



- 1. Etymology
- 2. Information theory approach
- 3. As sensory input
- 4. As representation and complexity
- 5. As an influence which leads to a transformation
- 6. As a property in itself

# DIE NÄCHSTEN 10 JAHRE: HERAUSFORDERUNGEN UND GELEGENHEITEN



techvshuman.com



gerd.cloud



gerdtube.com



@gleonhard



futuristgerd.com

PAST

FUTURE



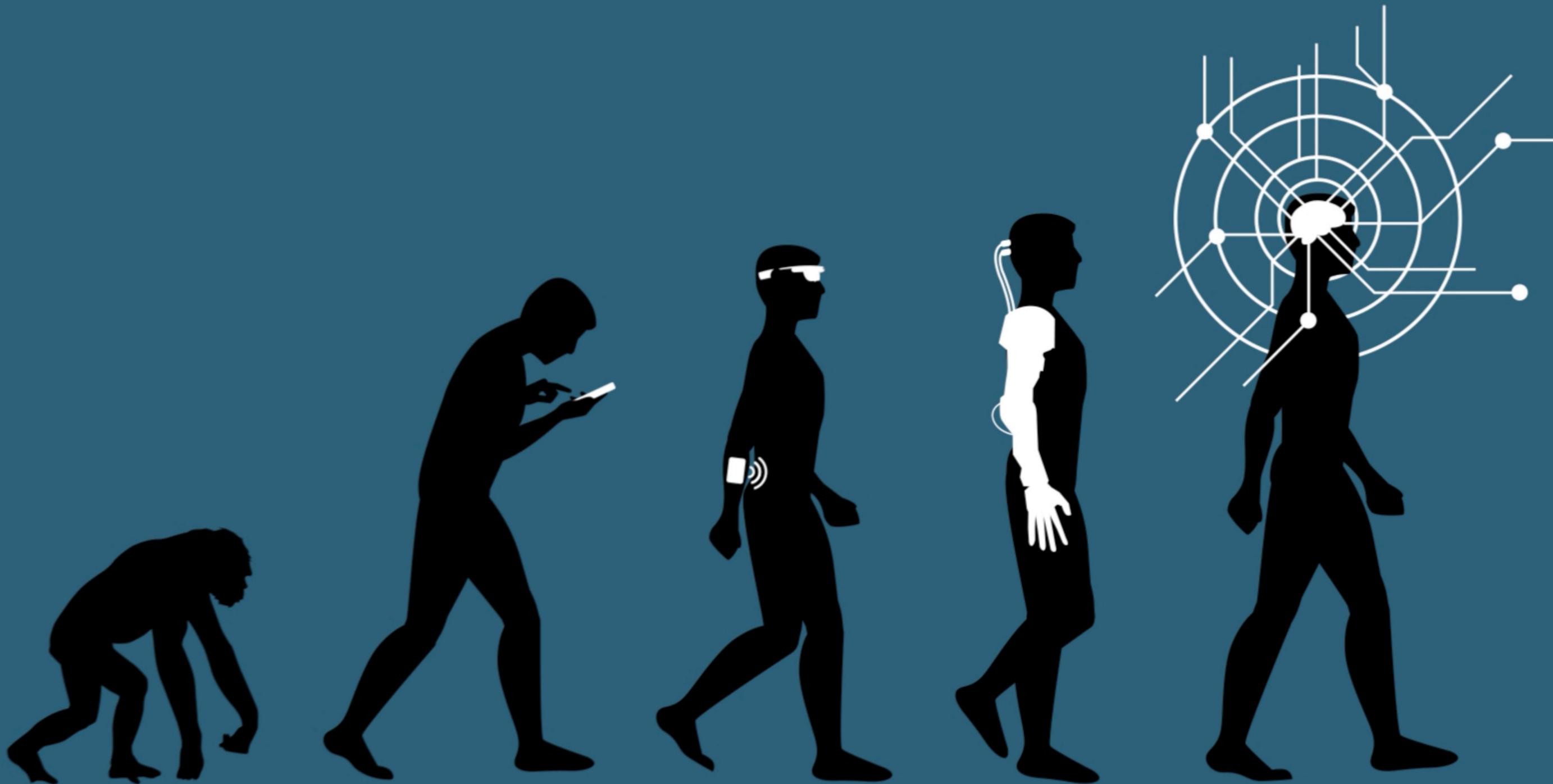
**Die Zukunft ist kein Zeitpunkt mehr – sie ist eine Denkweise!**

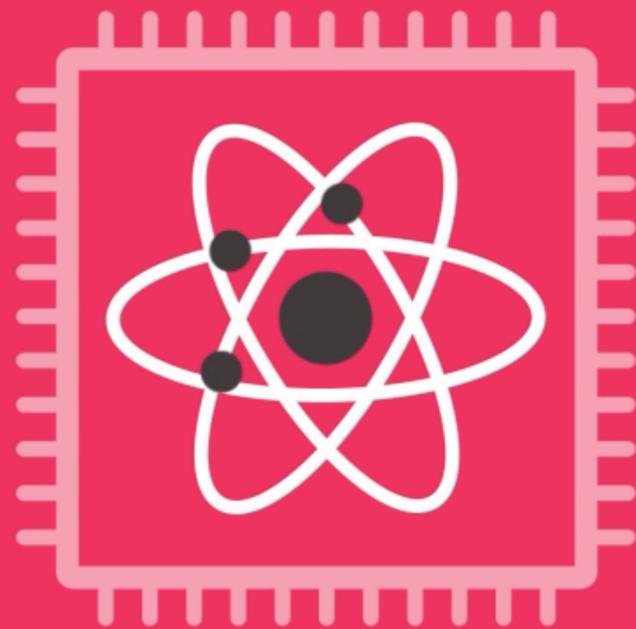
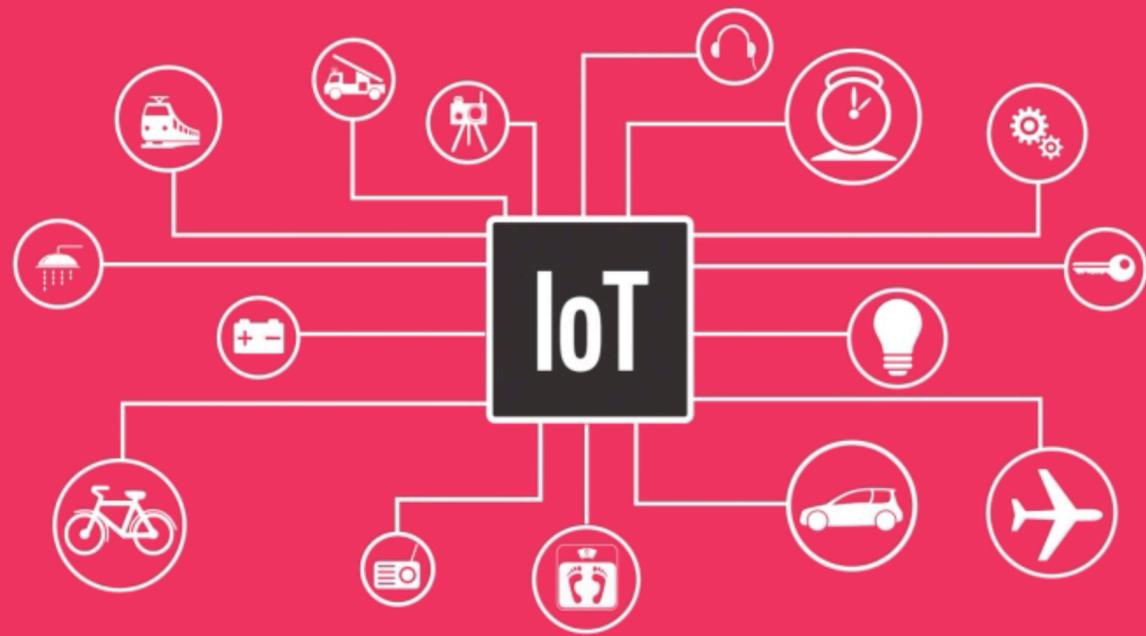
# Unbegrenzte\* technologische Möglichkeiten in ca. 10 Jahren, Singularity ETA 2050?

