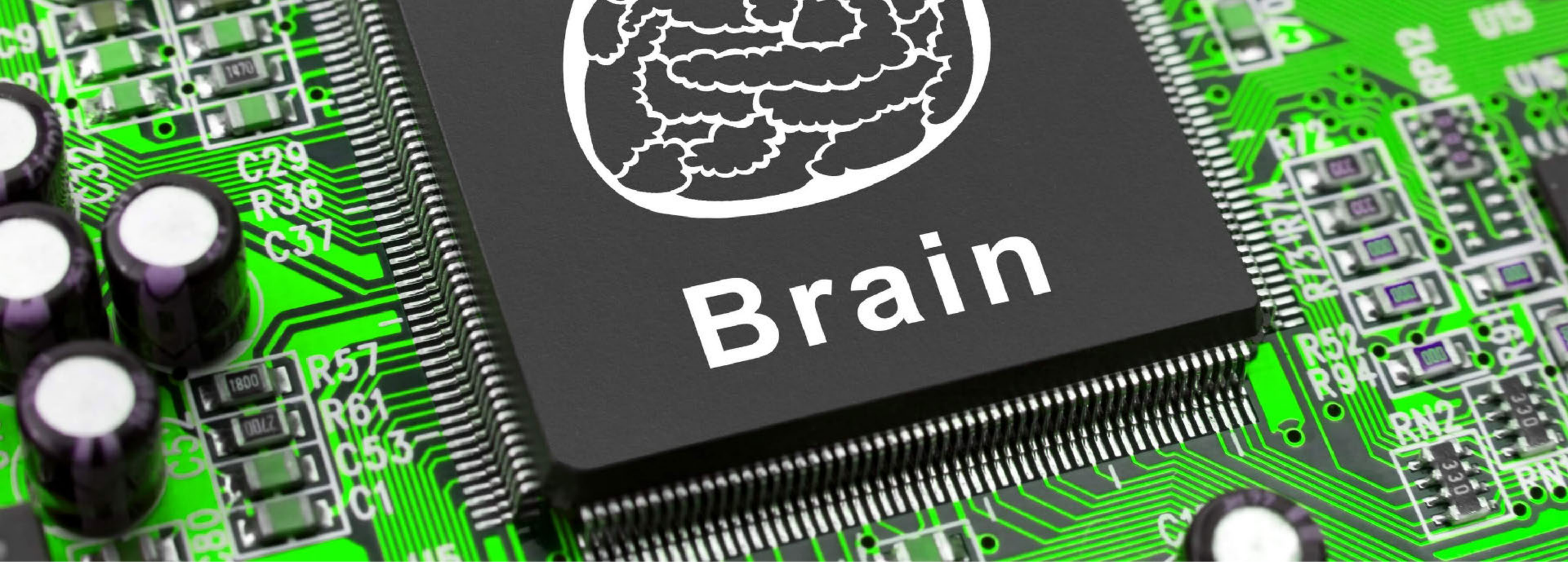
Deine Zukunft ist längst digital – Gestalte sie mit!

Forschung und Entwicklung zwischen lokaler Wirtschaft und globaler Herausforderung

1. Technische Entwicklung:
   Künstliche Intelligenz, Robotik, Internet Of Things
2. Ökonomischer Kontext
3. Digitalisierung als nachhaltiges Instrument?

1 Technische Entwicklung

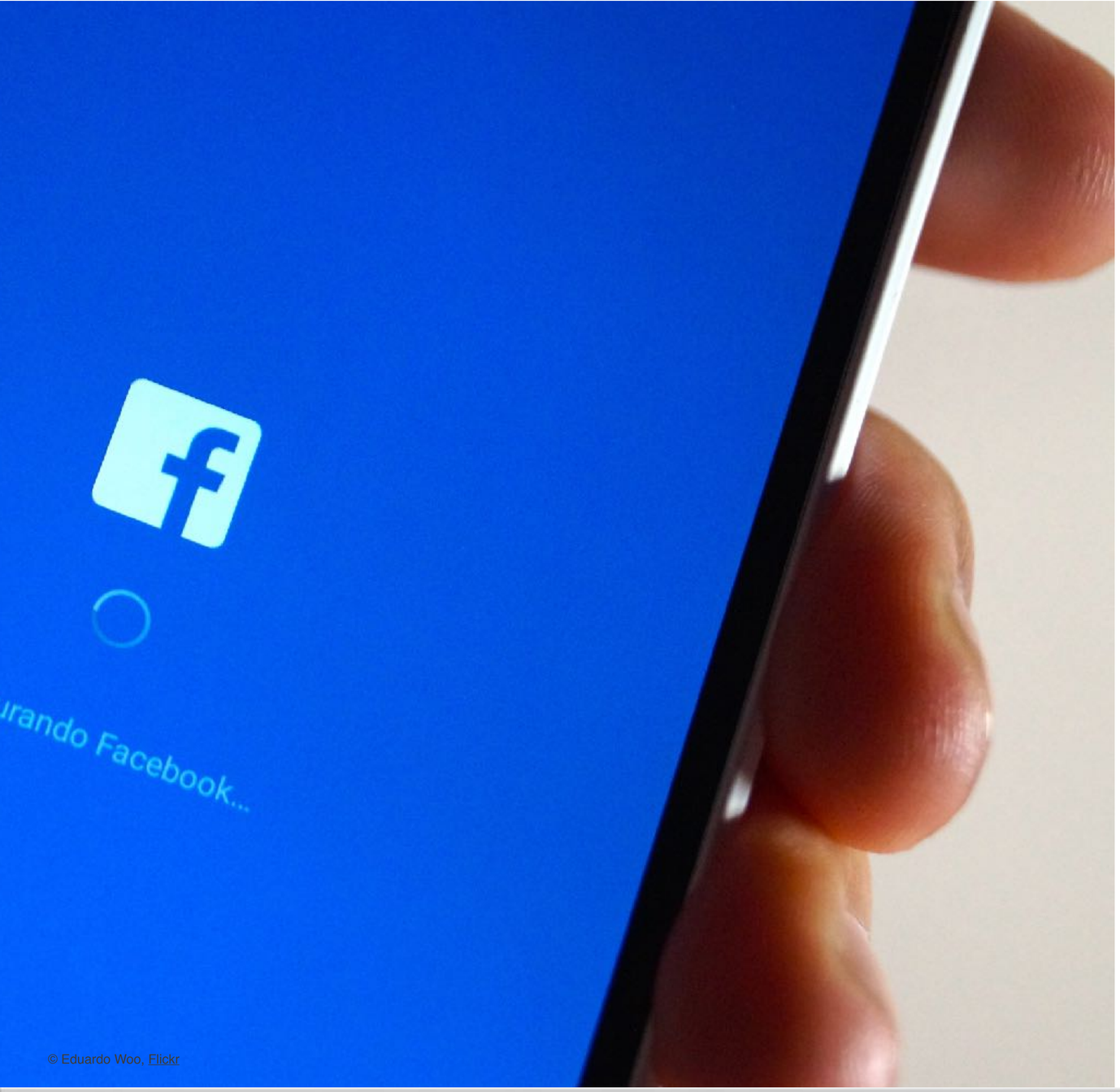
- Künstliche Intelligenz
- Robotik
- Internet of Things



