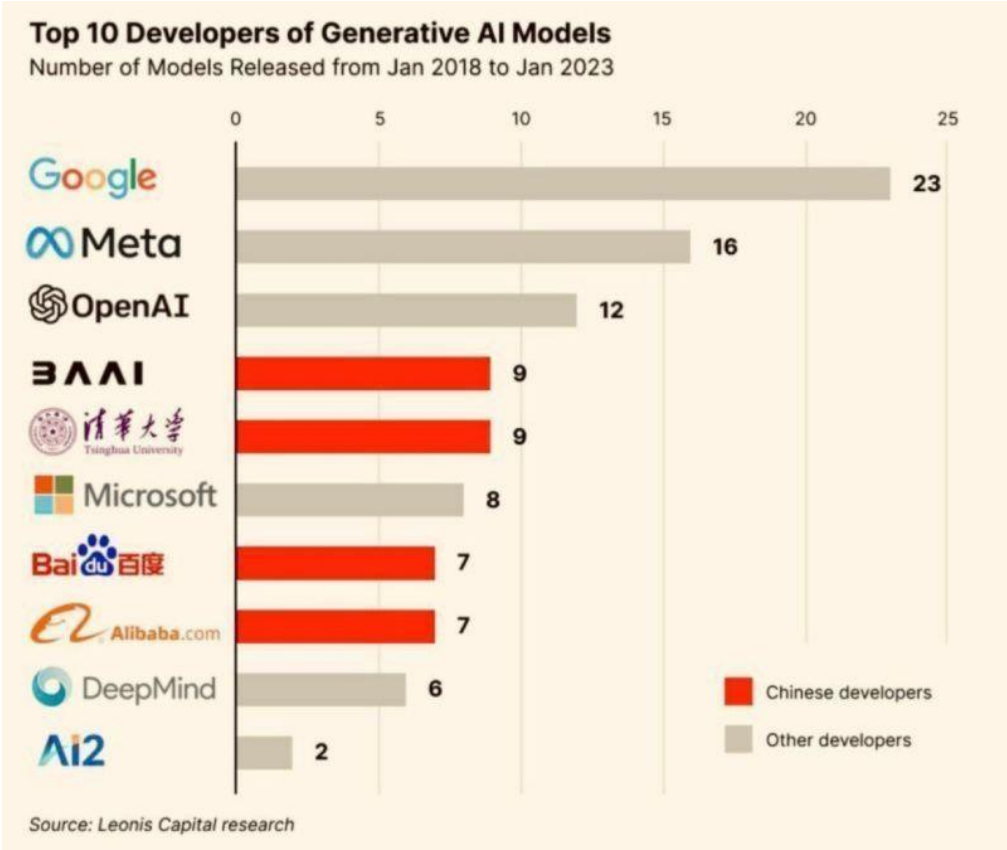
Transformer: A Novel Neural Network Architecture for Language Understanding

THURSDAY, AUGUST 31, 2017

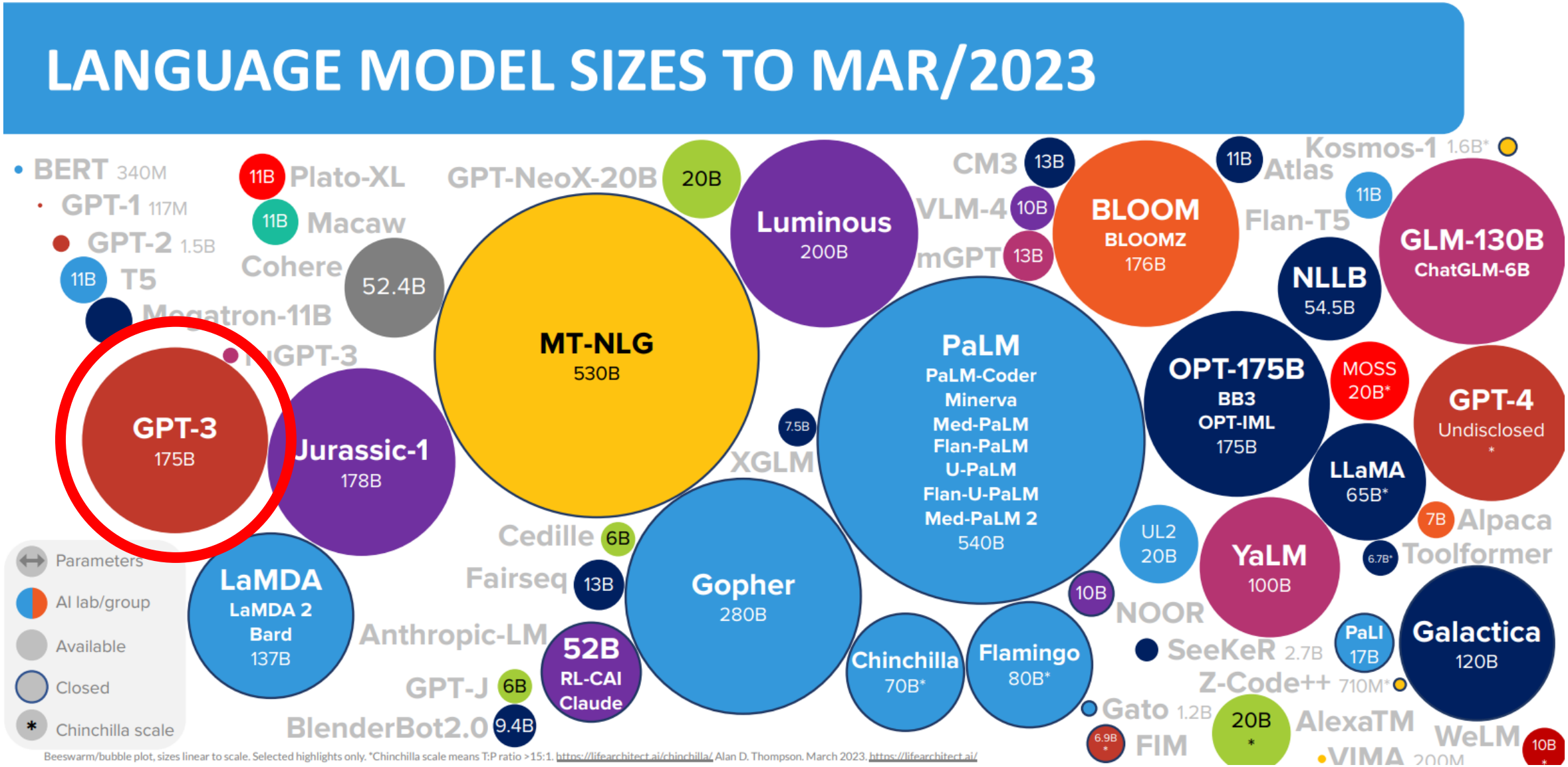
Posted by Jakob Uszkoreit, Software Engineer, Natural Language Understanding

Neural networks, in particular recurrent neural networks (RNNs), are now at the core of the leading approaches to language understanding tasks such as language modeling, machine translation and question answering. In "Attention Is All You Need", we introduce the Transformer, a novel neural network architecture based on a self-attention mechanism that we believe to be particularly well suited for language understanding.