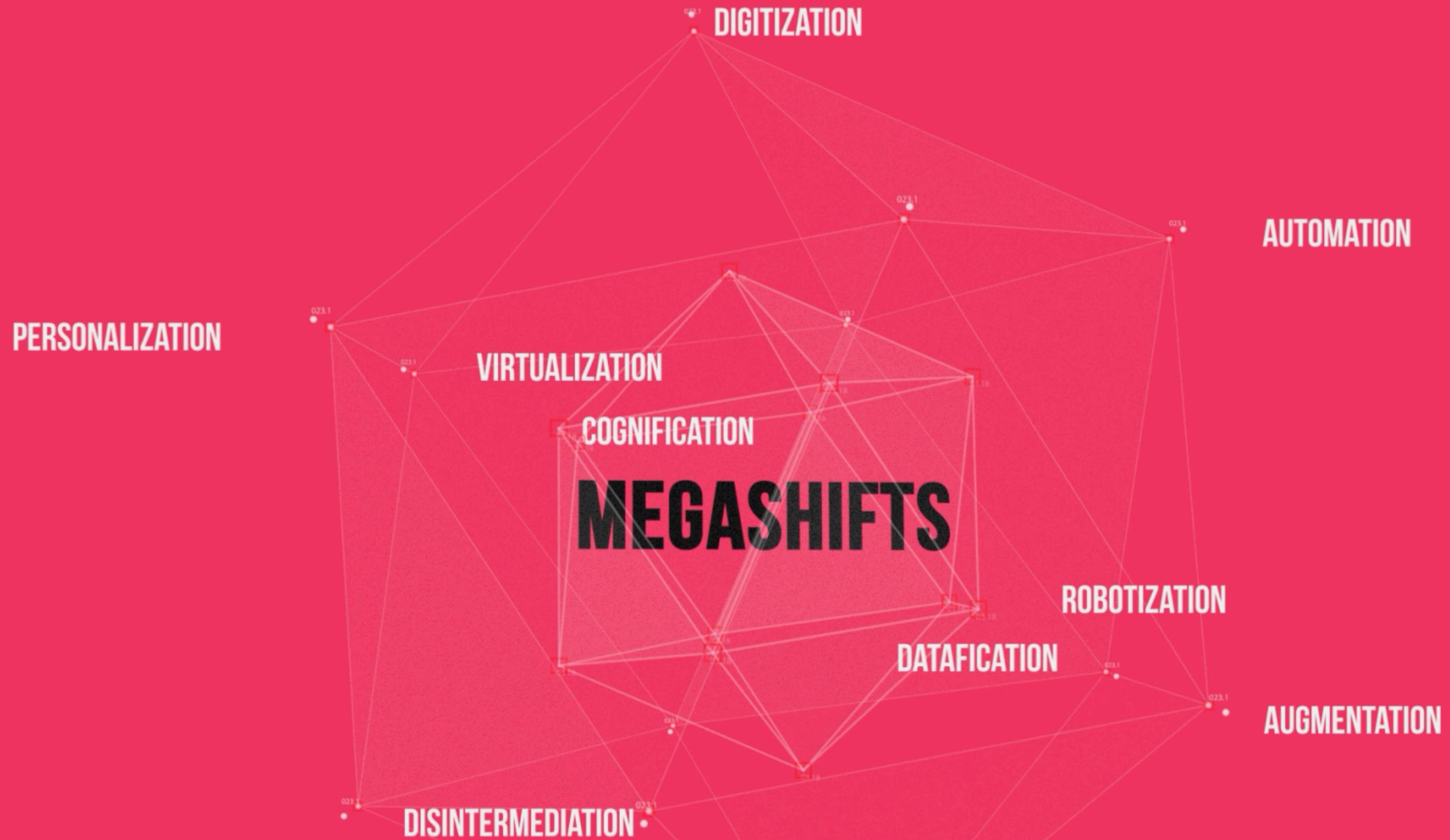


#hellven

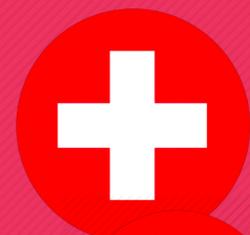
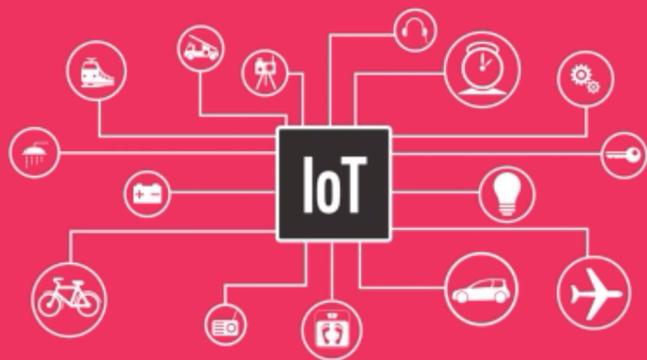
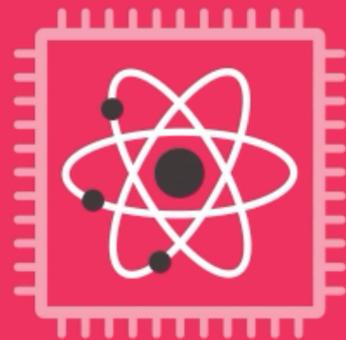








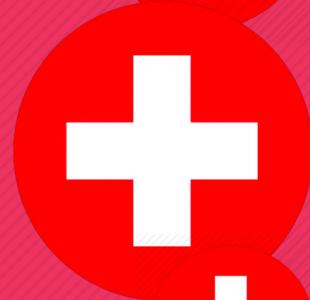
# 8 Game-Changers: Data + Cloud + AI + Quantum + IoT + Blockchain + 3D Printing + VR / AR / MR



DATA every-where/thing



CLOUD everything



SMART everything (AI, IA)



CONNECTED everything (IoT)

COMPUTE anything (Quantum)



MAKE anything (3D printing)



TRANSACT anything (Blockchain)

SEE everything (VR / AR / MR)

# Game-Changer Beispiel: NLP und die Interface Revolution – mit Computern reden wie mit anderen Menschen?



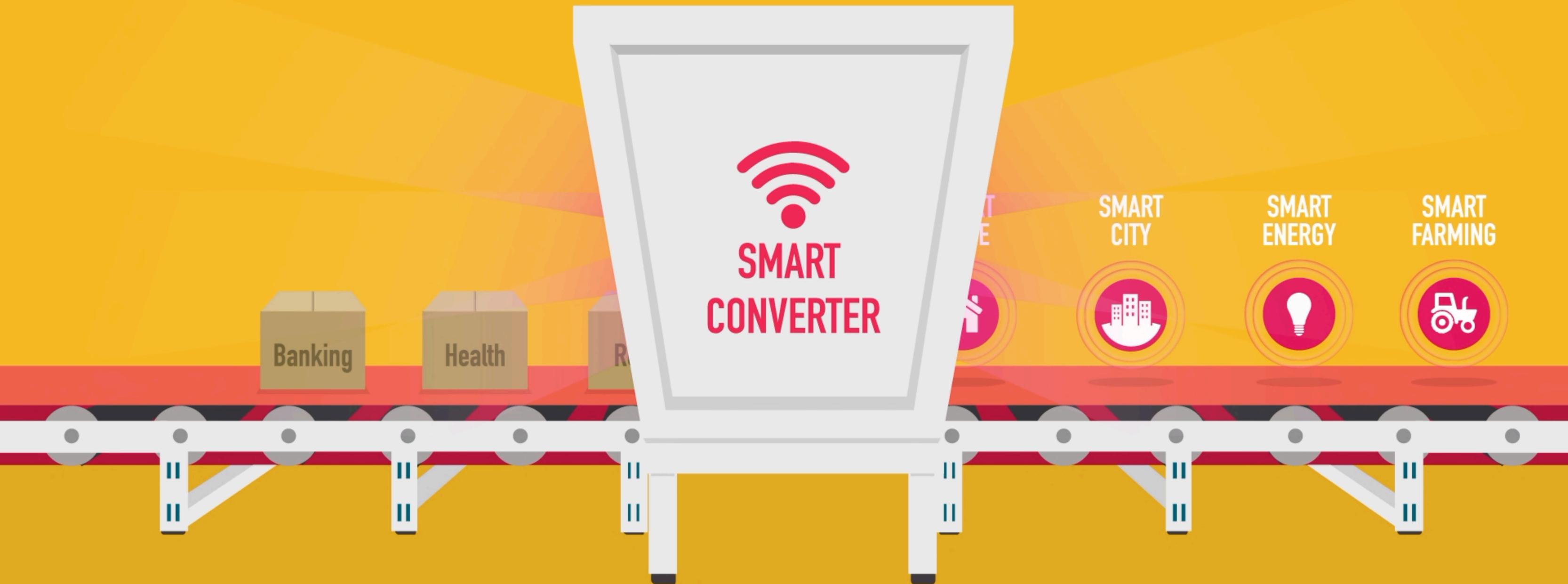
Trabajas para signet verdad  
You work for true sign  
Diana

Cuando has llegado  
When have you arrived  
Diana

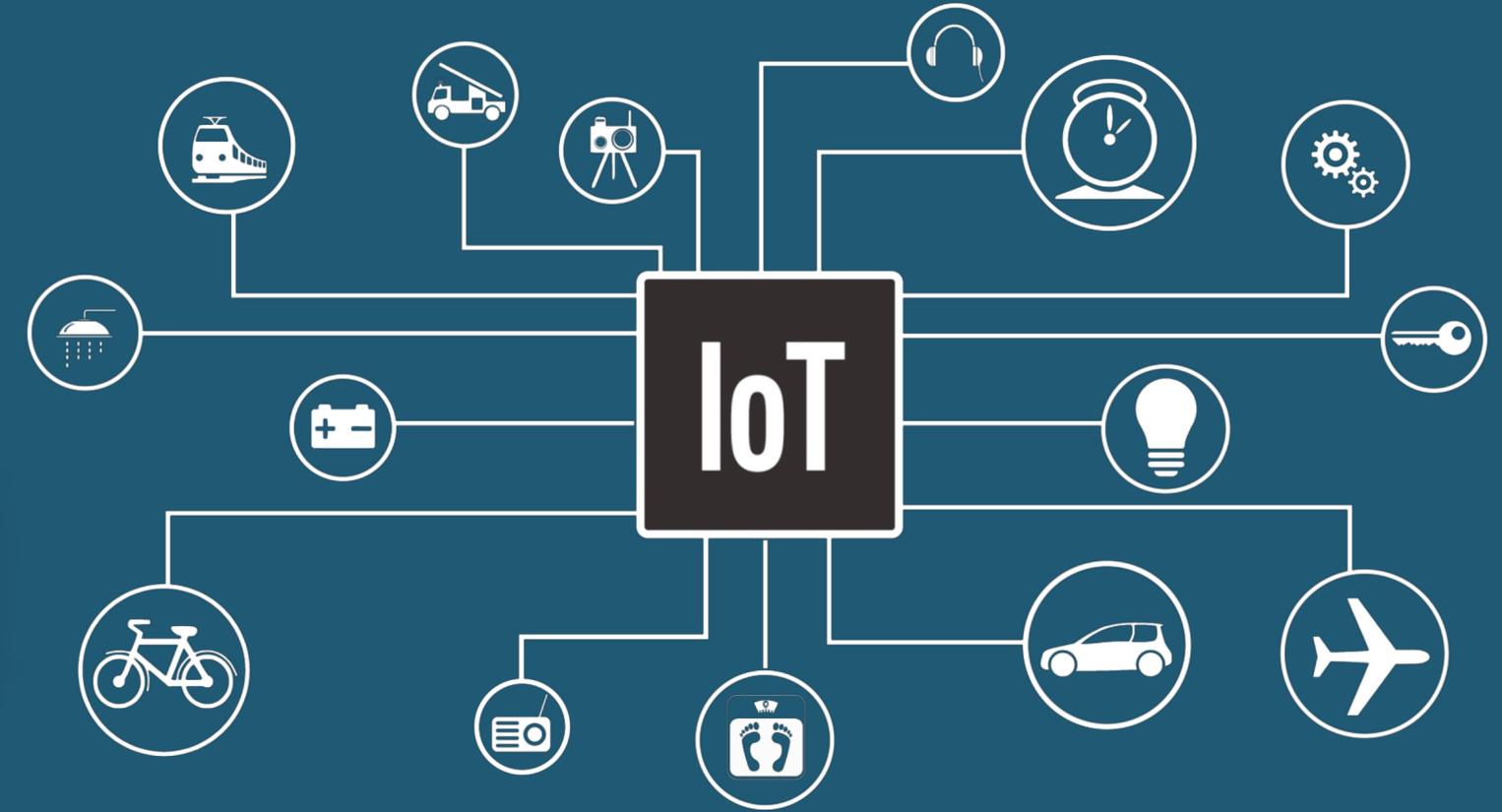
Eres periodista  
You are a journalist  
Diana