Artificial Intelligence,

Big Data, Neural Networks,

Machine Learning, Deep Learning



© Eduardo Woo, Flickr

»Unser Smartphone ist ein riesiger psychologischer Fragebogen, den wir beständig ausfüllen, wissentlich und unbewusst.«

»Wer Lady Gaga folgt ist höchstwahrscheinlich extrovertiert, während diejenigen, die philosophischen Themen folgen, eher zu Introvertiertheit neigen«

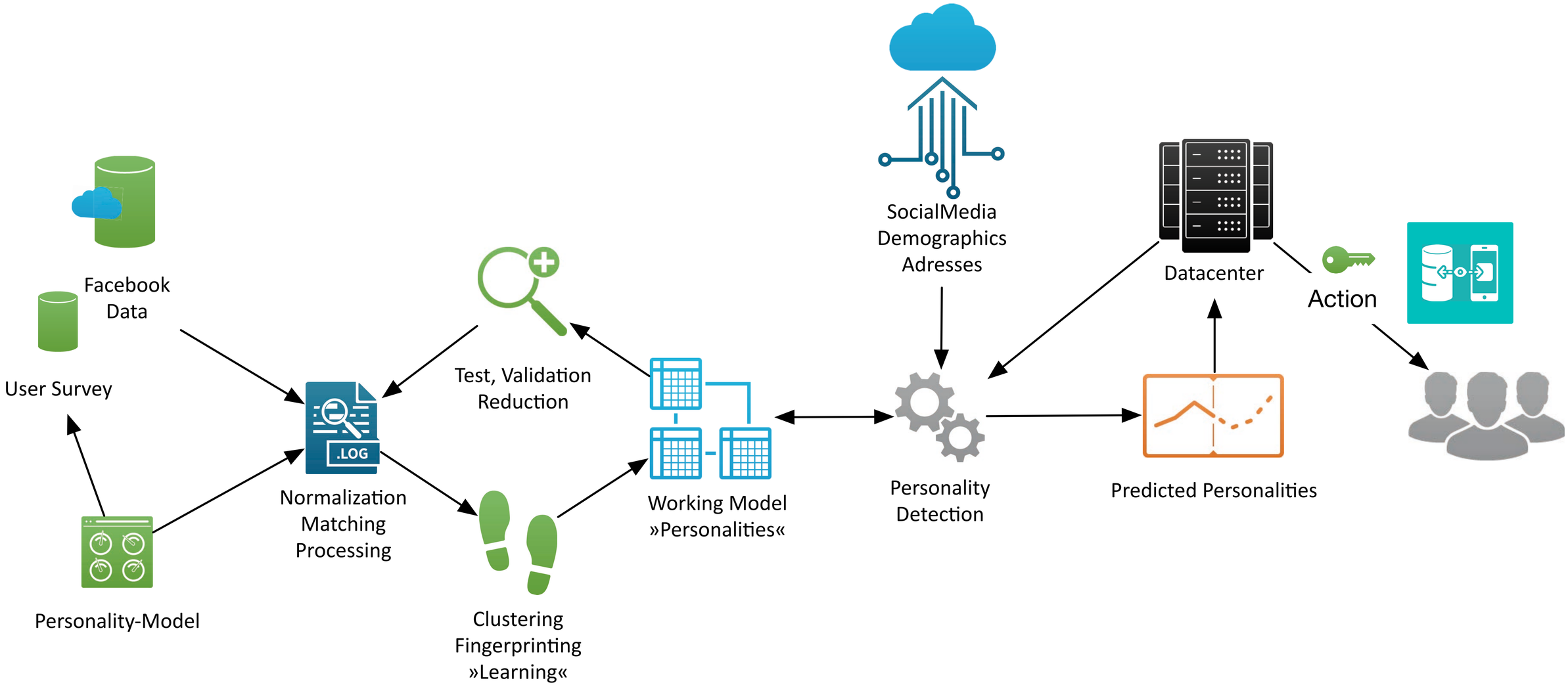
(Michael Kosinski, Stanford University)

»Fast jede Nachricht, die Trump im Wahlkampf 2016 getwittert hat, war datengetrieben.«

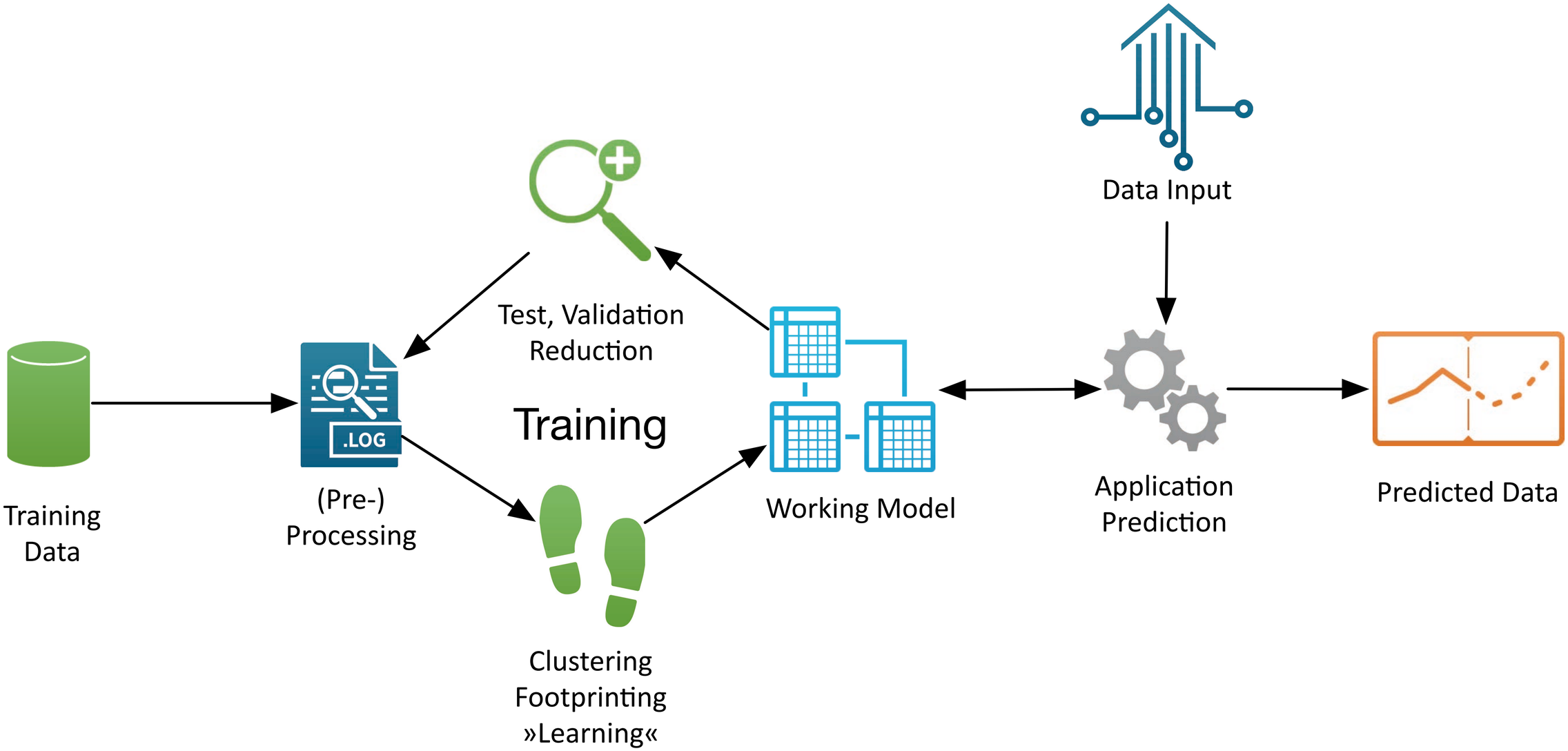
(Cambridge Analytica CEO Alexander Nix)