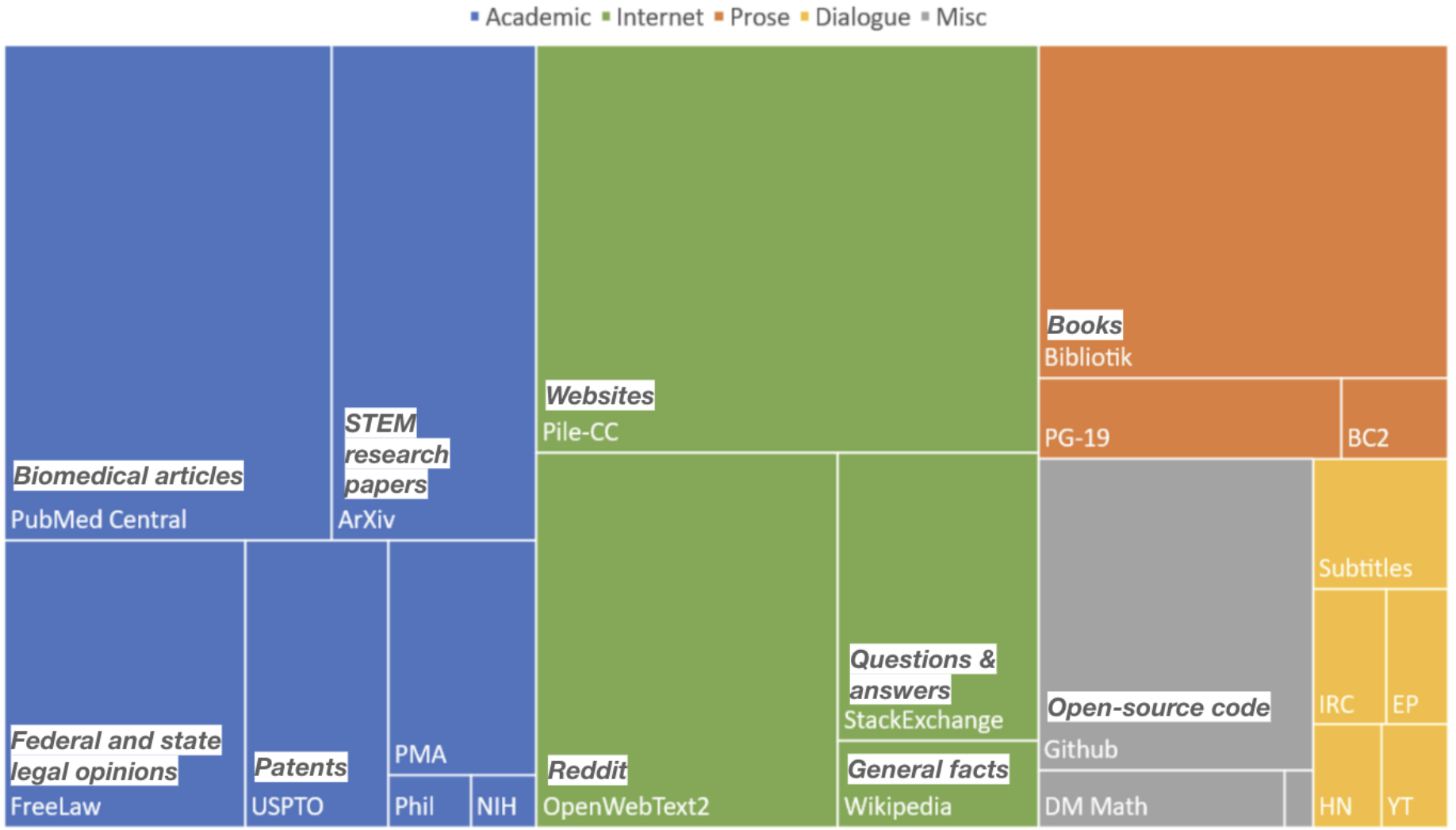
In our paper, we show that the Transformer outperforms both recurrent and convolutional models on academic English to German and English to French translation benchmarks. On top of higher translation quality, the Transformer requires less computation to train and is a much better fit for modern machine learning hardware, speeding up training by up to an order of magnitude.



Global Large Language Model (LLM) Landscape



Foundation-Models are trained on 100s of Gigabytes of text data to build an understanding of the world



Foundation Models: Very simple mechanics, but very powerful! But not really intelligent....

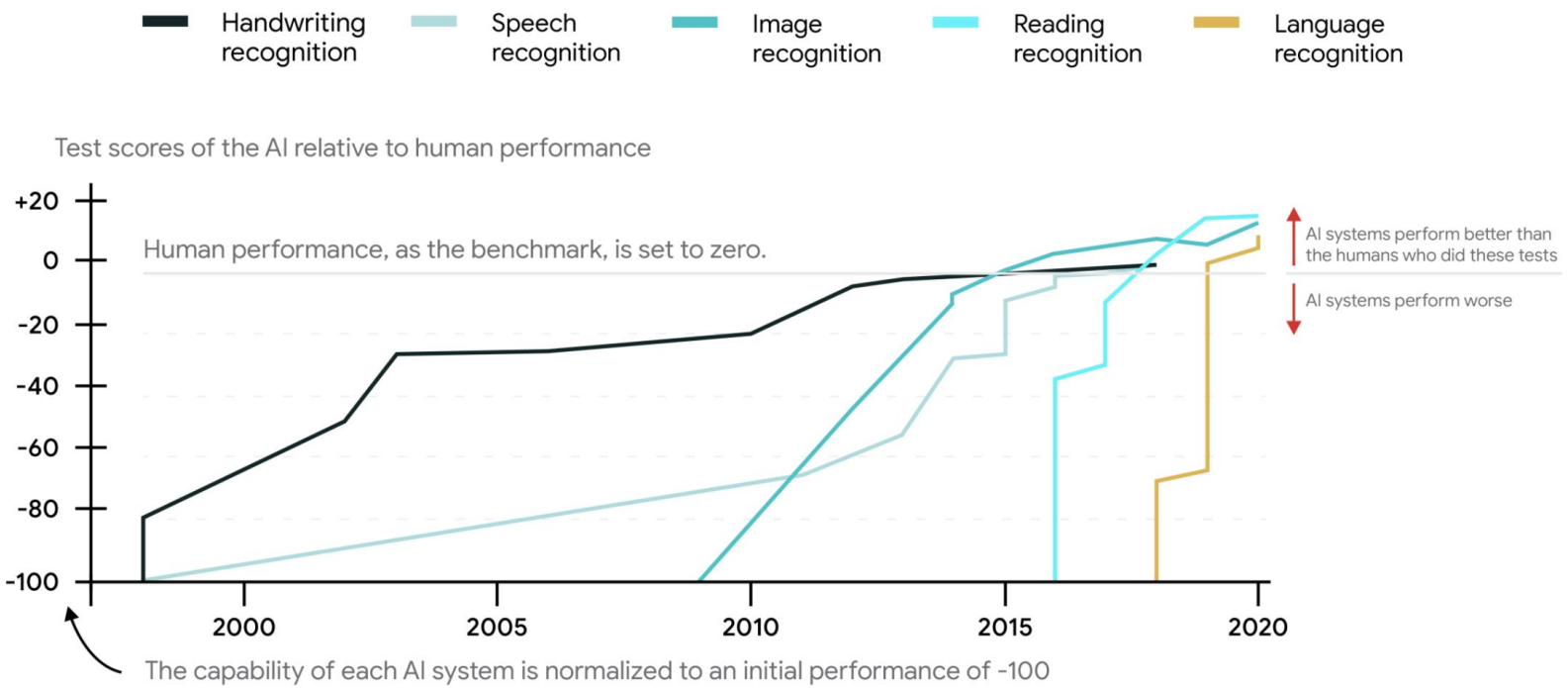
PRETRAINING

- Training of a model with simple tasks that do not require human annotation of training data. e.g. by filling gaps or by completing sentences or texts