# Die nächsten 5 Jahre: 'Smart Everything'



Daten sind das neue Öl, AI ist der neue Strom, das **IoT** ist das neue Nervensystem



# “Erst ganz langsam und dann sehr schnell”

					32	64	128
256	512	1024	2048	4096	8192	16384	32868
63K	128K	256K	512K	1M	2M	4M	8M
16M	32M	64M	128M	256M	512M	1G	2G
4G	8G	16G	32G	64G	128	256G	512G

Unsere Gesellschaft wird sich in den nächsten 20 Jahren mehr verändern als in den letzten 300 Jahren

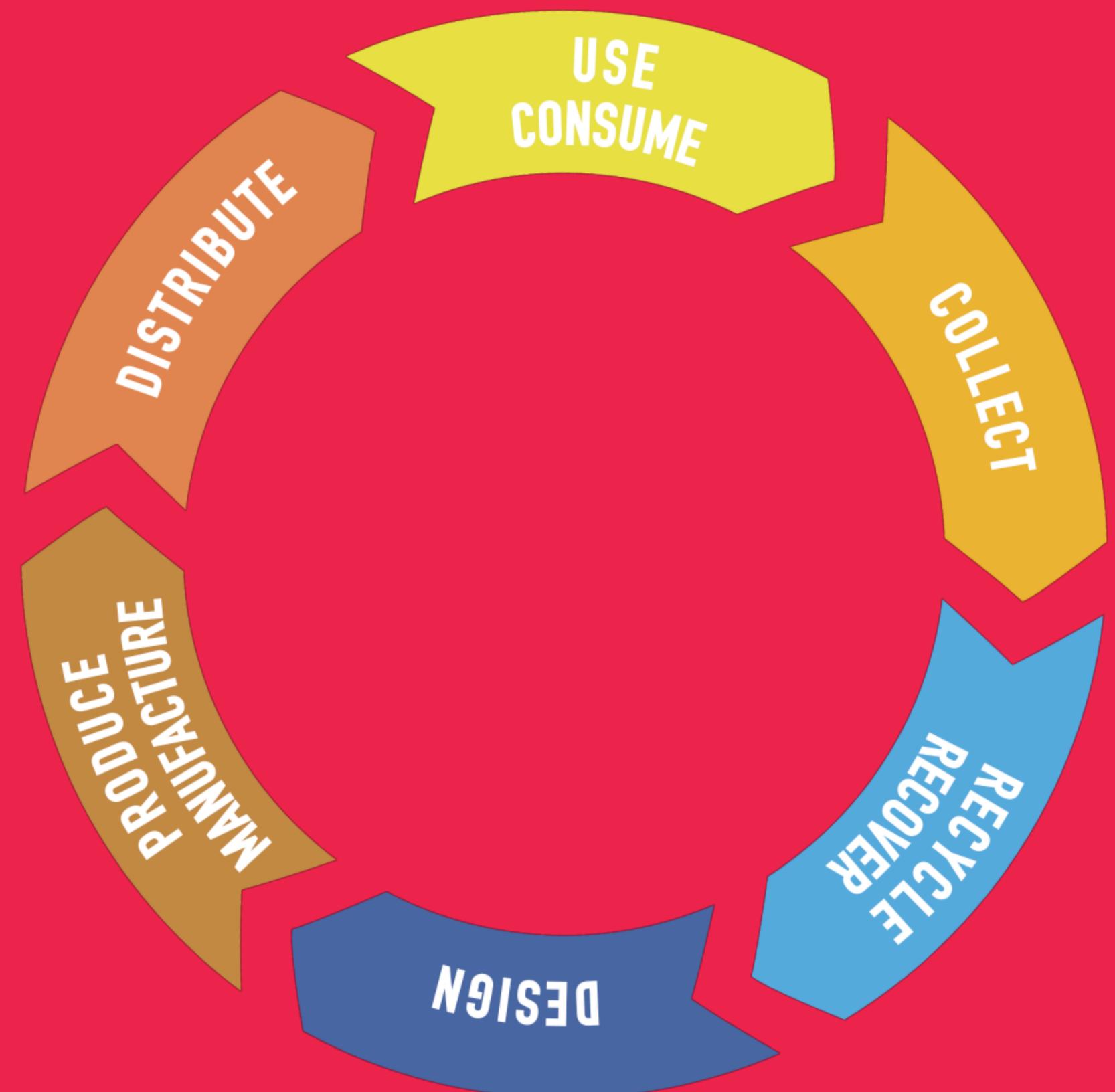


# Mensch und Maschine im IoT: Vernetzung<sup>x</sup>

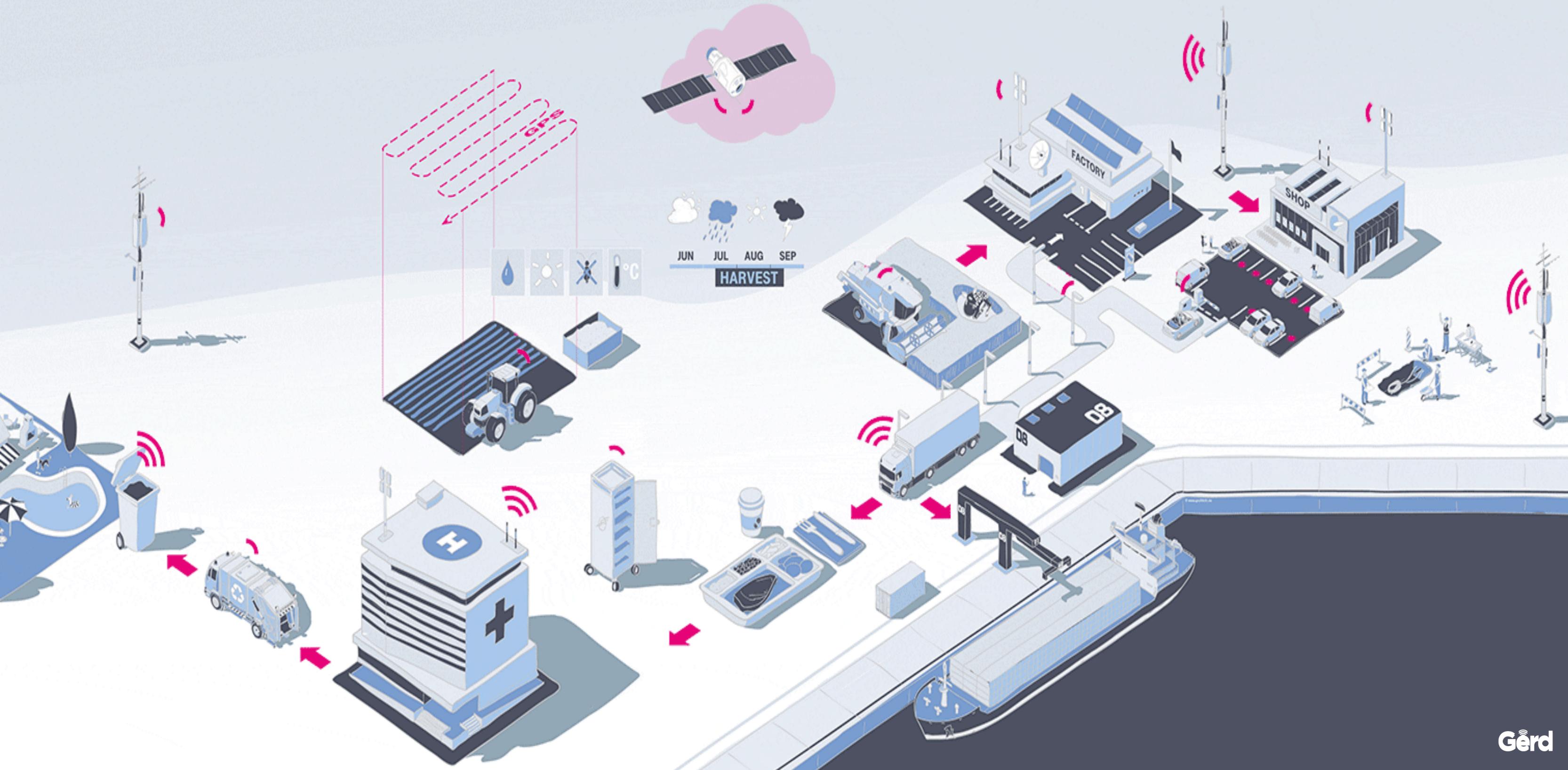


#SamsungxCES2018

# Das IoT wird uns auch eine ganz neue ökonomische Logik ermöglichen: die Circular Economy



# IoT: die exponentielle Vernetzung ist 'awesome' und gleichzeitig 'troublesome'



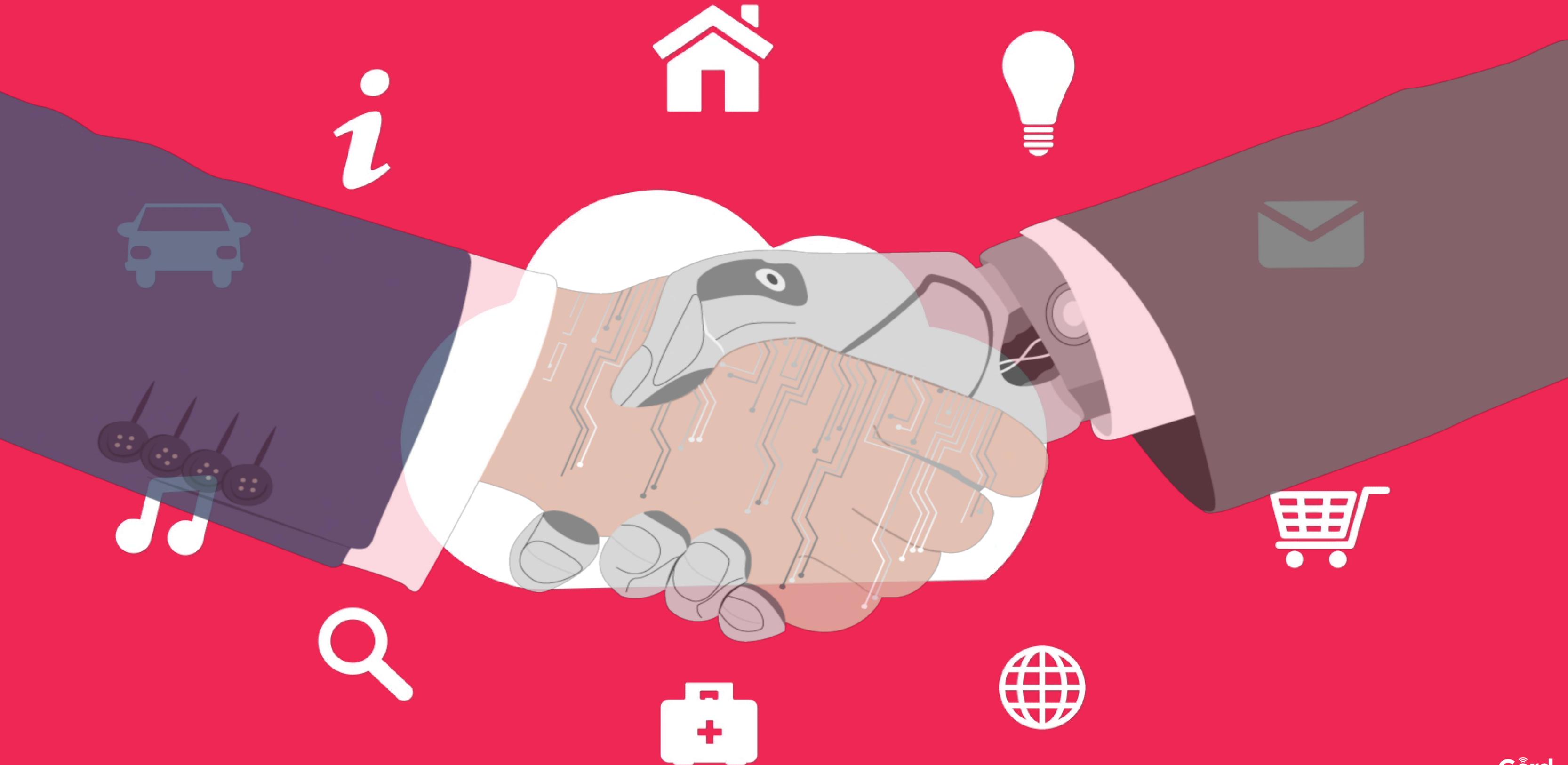