Groundgame, an app for election canvassing that integrates voter data with "geospatial visualization technology," was used by campaigners for Trump and Brexit.
Image: L2, https://motherboard.vice.com/en_us/article/how-our-likes-helped-trump-win

Cambridge Analytica Case (US Election, Brexit, 2016)

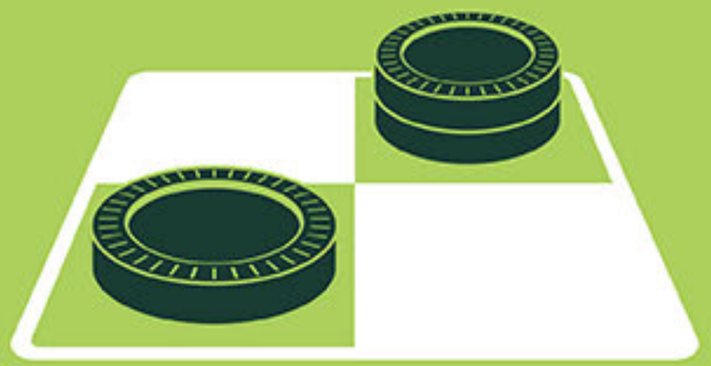


Machine Learning Principle



ARTIFICIAL INTELLIGENCE

Early artificial intelligence stirs excitement.



MACHINE LEARNING

Machine learning begins to flourish.

DEEP LEARNING

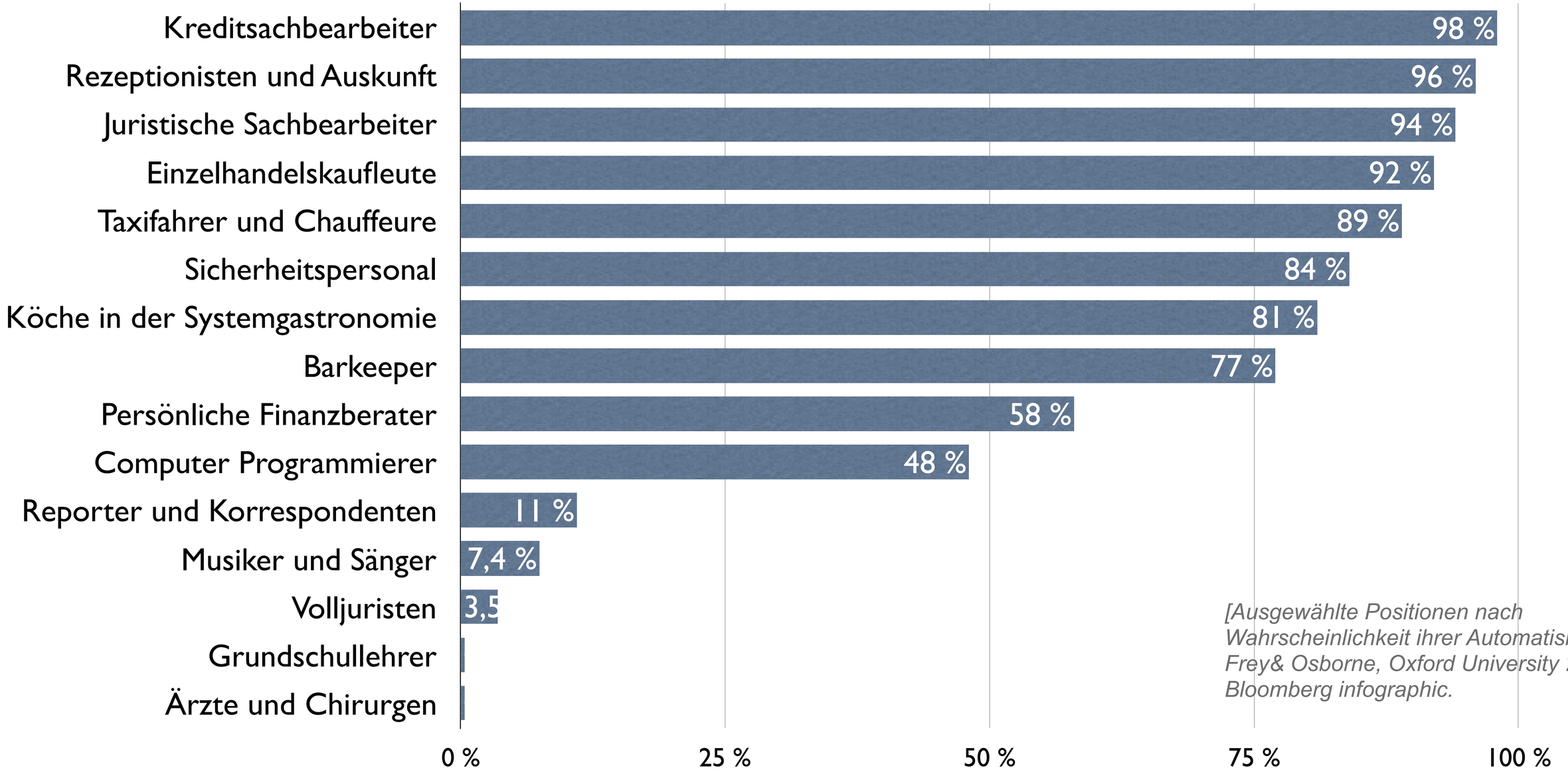
Deep learning breakthroughs drive AI boom.