_____ released a China version of Model 3. -- Tesla
Tesla _____ a China version of Model 3. -- released
Tesla released __ China version of Model 3. -- a
Tesla released a ____ version of Model 3. -- China
Tesla released a China _____ of Model 3. -- version
Tesla released a China version __ Model 3. -- of
Tesla released a China version of _____. -- Model 3

training data	labels
sentence with gap 0-1	word 1
sentence with gap 1-2	word 2
sentence with gap 2-3	word 3
sentence with gap 3-4	word 4
sentence with gap 4-5	word 5
sentence with gap 5-6	word 6
sentence with gap 6-7	word 6

The development pace of model capabilities has massively increased in the last years



Data source: Kiela et al. (2021) - Dynabench: Rethinking Benchmarking in NLP
OurWorldinData.org - Research and data to make progress against the world's largest platforms.

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What, like it's hard?

Academic and professional exam scores (and percentiles) of Open AI's latest models

Exam	GPT-4	GPT-3.5
Uniform Bar Exam	298/400 (~90th)	213/400 (~10th)
LSAT	163/180 (~88th)	149/180 (~40th)
SAT Reading & Writing	710/800 (~93rd)	670/800 (~87th)
SAT Math	700/800 (~89th)	590/800 (~70th)
GRE Verbal	169/170 (~99th)	154/170 (~63rd)
GRE Writing	4/6 (~54th)	4/6 (~54th)
AP Biology	5/5 (85th-100th)	4/5 (62nd-85th)
AP Calculus BC	4/5 (43rd-59th)	1/5 (0th-7th)
AP Chemistry	4/5 (71st-88th)	2/5 (22nd-46th)
AP English Language and Composition	2/5 (14th-44th)	2/5 (14th-44th)
AP English Literature and Composition	2/5 (8th-22nd)	2/5 (8th-22nd)
AP Macroeconomics	5/5 (84th-100th)	2/5 (33rd-48th)
Introductory Sommelier	92%	80%
Advanced Sommelier	77%	46%
Leetcode (easy)	31/41	12/41
Leetcode (hard)	3/45	0/45

Table: J.D. Capelouto/Semafor • Source: OpenAI

Foundation AI as continuum of applications

No Quality Management/ Adjustment

Output is not directly used as final result

Inspiration
Innovation
Brainstorming
Research

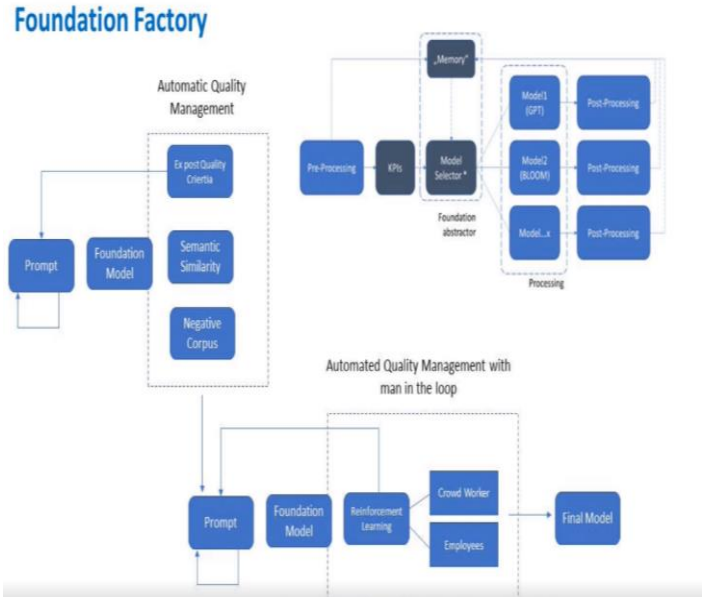
Minor Quality Management/ Adjustment

In order for the output to be used as the final result, no or only minor adjustments have to be made (usually ex post)

Imitation
Summarization
Paraphrasing
Translation

Blog Post
Images
SEO-Optimization
E-Mail responses
…

Advanced Quality Management/ Adjustment (Fine Tuning/ Embeddings)