# IoT: die exponentielle Vernetzung ist 'awesome' und gleichzeitig 'troublesome'



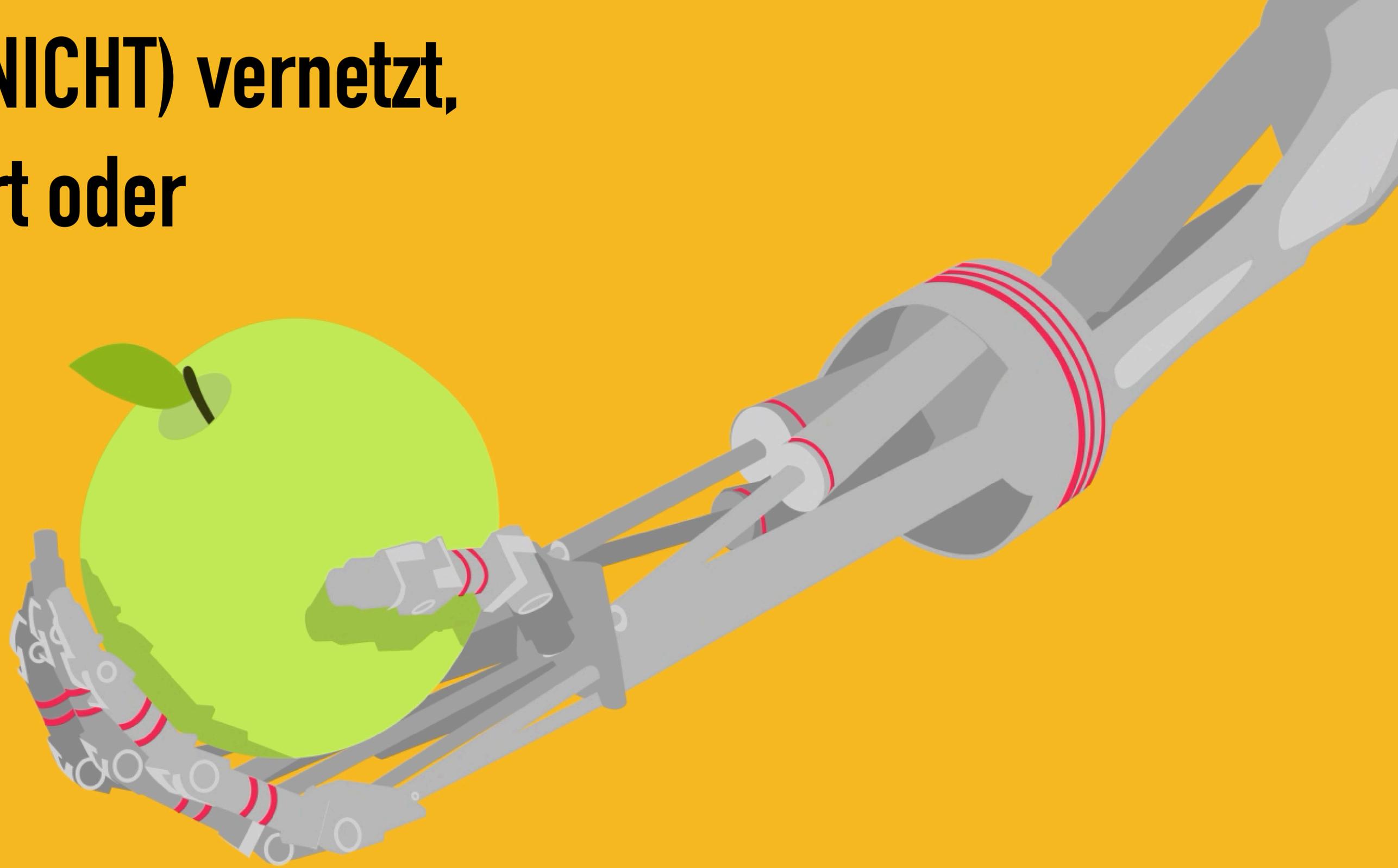
# IoT: die exponentielle Vernetzung ist 'awesome' und gleichzeitig 'troublesome'



# Die Zukunft von IoT: Security + Safety + Ethik + Vertrauen + Sozialkontrakt



**Was sollte (NICHT) vernetzt,  
automatisiert oder  
virtualisiert  
werden?**



# #digitalethics

**TRUST LINE DO NOT CROSS**

**TRUST LINE DO NOT CROSS**

**TRUST LINE DO NOT CROSS**



Fancy watching a romantic film?

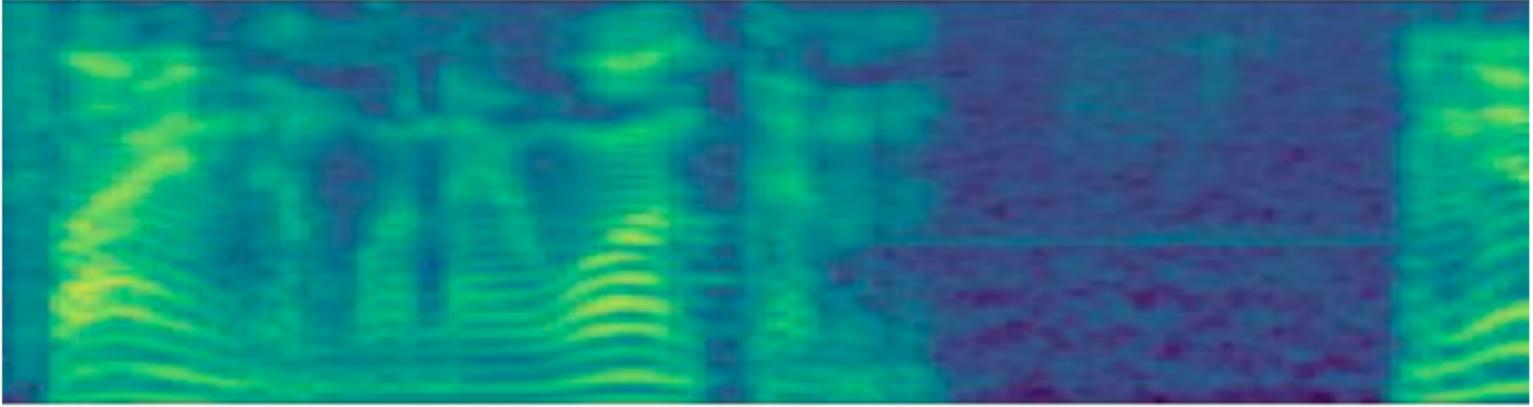
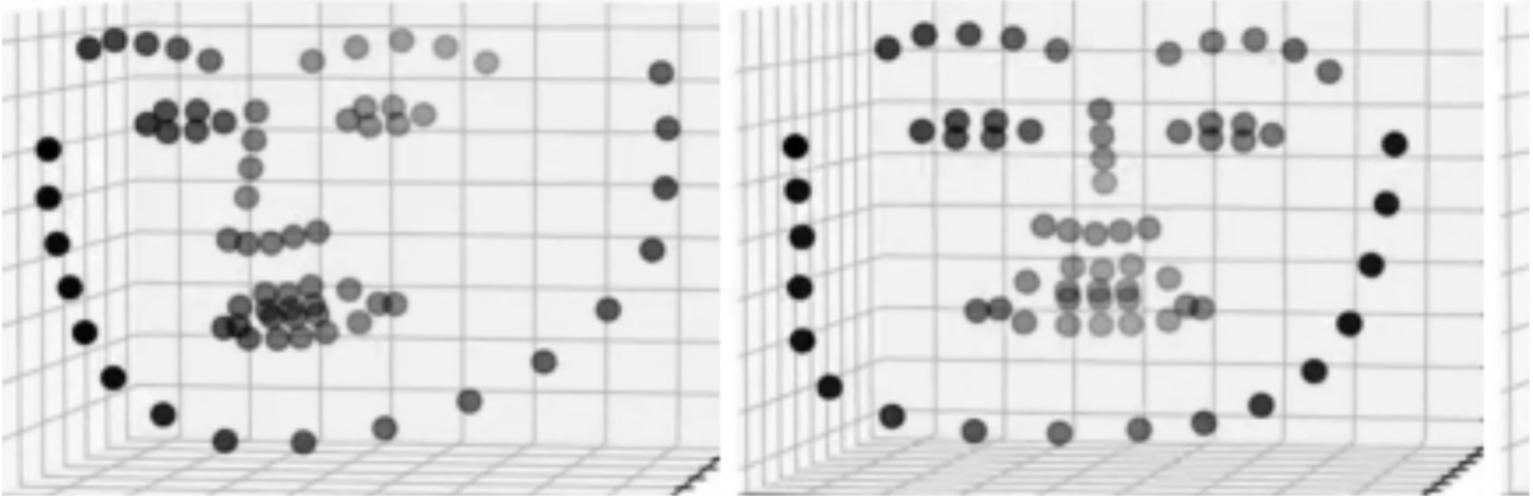
He likes action movies



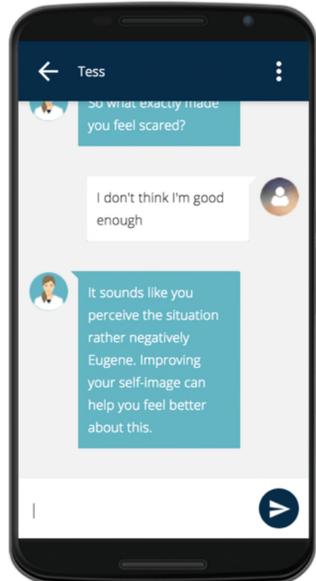


# Your smartphone's AI algorithms could tell if you are depressed

Smartphones that are used to track our faces and voices could also help lower the barrier to mental-health diagnosis and treatment.