1950's 1960's 1970's 1980's 1990's 2000's 2010's

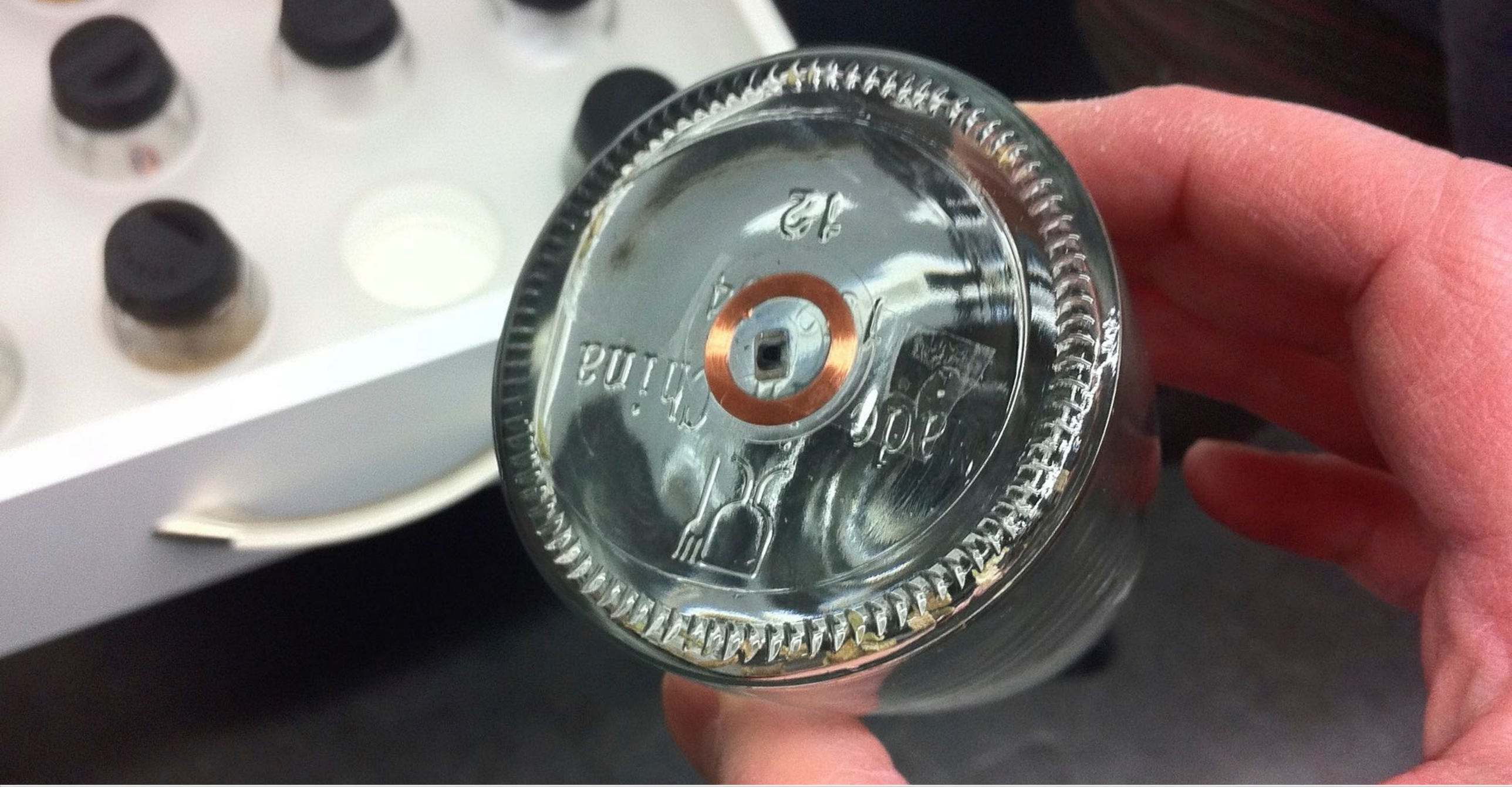
Robotics

https://youtu.be/XrtI9wNPdr0

Was wird aus unseren Jobs !?



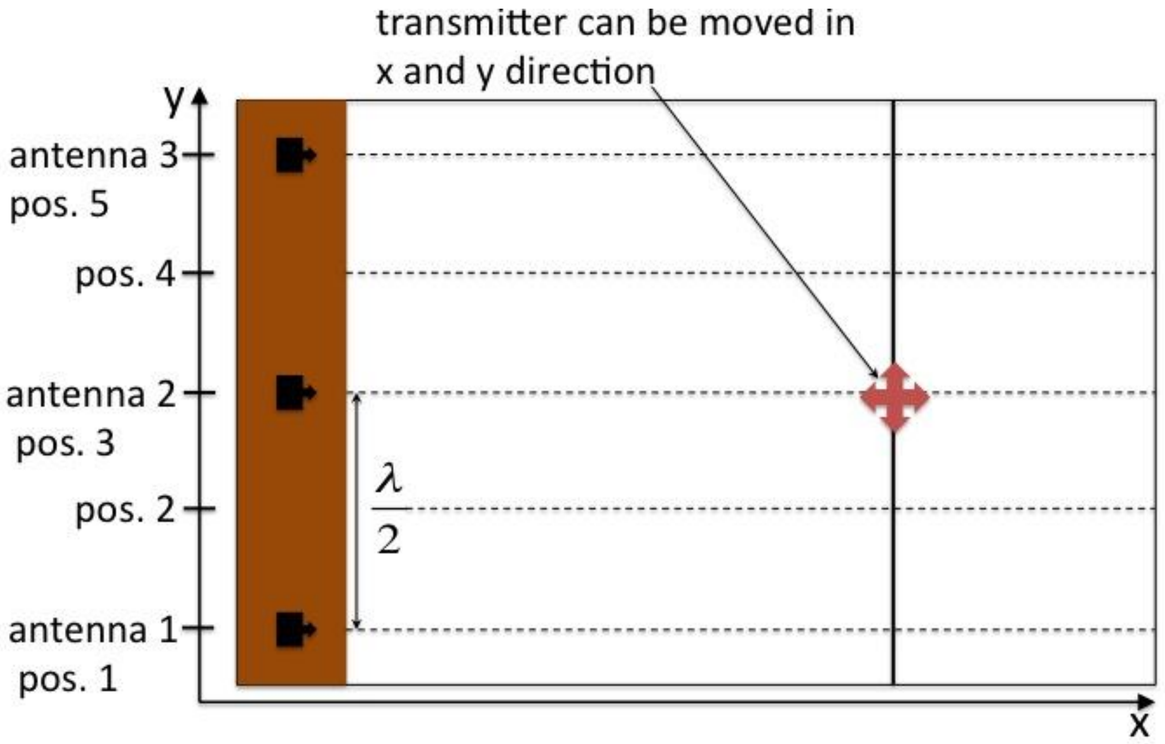
[Ausgewählte Positionen nach Wahrscheinlichkeit ihrer Automatisierung, Frey& Osborne, Oxford University 2015/ Bloomberg infographic.