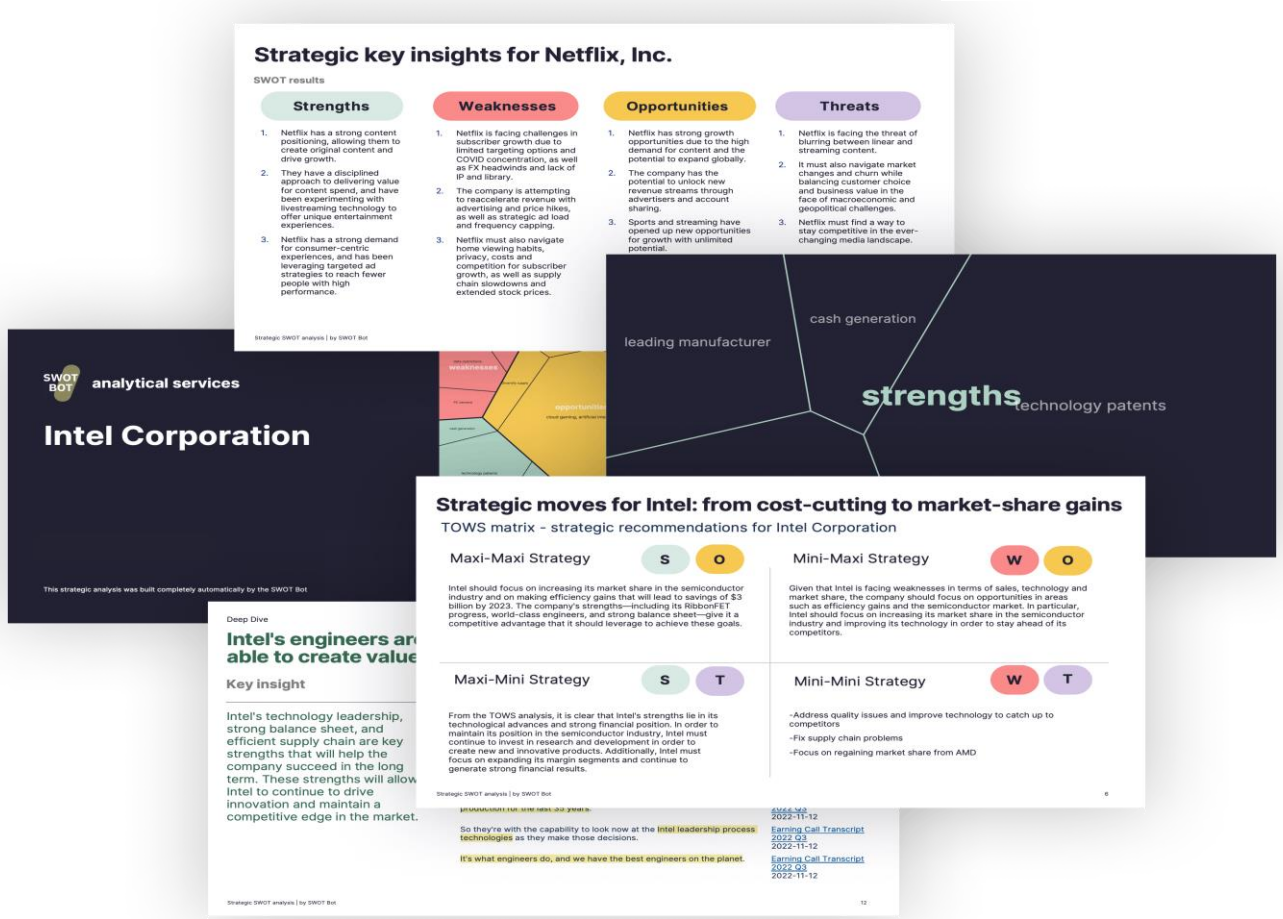


„Human in the loop“

Error Tolerance
Halluzination Tolerance

SWOT-Bot for management decisions

- Tuned language model based on **DeBERTa** (Decoding-enhanced BERT with disentangled attention).
- **Summaries** are created using this knowledge with **GPT-4**.
- The support of the language models **saved an average of 310 minutes i**n the creation of the final SWOT analyses.

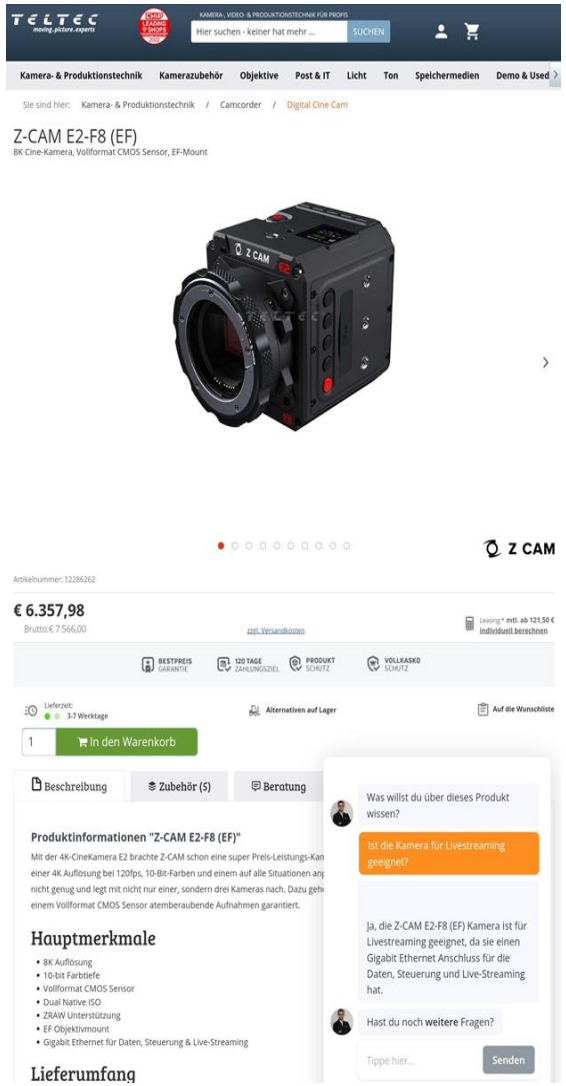


Augmentation of traditional executive tasks provides massive improvements in efficiency

Generative AI – Use Cases for Executives

Task	Description	Type of automation
💡 Strategic advice	Suggest / describe strategic options and highlight implications (based on industry case studies)	Custom data analytics
📩 Email sorting	Automatically sort with large inboxes and distribute emails appropriately; deal with others automatically. Relevant building block for many other use cases.	RPA++
🔢 Task Prioritisation	Help case workers prioritise tasks (email; inbox etc.) based on content and process understanding in an organisation	RPA++
⏱️ Action Follow-Up	Monitor (sent) emails and other data flows to automatically follow-up on tasks if nothing has happened in a given timeframe.	RPA++
📝 Meeting summarisation	Summarise meetings and monitor action points / check for follow-up	Custom reporting
🔍 Enterprise Search (intranet)	Better search of internal documents via language interface. Automatic summarisation.	Semantic Search
🌐 Enterprise Search (external)	Better search of companies' websites/catalogue.	Semantic Search
📇 Contact management	Automatically summarize email conversations, suggests follow-ups / potential answers	Data reconciliation
📚 Knowledge Research	Support report creation in a multi-step process: 1) generate outline, 2) add specific details / sources, 3) translate into full report	Custom data analytics

GPT-4 + Knowledge Graph: New quality of Customer communication and interaction

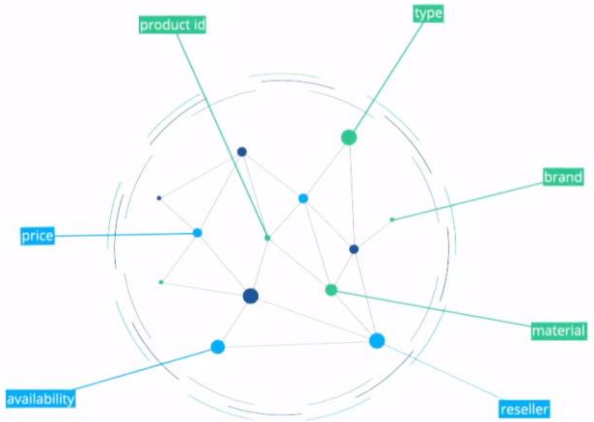


TELTEC.de
moving.picture.experts

Chatbot Pipeline:
Search & Retrieve – After that generating answers

Zero Shotting
Few Shotting

+ additionall Knowledge via Knowledge Graph:



Fine-Tuning

+

Domain Knowledge

GPT-4 for optimization of E-Commerce

billiger.de

Tasks:

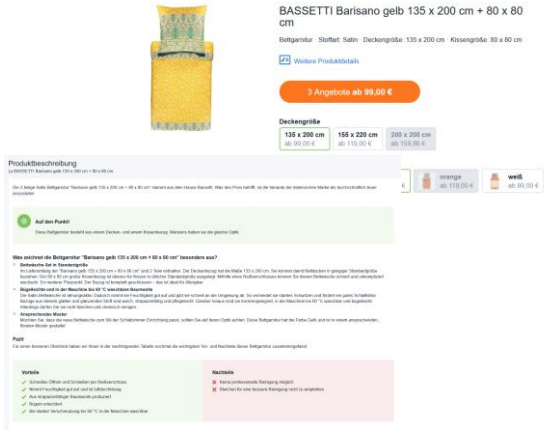
- Generation of category texts
- Product text generation

Business Benefits:

- Efficiency / cost benefits
- 83% savings
- Increase Conversion Rate by 8%

Quality:

- Quality assured
- Domain optimized
- SEO optimized
- Customer-centric
- Personalization



Product Description (new)

Product Description (Optimization)

Product Category (new)

Product Category (Optimization)