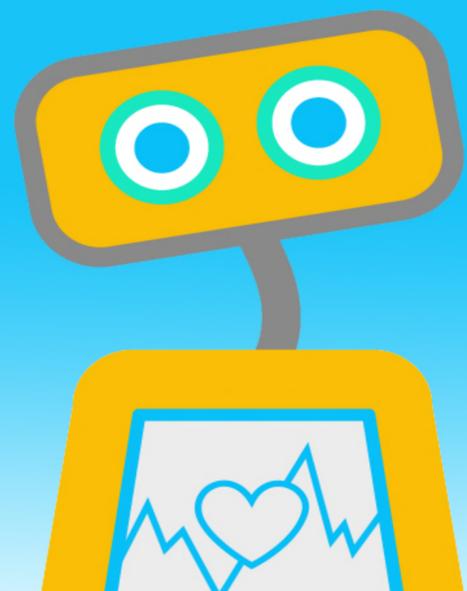


um . . . yeah . . . i mean



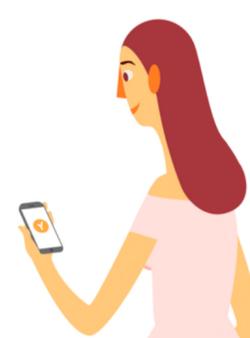
- COGNITIVE EMOTIONAL BEHAVIORAL THERAPY
- PSYCHOLOGICAL COACHING
- NATURAL EVALUATION OF EHEALTH COURSE
- QUESTIONNAIRE AUTOMATION
- IMPROVING THERAPY ADHERENCE
- MENTAL SUPPORT WHILST WITHIN A MEDICAL SETTING
- COPING WITH MENTAL ISSUES TIED TO MEDICATION
- MAKING PSYCHOLOGICAL AID MORE APPROACHABLE
- CAREGIVER BURNOUT PREVENTION

A screen shot of XZAI's "Tess" mental health chatbot, from the X2.ai homepage



## Hi, I'm Woebot.

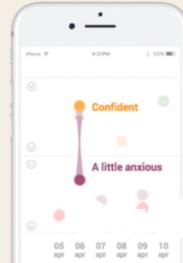
I'm here for you, 24/7. No couches, no meds, no childhood stuff. Just strategies to improve your mood. Plus the occasional dorky joke. 😊



Y

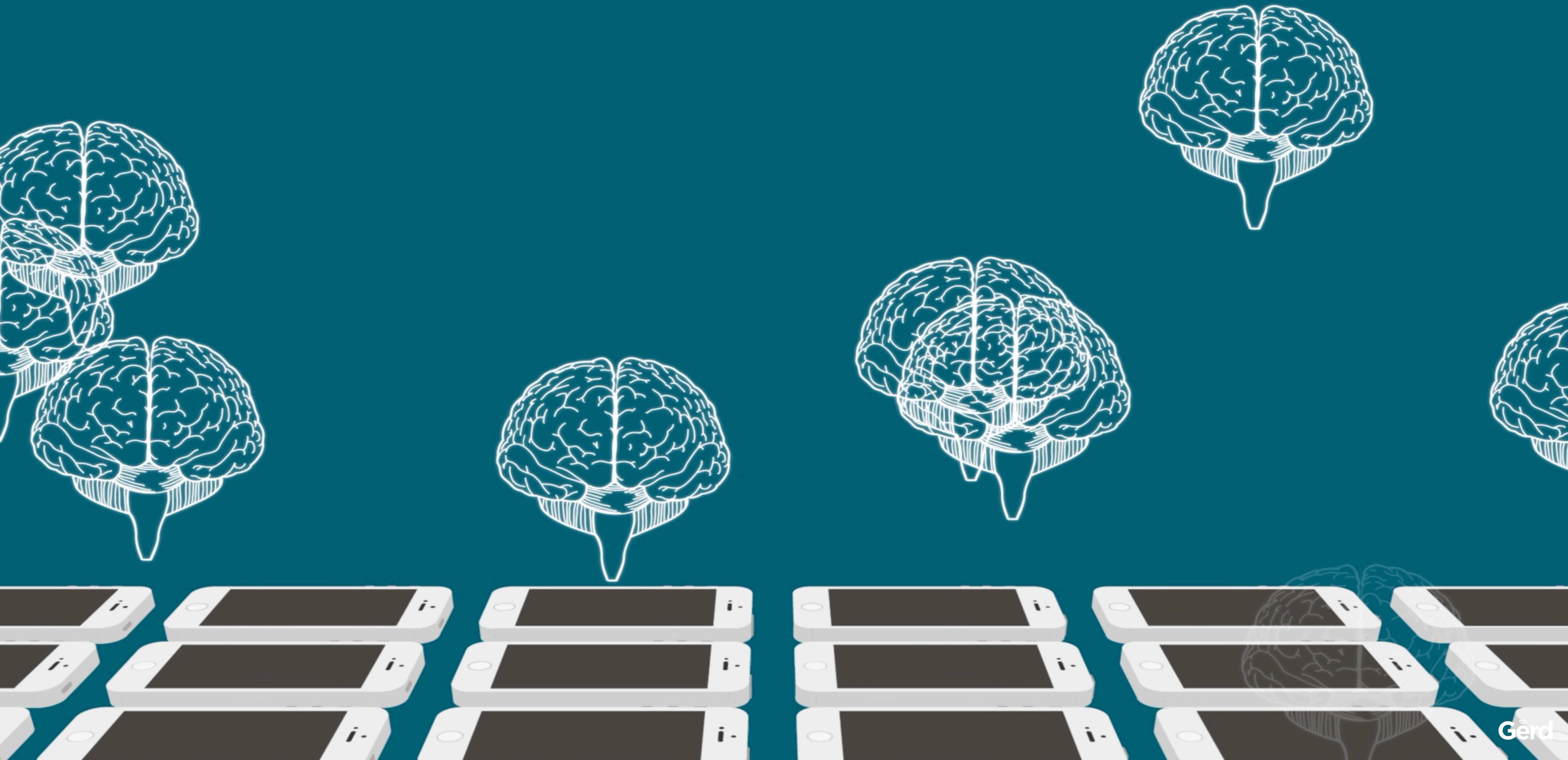
Hi, I'm Youper. I can help you feel more optimistic. |

Your emotional health assistant



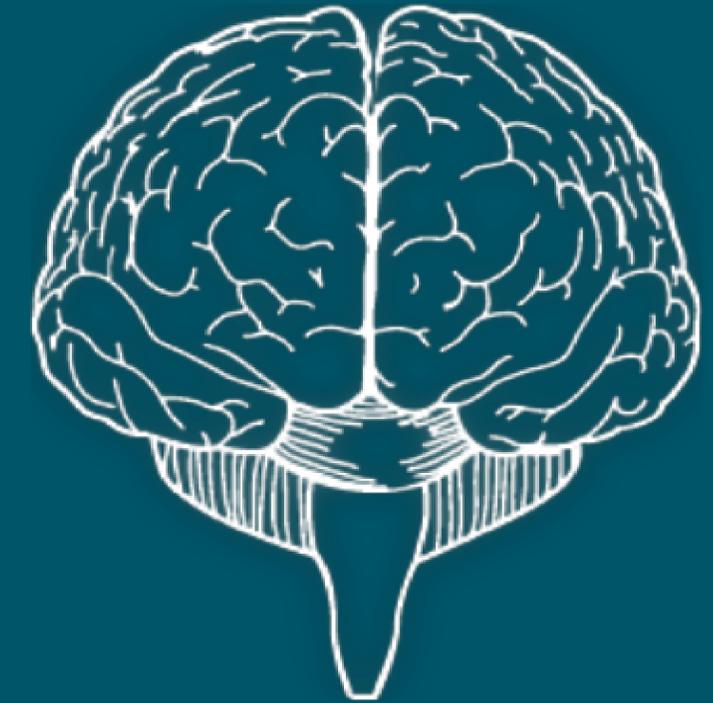
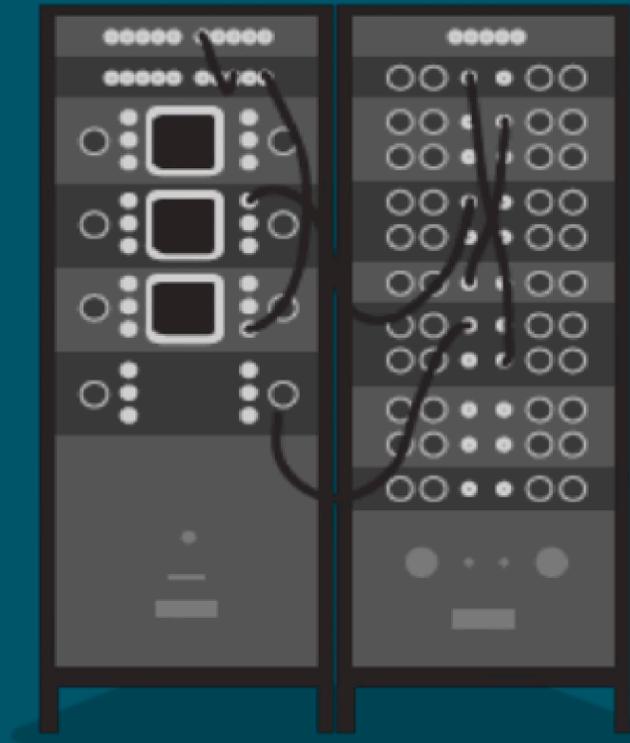
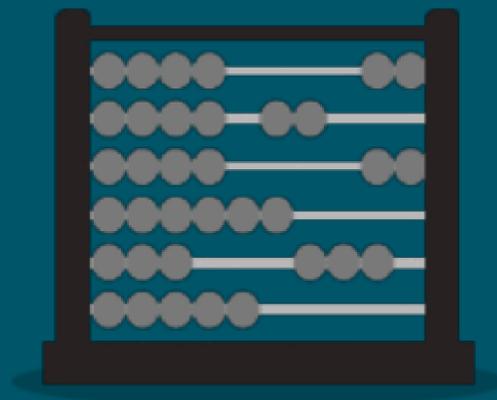
Youper helps you feel your best with quick conversations and tools to take control of your emotional health.