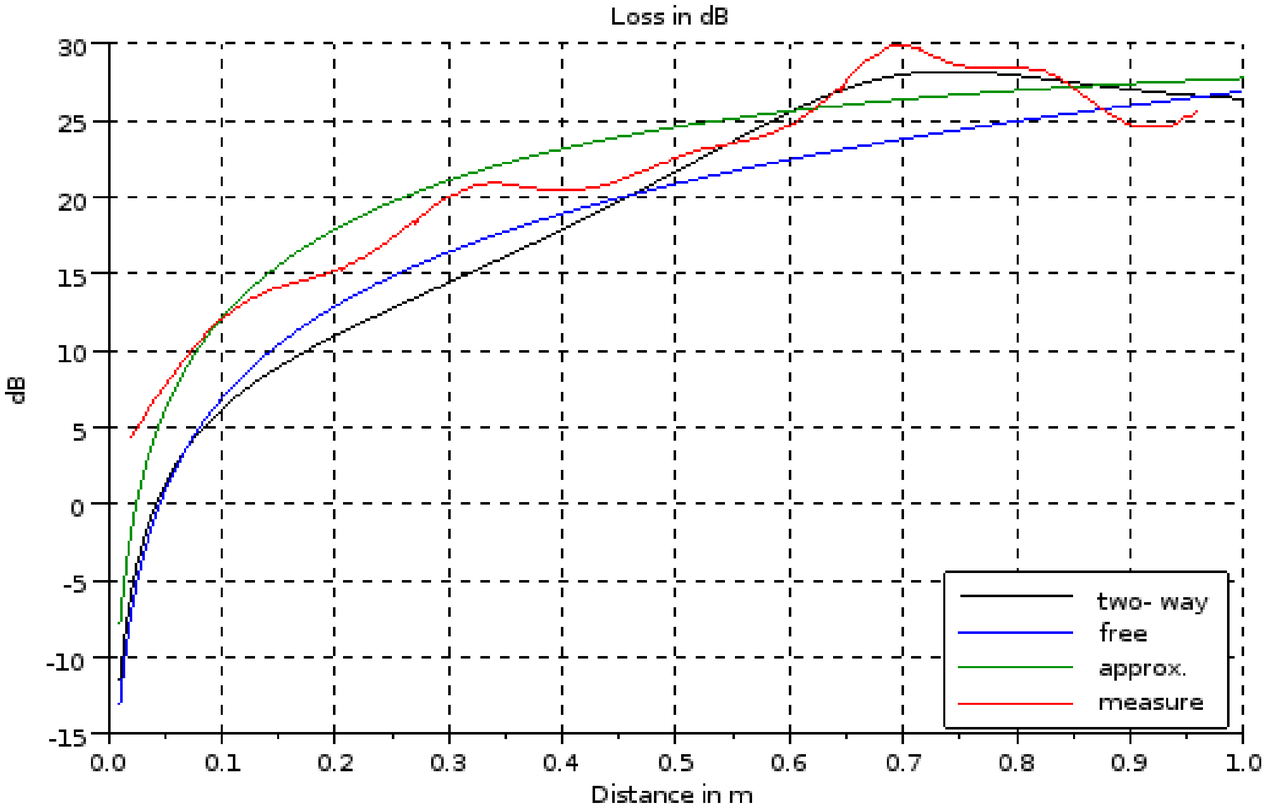



LPT 1
Com 2
VGA
Joystick
Com 1

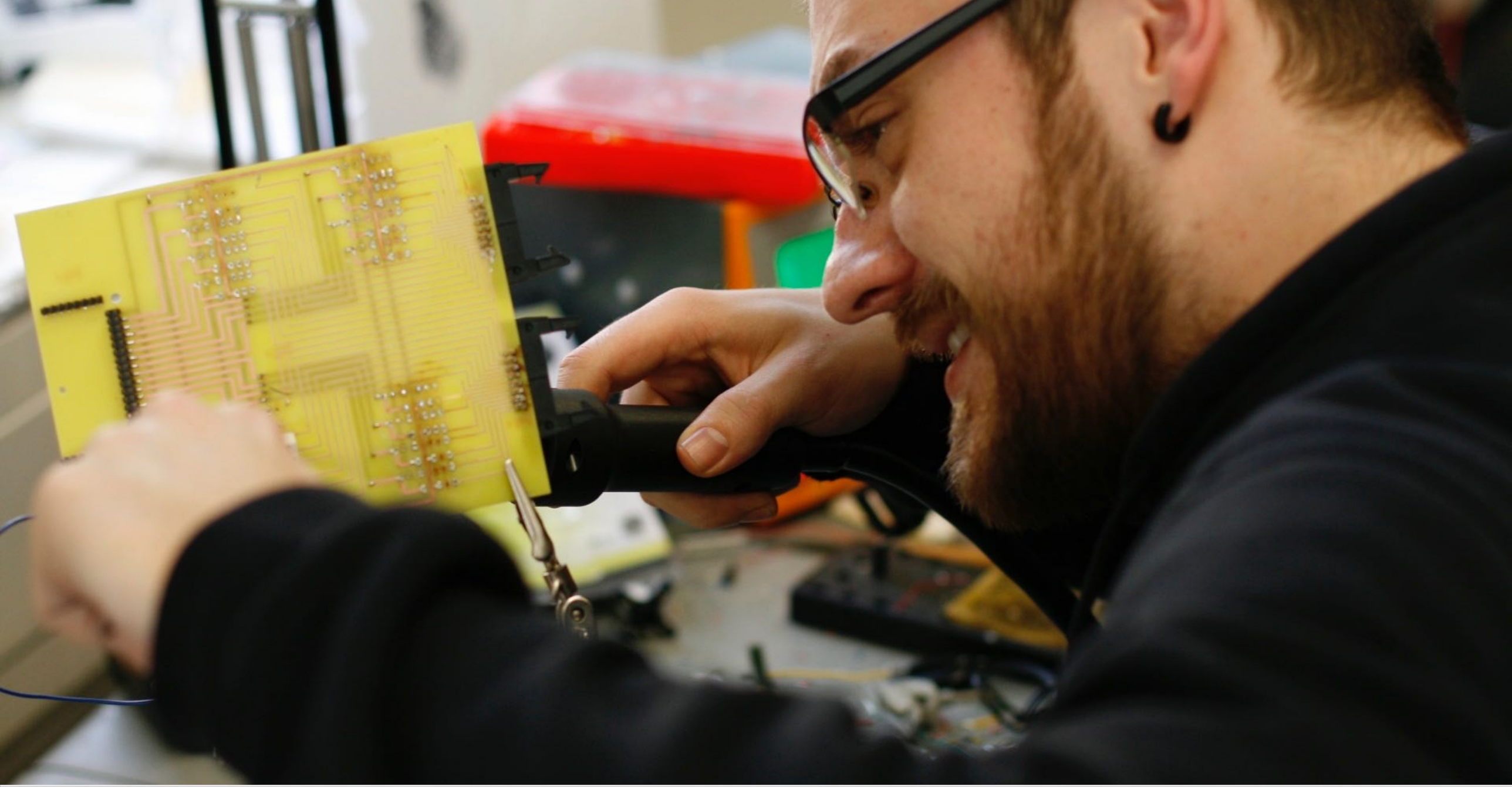
Analysis of the Radio Propagation Model at RFID Applications

$$L_{mp} = g_s g_r \left(\frac{4\pi d}{\lambda}\right)^2 / \left|1 + \sum_{n=1}^{N} \Gamma_n \frac{d}{d_n} e^{-jk(d_n - d)}\right|^2$$





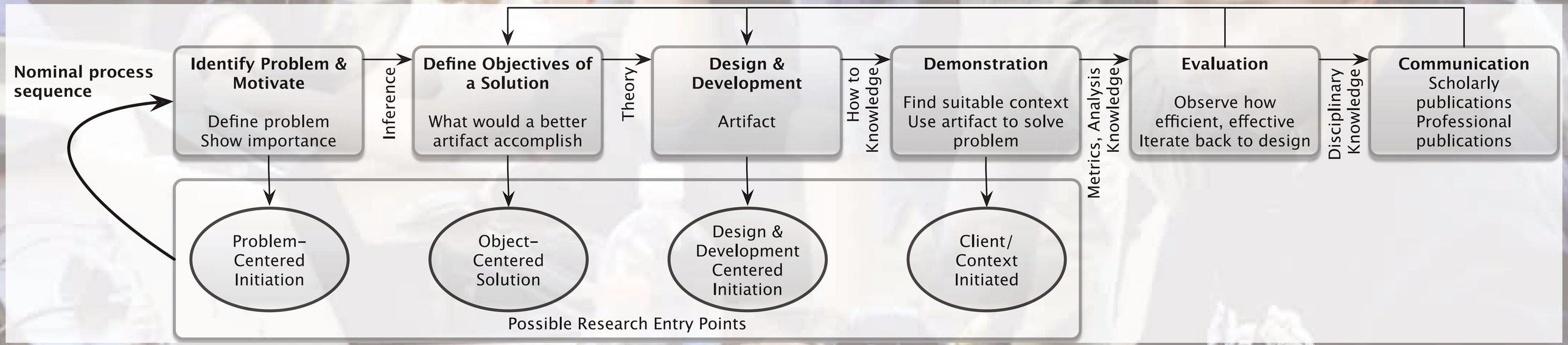
Friedewald, O., Papenbroock, J., Herzog, M.: Analysis of the Radio Propagation Model at RFID Applications
In: VDE ITG/IEEE European Conference on Smart Objects, Systems and Technologies, Smart Systec 2013



Hatscher, B., Herzog, M.: Partikel- oder Wellensimulation? Zwei Ansätze zur Indoor-Lokalisierung auf Basis passiver RFID-Technik. Von der Digitalen Fabrik zu Industrie 4.0, Multikonferenz Wirtschaftsinformatik (MKWI) 2016


h 2
Hochschule
Magdeburg • Stendal
SPIRIT
Ortung starten

Forschung und Entwicklung im Klassenzimmer (Design Science Research)



Peffers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A design science research methodology for information systems research. Journal of management information systems, 24(3), 45-77.