GPT-4

Products

Customer Reviews

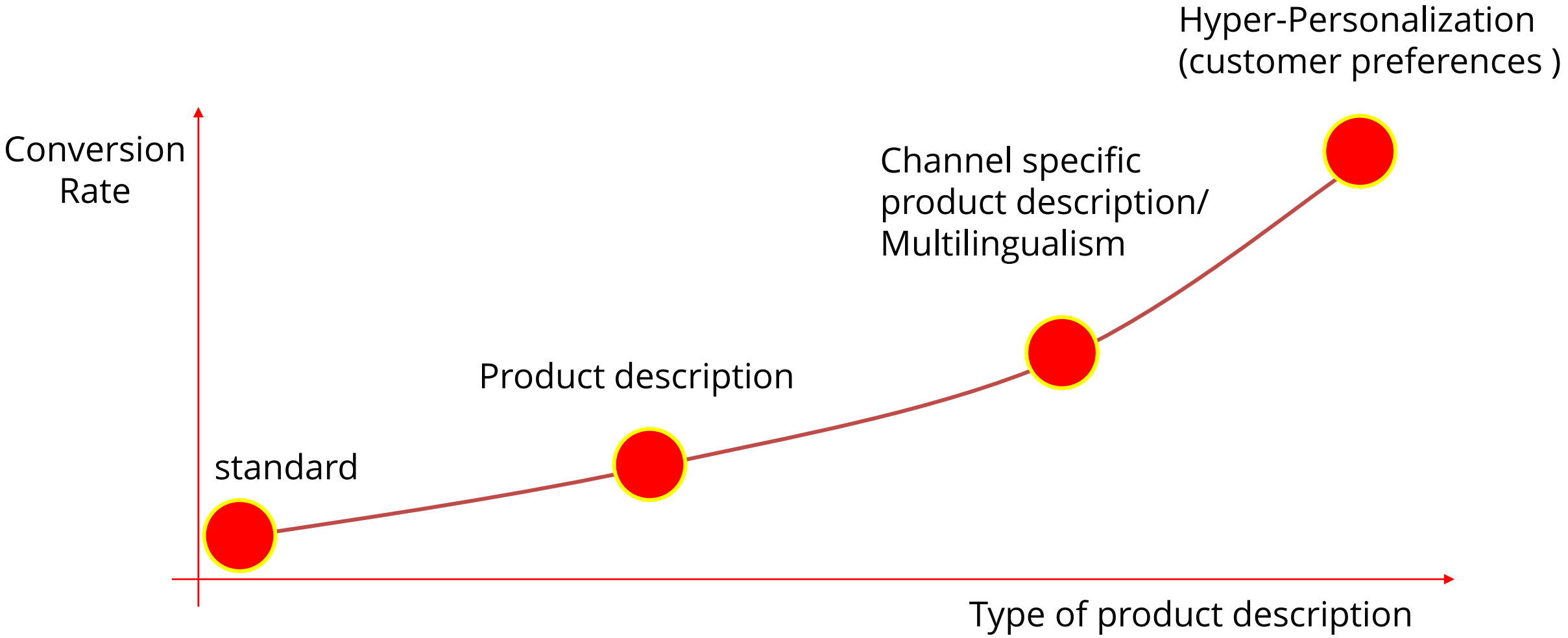
Images

Competitor

Questions

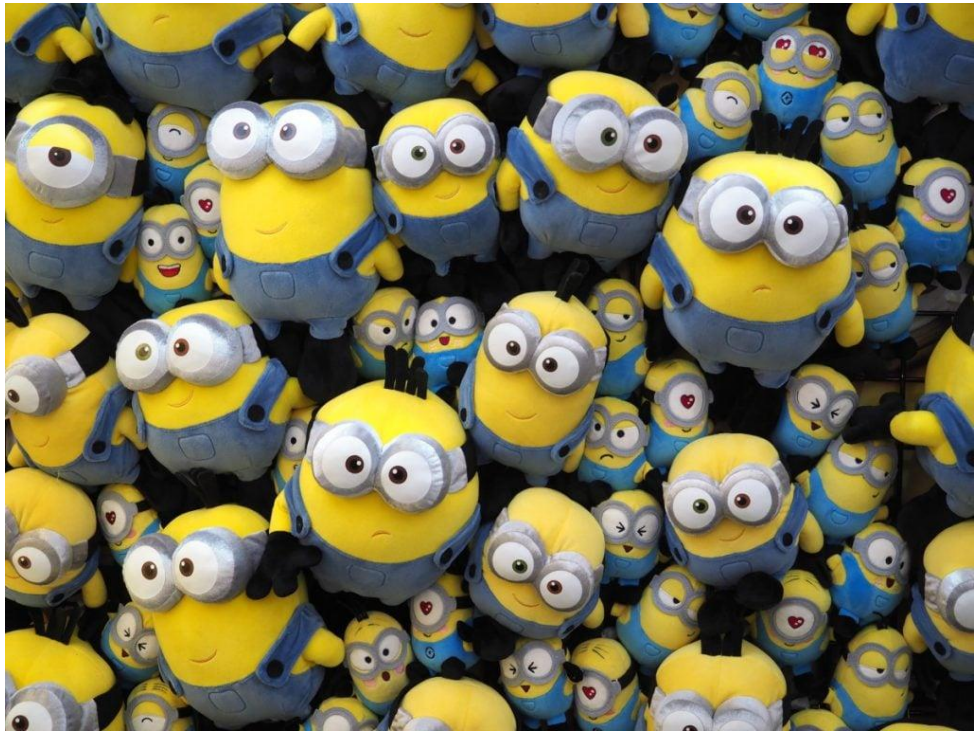
Generative AI for product visuals

On the road towards Hyper-Personalizsation



Paradigm Shift: LLM as the new Business Operating System

Auto-GPT tries to increase the autonomy of tasks and processes….



Linas Beliūnas
@linas.beliunas

AutoGPT is the biggest technology breakthrough ever and **the next BIG thing in AI**.

They're basically **AI agents** that run **autonomously** and complete tasks for you. Today they can already:

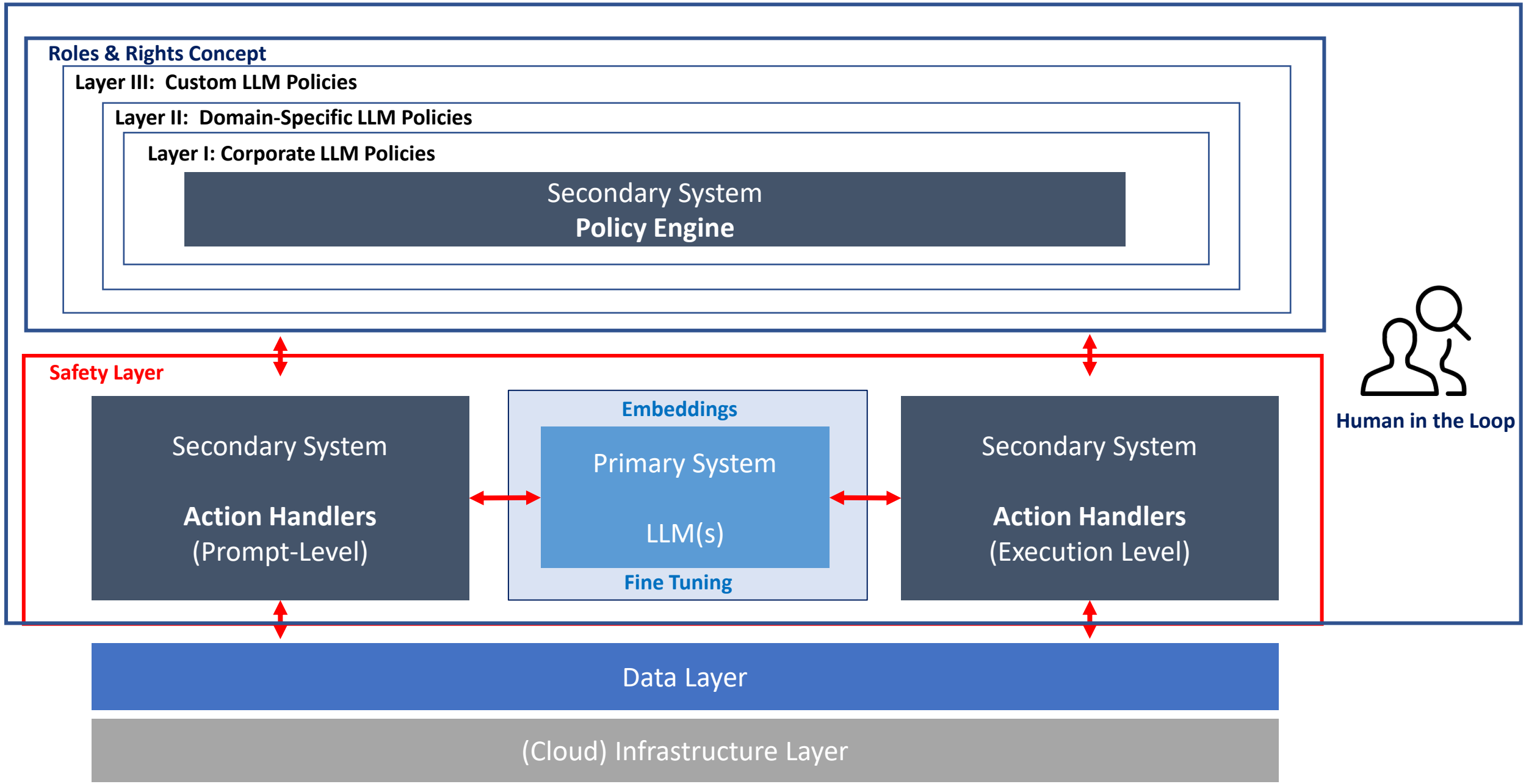
- **Build an app/website** from scratch
- **Order your coffee** at Starbucks
- Run your **social media accounts**
- Find and **negotiate a lease**
- Perform **financial analysis**
- Do **market research**

And this is just the tip of the iceberg.

AutoGPT will change every industry and every job forever.

…but a bit overhyped and underdelivered. Execution should not be part of LLM. But the underlying idea of LLM as agents is promising.

Foundation System: Primary & Secondary System



LLM-Agents: Level of autonomy will increase! Example Marketing launch campaign for new product

Launch a marketing campaign across multiple channels, including social media, email, and web content for our new product Factory-GPT

Market Research/ Analyse and set up audience

Identifies target demographics, popular channels, and the most effective marketing messages for the new product.

Creates personalized marketing content for each target demographic and channel.

Execution based on CRM and Campaign system

A/B testing, autonomously adjusting the content and messaging based on real-time feedback and engagement data

Reporting and Insights

Generative AI: ReThinking Business

Every industry is impacted by GenAI

Verticals

Financial Services	Retail	Media/ Entertainment
Manufacturing	Utilities	Utilities

Value Chain/ Functions

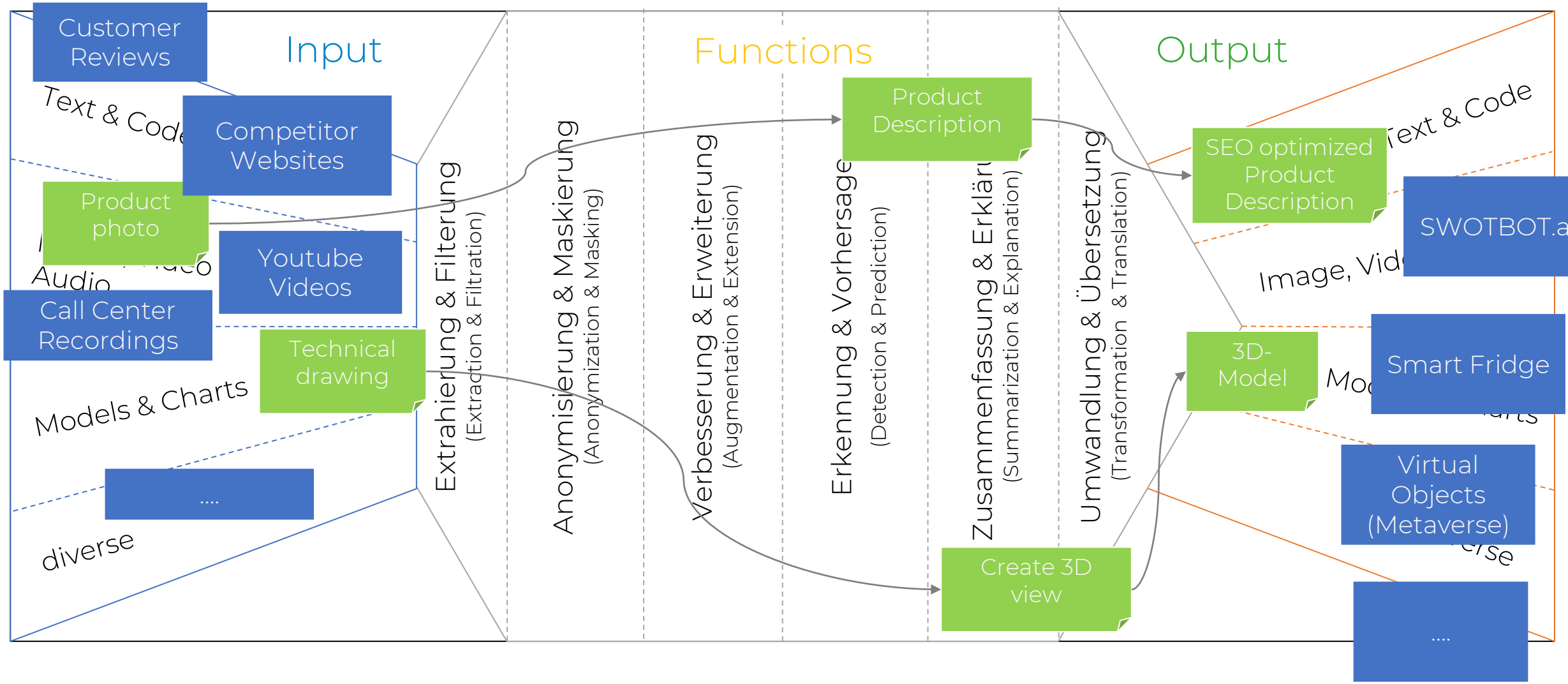
Management		
Marketing	Sales	Procurement
E-Commerce	After Sales/ Service	Legal
HR/ Training	Category Management	IT
Knowledge Management		
Admin/ Communication		
Market Research/ Insights		