# Hyper-Vernetzung + IoT + AI: wir bauen eine neue Meta-Intelligenz



# Artificial Intelligence: Computer systems that turn information and data into KNOWLEDGE

(Demis Hassabis @ DeepMind)



*Tabulating  
Systems Era*

*Programmable  
Systems Era*

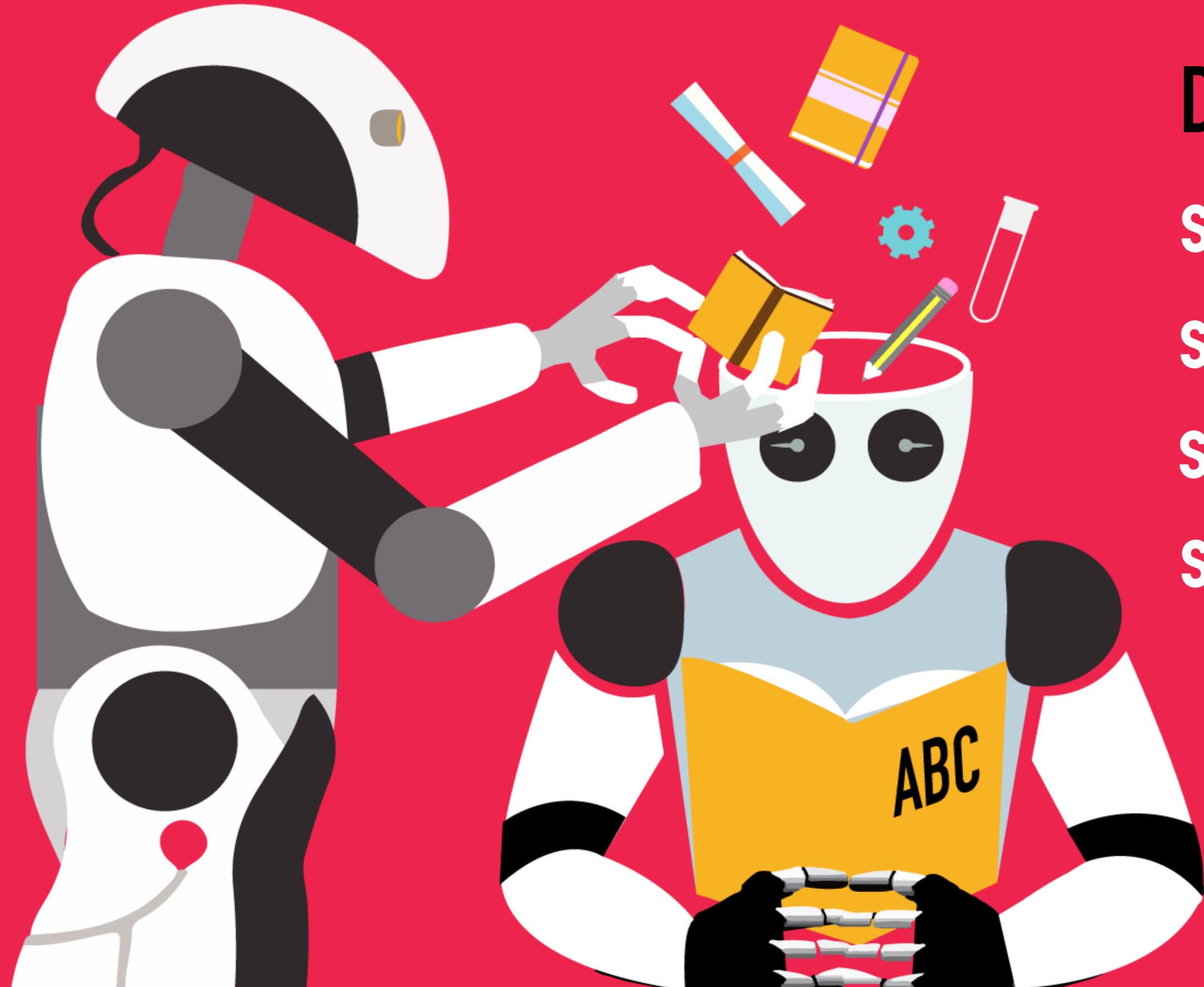
*Cognitive  
Systems Era*

1900

1950

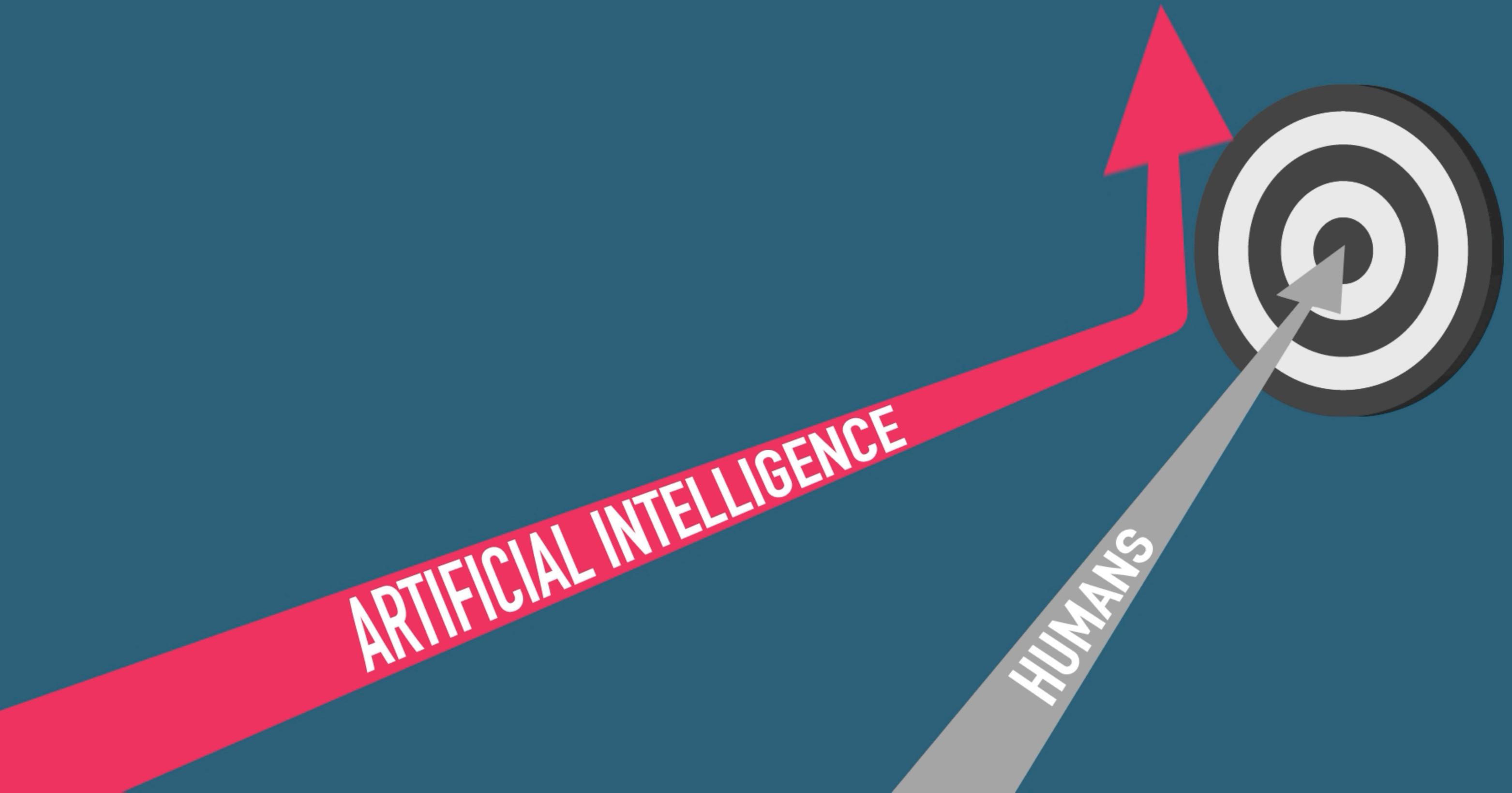
2020





**Daten & Informationen**  
sind nicht Wissen\*  
sind nicht Verstehen  
sind nicht Weisheit  
sind nicht Sinn

Human Intelligence (HI): Unklarheit ✓ Mehrdeutigkeit ✓ Zufall ✓ Ineffizienz ✓ Intuition ✓ AI!