L.u.m.e.N.

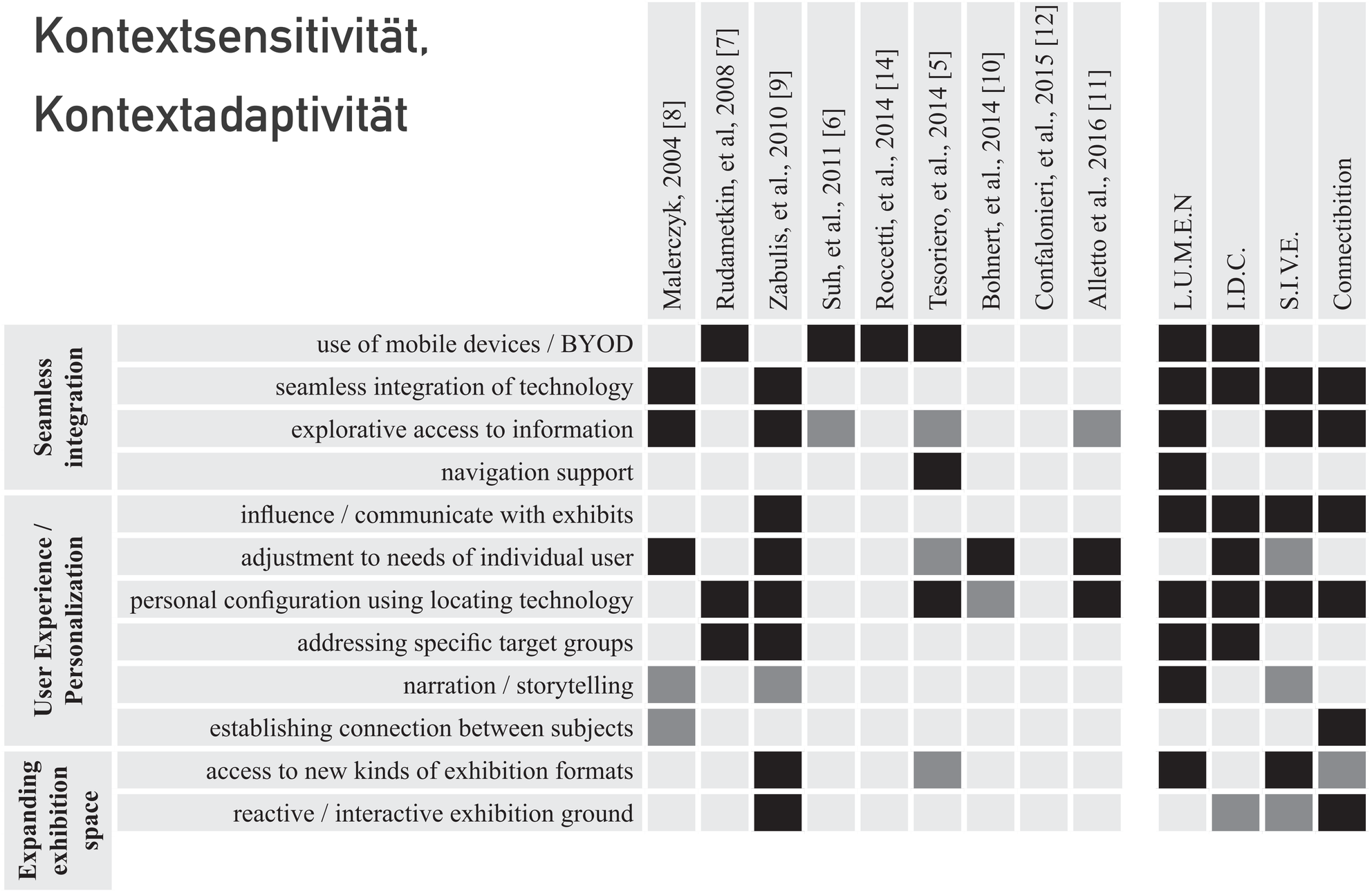
Hochschule Magdeburg • Stendal


Project **Extended Exhibition**, Jens Wunderling, Michael Herzog et. al. 2016
L.U.M.E.N Mareike Gabele, Robert Klank, Nicolas Pepping, Eric Schmieder
https://medium.com/extended-exhibition