Every industry is impacted by GenAI: Example Retail

Strategic advice (Co-Pilot), SWOT-Bot, New Business Opportunities/ Models, …		
Content Production, Hyper Personalization, Engagement (Bots), Automated Campaigning…	Sales Bot, Lead Generation and Classification, Automated Campaigning…	RFP Creation, Supplier Negotiations, Tailored Vendor Communication, ….
Product Description, Recommendation, Virtual Shopping Assistant, …	24/7/365 Service (Bots), Personalization, Q&A, Automated Campaigning…	Contract Approval/ Generation, Drafting documents, ….
Personalized Training and Onboarding, Job Descriptions, ..	Category Recommendation, Pricing Optimization, ...	Code Generation, Code Translation, Code Approval,...
Knowledge Co-Pilot, Generation/ Enrichment of Knowledge Graphs, ...		
E-Mail Generation/ Sorting, Meeting Summarization, Action Follow-up/ Scheduling		
Automated Market Research, Customer Insights, Store/ Shop Optimization		

Generative AI: ReThinking Business – Creating new products and business

How to get it done (Business perspective): Generative AI Canvas



New Business Models:
Generative AI will create new business opportunities and models

Generative AI as lever for IoT-Solutions

1 Code generation for IoT

Large language models can be used to create, complete or combine IoT code, sourced from code snippets or natural language descriptions.

Example

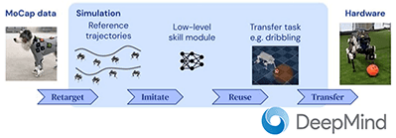
GitHub Copilot

2 Robot control

Generative AI can be used to generate controls and commands of IoT connected robots by capturing motion data from animals or humans.

Example

Deepmind Robot Control Framework

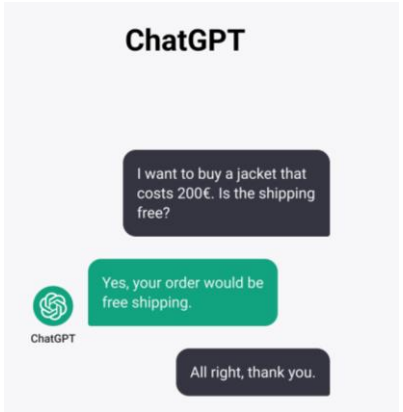


3 Social IoT devices

Generative AI can be used to change the interaction with devices. Devices, for example, could provide the user with answers to complex question.

Example

Amazon DialFRED

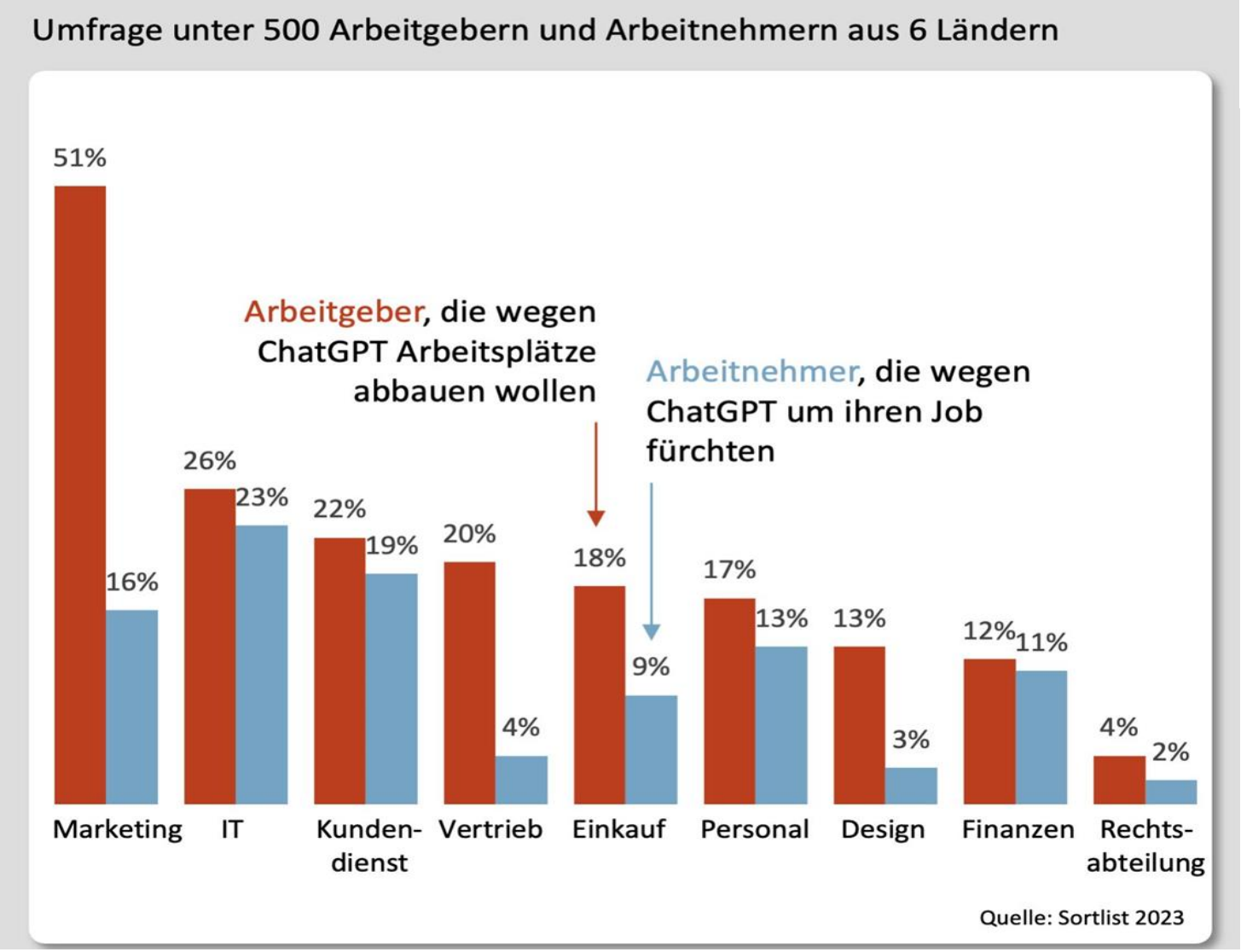


Example Smart Fridge: delivering proactively services

Generative AI as lever for the Metaverse

Change has never been this
fast - it will never be this
slow again

ChatGPT als Job Killer?



Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence

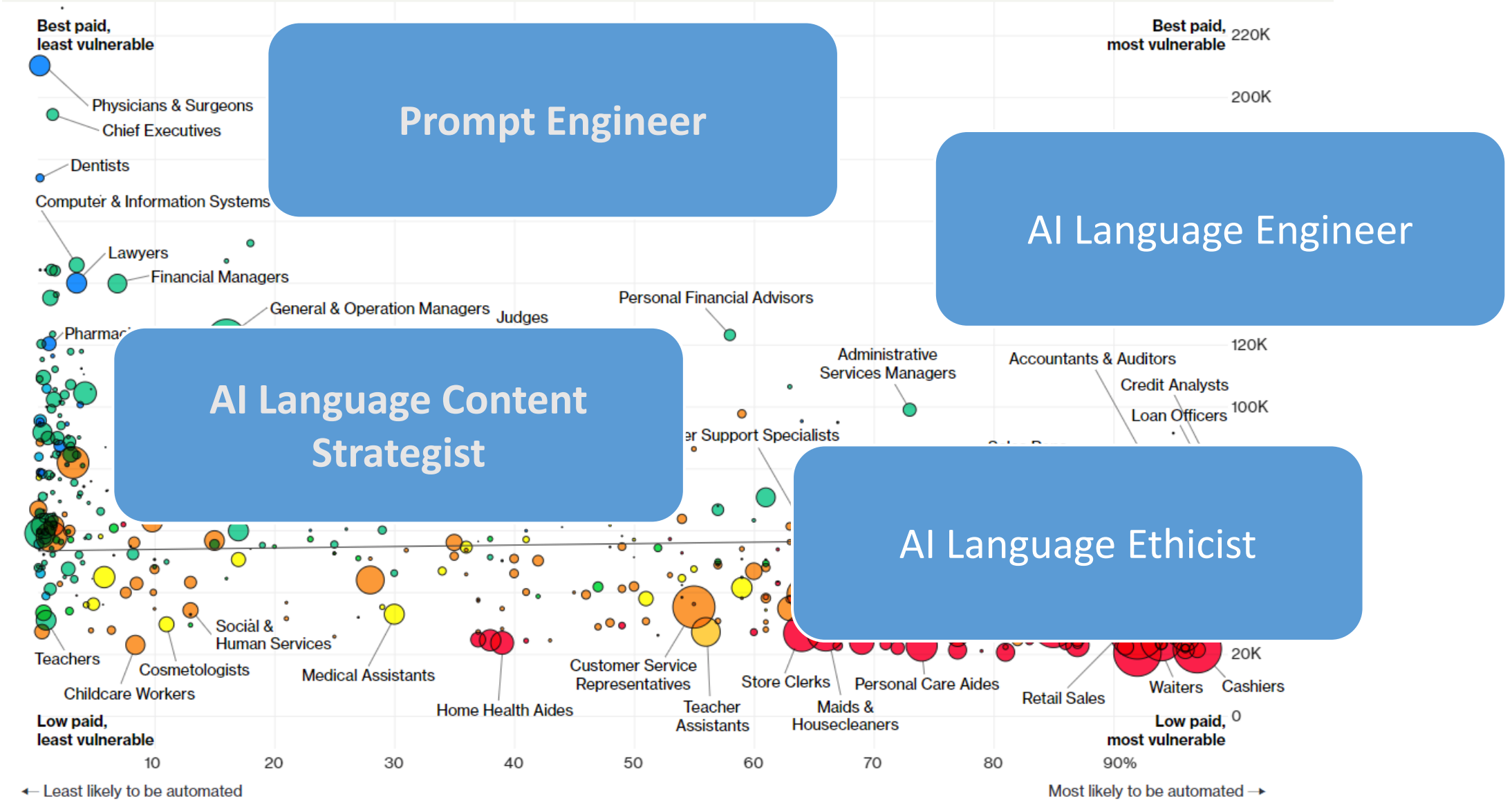
Shakked Noy MIT
Whitney Zhang MIT

March 2, 2023
Working Paper (not peer reviewed)

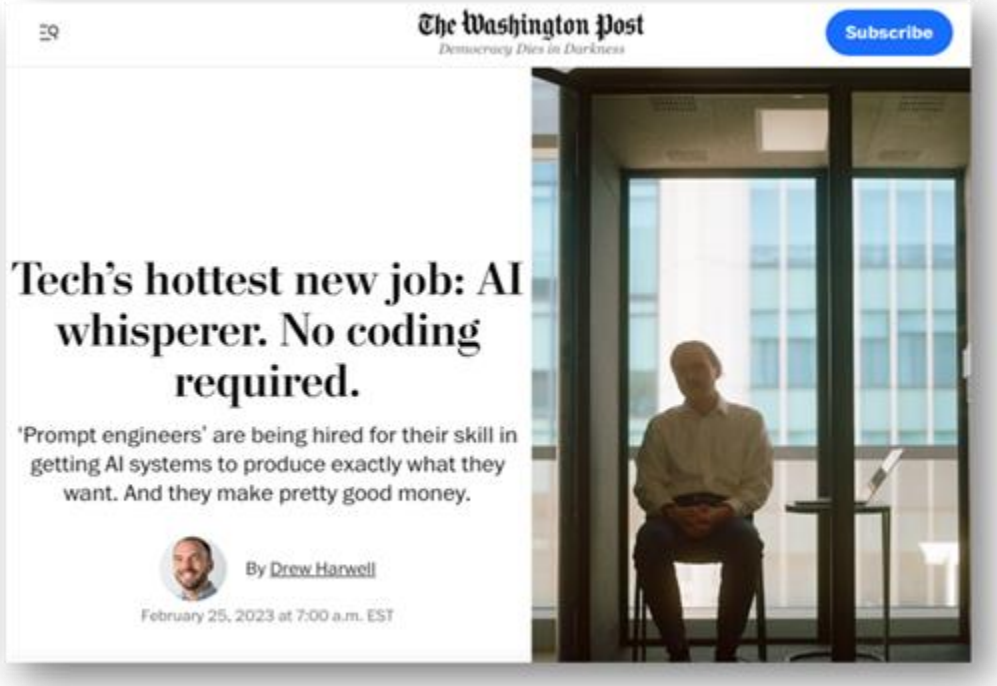
- ChatGPT erhöht Produktivität der Wissensarbeiter um 35 Prozent
- Die Teilnehmer waren nach dem Test bereit, im Durchschnitt 0,5 Prozent ihres Monatsgehalts für ein ChatGPT-Abo zu zahlen
- Die Besorgnis über die Automatisierung stieg ebenso wie die Aufregung und der Netto-Optimismus über KI.

Massachusetts Institute of Technology

Jobs are disrupted and created at the time



PROMPT ENGINEER ALS “HOTTEST NEW JOB”



The Washington Post
Democracy Dies in Darkness

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Tech’s hottest new job: AI whisperer. No coding required.

'Prompt engineers' are being hired for their skill in getting AI systems to produce exactly what they want. And they make pretty good money.

By Drew Harwell

February 25, 2023 at 7:00 a.m. EST

SPIEGEL Job & Karriere

ChatGPT erschafft neuen Beruf

»Ein Jahresgehalt von 300.000 Dollar ist natürlich verlockend«

Für diesen Job muss man keine Programmiersprache können: Prompt Writers bringen künstliche Intelligenzen dazu, optimale Ergebnisse zu liefern. Ein Literaturwissenschaftler erzählt, wie er sich so ein zweites Standbein aufgebaut hat.

Ein Interview von **Verena Töpper**
24.03.2023, 17.54 Uhr

Jeremiah O... + Follow

Career mission:
I connect com...

PREDICTION: The next billion-dollar startup will have only 3 employees.

AI FOUNDATION
The Expert Circle for Generative AI

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http://foundation-circle.ai

Thank you very much!

peter.gentsch@intelligence-group.com

PETERGENTSCH.COM