# Künstliche Intelligenz: ein fantastisches Werkzeug aber ein schrecklicher Herrscher

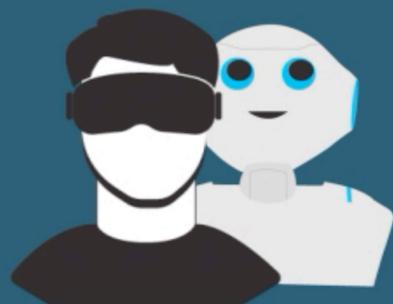
## ASSISTED INTELLIGENCE



## AUTOMATION



## AUGMENTED INTELLIGENCE



## AUTONOMOUS INTELLIGENCE



“Technology can do great things. But it does not WANT to do great things. It doesn’t want ANYTHING” (Tim Cook, CEO, Apple)



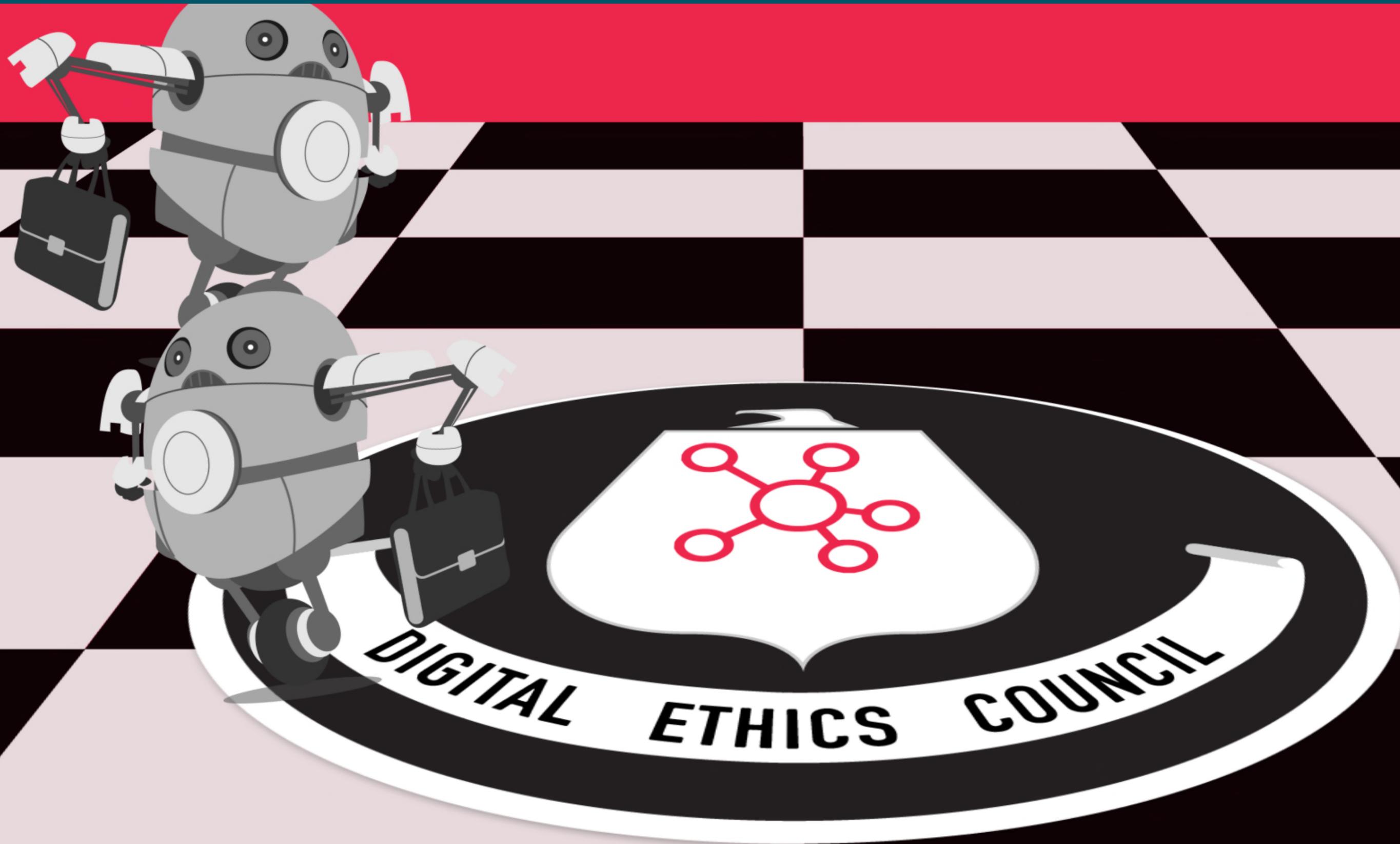
**TECHNOLOGY HAS NO ETHICS**

**"Ethics is knowing  
the difference  
between what you  
have a right  
(or the power) to do  
and what is the right  
thing to do"**

adapted from Potter Stewart



# Digitale Ethik ist das Technologie-Thema #1 für 2019 (Gartner et al)



# A New Digital Deal

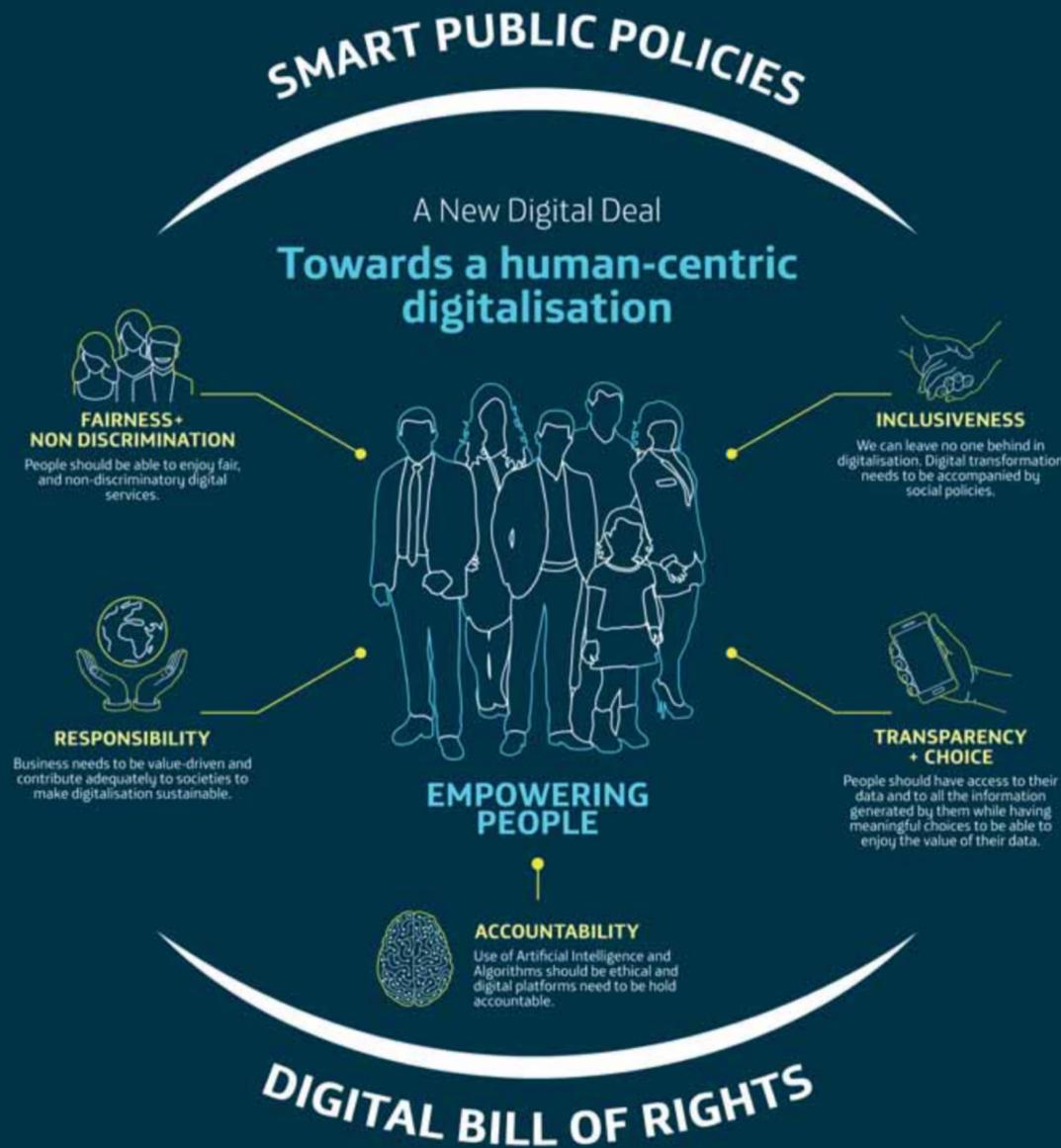
Telefónica calls for a new cooperative effort to define a **New Digital Deal** to renew our social and economic policies and modernise our democracies for the digital age.

A human-centric digitalisation needs to ensure that people are the primary beneficiaries and feel in control. In our view, this process should be guided by **these principles**:

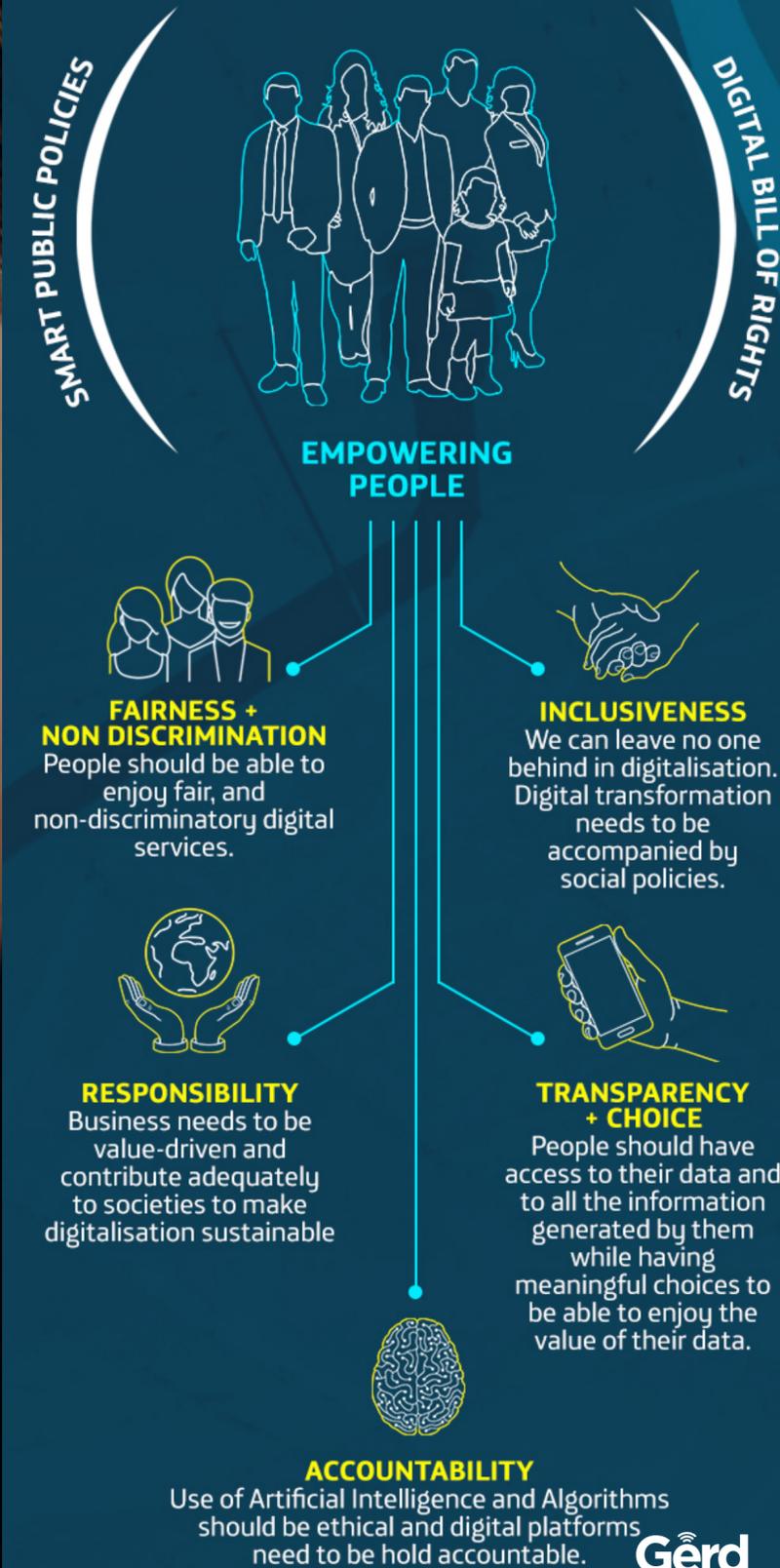
*Telefónica*

# A Manifesto for a New Digital Deal

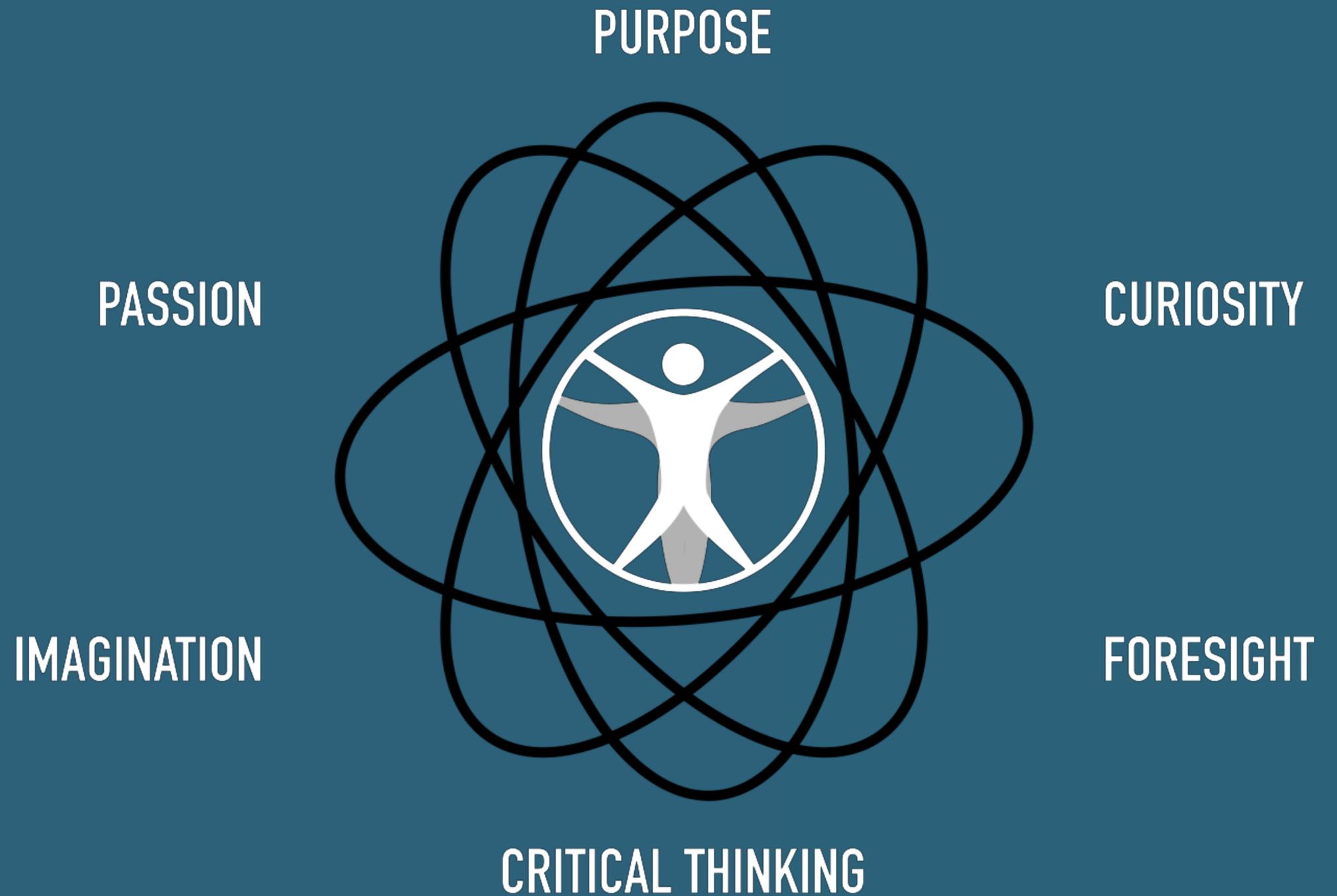
Towards a human-centric digitalisation



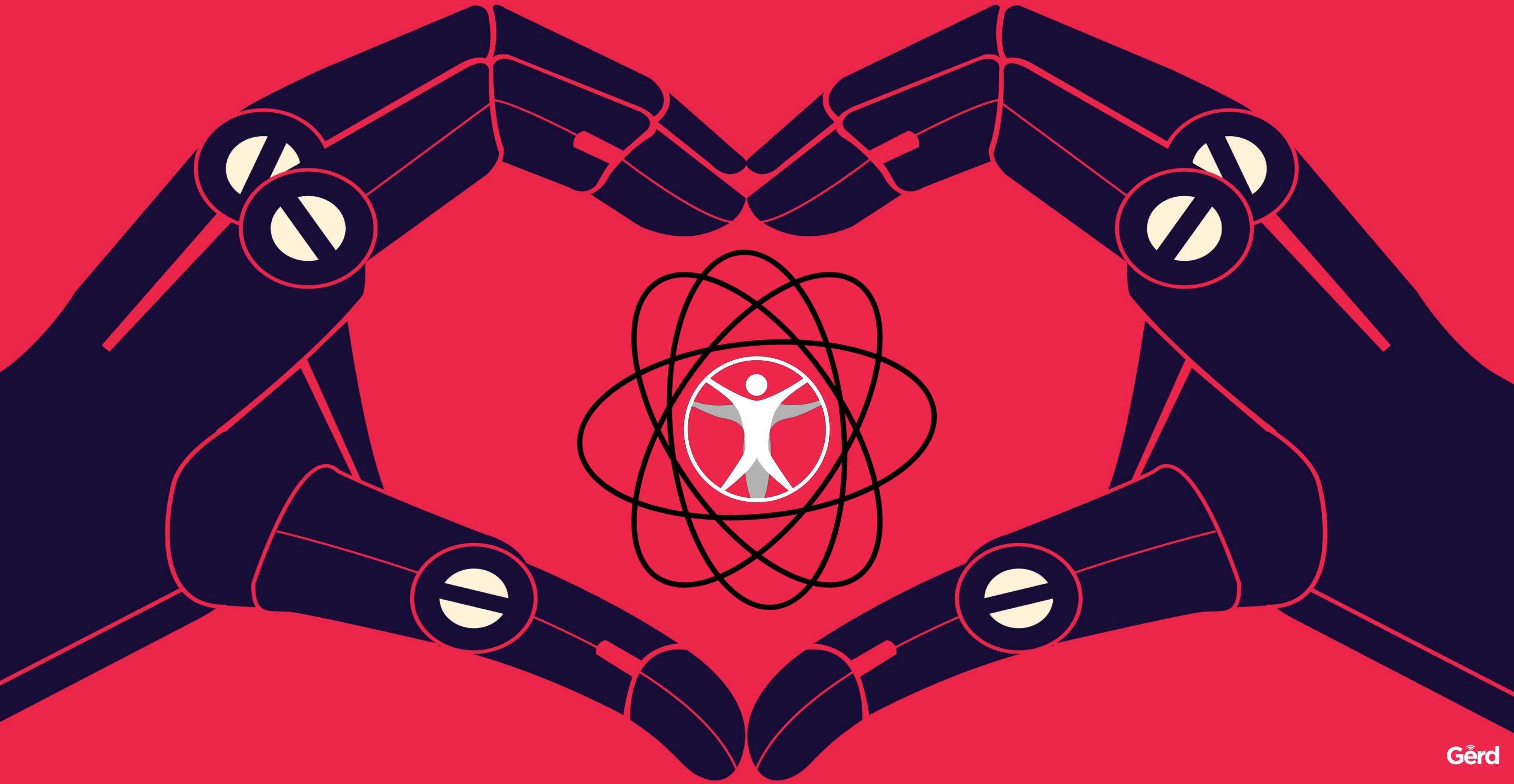
## A New Digital Deal Towards a human-centric digitalisation



# Maschinen können keine Beziehungen (Machines don't do relationships)



**“It is not technology that changes the world, but the dreams behind that technology”** (Jack Ma, Alibaba)



- 1) Zukunfts-Denkweise aufbauen: erst ganz langsam dann sehr schnell!
- 2) Daten = Öl. AI = Strom. Internet der Dinge / IoT = Nervensystem
- 3) Die 8 Game-Changers verstehen: Data, Cloud, Smart, Connected...
- 4) Megashifts umsetzen: Cognification + Automation... [gerd.fm/megashifts](http://gerd.fm/megashifts)
- 5) Auf 'Smart-Everything' konzentrieren - aber niemals dehumanisieren!
- 6) IA ist hier und heute, AI morgen, AGI muss reguliert werden
- 7) Klare Position zum Thema Digitale Ethik beziehen
- 8) Technologie umarmen aber nicht Technologie werden



**“The future belongs  
to those that  
can hear it coming”  
David Bowie**



Swisscom  
IoT Day  
2019



TECHNOLOGY  
vs  
HUMANITY

The coming clash between  
man and machine  
By Gerd Leonhard

TECHNOLOGY  
vs  
HUMANITY

The coming clash between  
man and machine  
By Gerd Leonhard

1. Ethicality
2. Information vs. Data Approach
3. No control over it
4. An inseparable and cognitive
5. An an interface which creates a transformation
6. As a resource & prices
7. The way out

# VIELEN DANK FÜR IHRE ZEIT

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