Project **Winkelmann 2017**, Dominik Schumacher, Michael Herzog et. al. 2016

Torso AR Victoria Batz, Finn Blümel, BJonas Falkenberg, Elisa Haubert

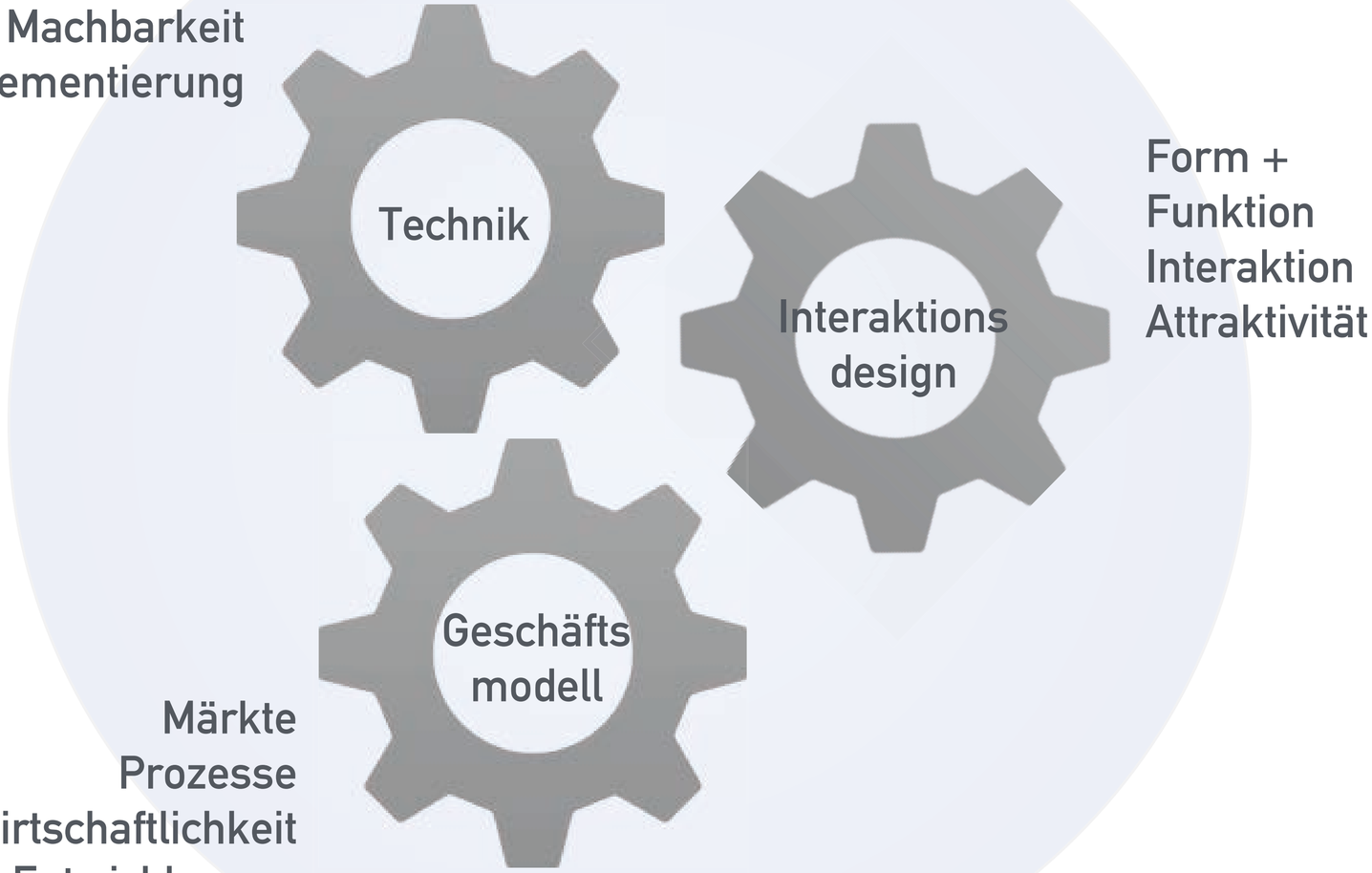
Kontextsensitivität, Kontextadaptivität



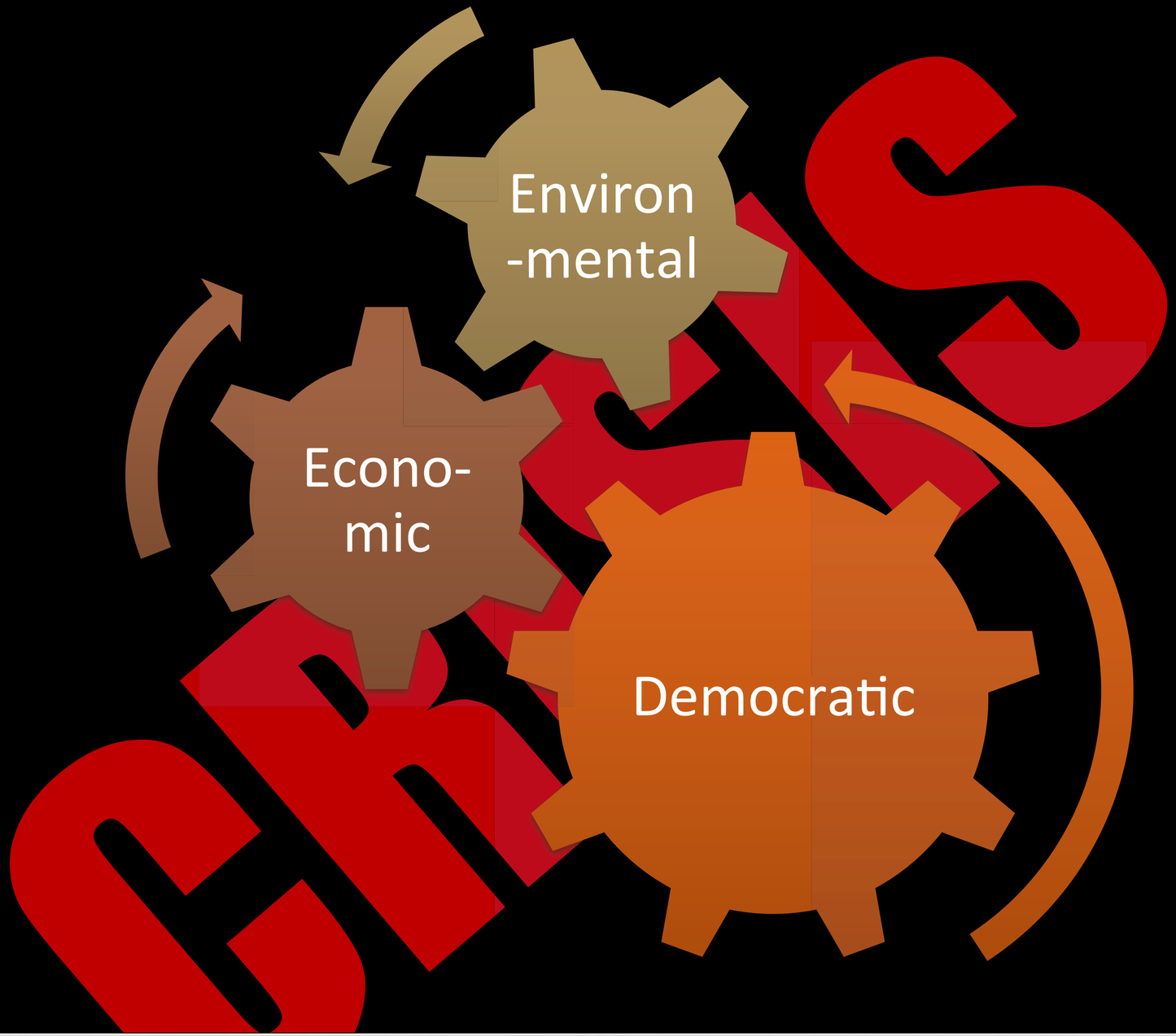
Herzog, M.A., Wunderling, J., Gabele, M., Klank, R., Landenberger, M., Pepping, N.: Context Driven Content Presentation for Exhibition Places. Four Interaction Scenarios Developed for Museums. Electronic Imaging & the Visual Arts Conference EVA 2016, St. Petersburg


HUGO
JUNKERS
PREIS
SACHSEN-ANHALT
Ministerium für Wirtschaft,
Wissenschaft und Digitalisierung

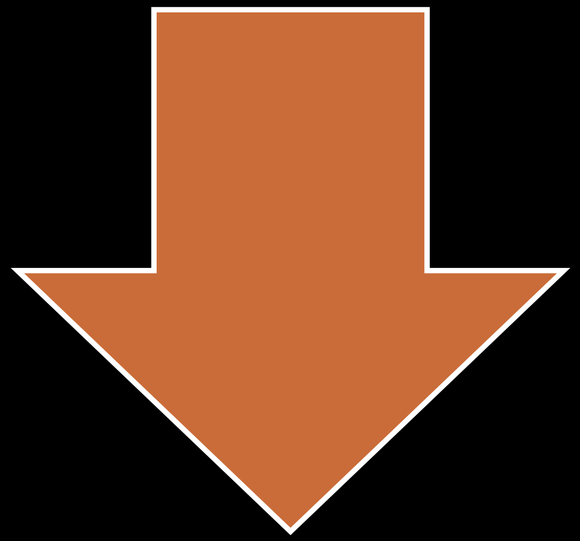
»PRODUKT«


Machbarkeit
Implementierung
Technik
Interaktions
design
Form +
Funktion
Interaktion
Attraktivität
Geschäfts
modell
Märkte
Prozesse
Wirtschaftlichkeit
Gesellschaftliche Entwicklungen

2 Ökonomischer Kontext

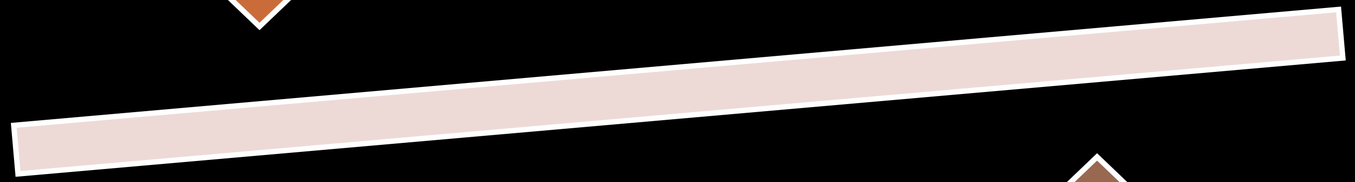


[Jesse Marsh: think virtually local ecologies of new economic models. EcoCom, 08/11/2013, Berlin, Germany]



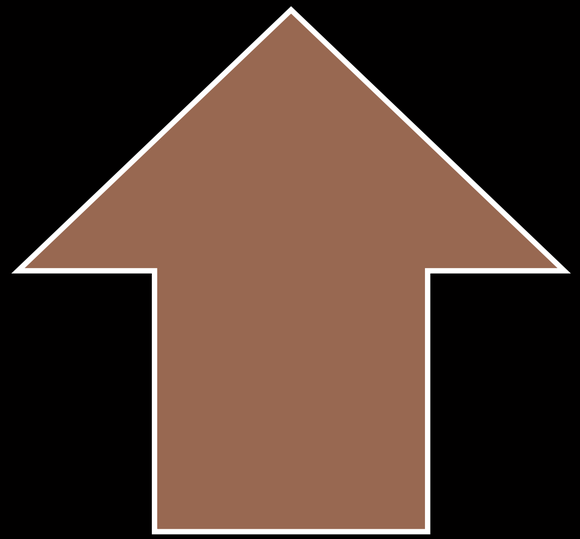
Macro

- Globalisation
- Financialisation
- Growth imperative

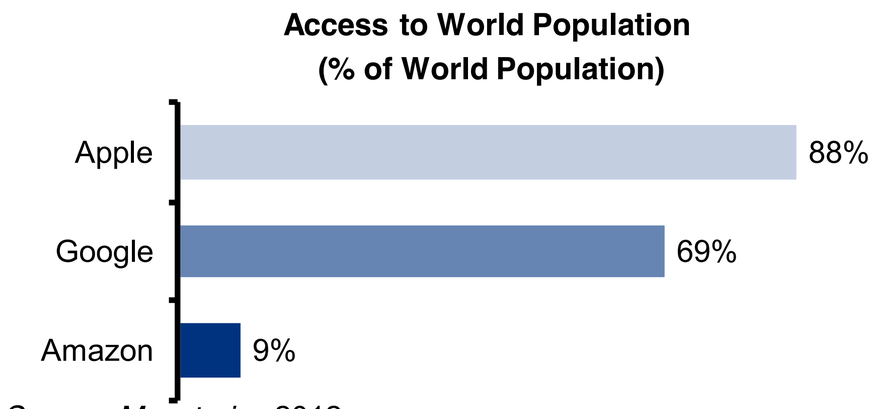


Micro

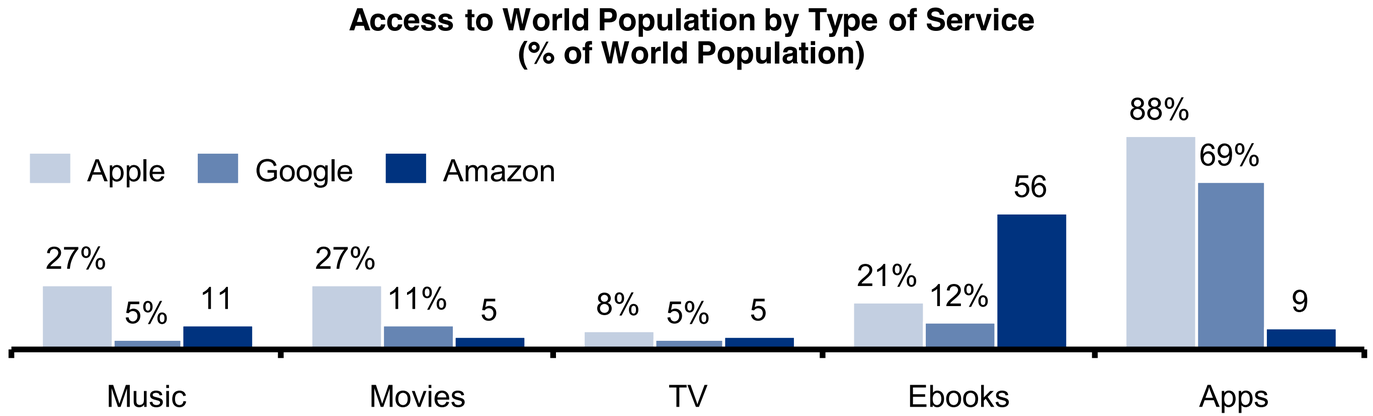
- Local economies
- De-monetisation
- Survival



[Jesse Marsh: think virtually local ecologies of new economic models. EcoCom, 08/11/2013, Berlin, Germany]



Source: Macstories 2012



Player	Cloud Services	Connected Devices	Sales Channels and Billing	On-demand content	Value-add Services	Targeted Advertising
Apple	◑	●	●	●	◑	◑
Google	●	●	●	●	◕	●
amazon.com and you're done.	◕	◑	●	●	◑	◕

Source: Detecon Analysis (2012)

○ Very Poorly Positioned ◔ Weakly Positioned ◑ Average Position ◕ Well Positioned ● Very Well Positioned

Traditional business

- We are competing
- Market regulations

Emergent ecosystems

- We are collaborating
- Ethical principles

[Jesse Marsh: think virtually local ecologies of new economic models. EcoCom, 08/11/2013, Berlin, Germany]

Device Convergence Timeline

	2005	2010	2015
Vision	One Bill, Triple Play 	One Device, 1000s of Apps 	One Ecosystem, 10s of Screens 
Focal Point	Network	Device	Ecosystems
Compete Based On	Price of Service	Number of Apps	Experience Roaming

[Grafik: Detecon, Daniel Kellmereit, 2014]

Dienstleistungssystem

Content Erstellung

Administration

Monitoring, Steuerung der Accounts

BIG DATA Analyse

Location and Context Based AdverAsing

Merchandizing Anbindung

BYOD

Vor Ort Installation

Betrieb / Infrastruktur

Support

Kernkompetenzen

CCM Plattform

Forschung & Entwicklung

Business Development

Predictive Analytics

L.u.m.e.N. AG

Management der Produktion

Basisleistungen Outsourcing

Datacenter

Sicherheit/ Datenschutz

Web Hosting

Kunden

Freizeitparks

Tourismus büros

Museen

Vor 10 Jahren:
Vorstellung des iPhone 1

What Makes the iPhone so Smart?

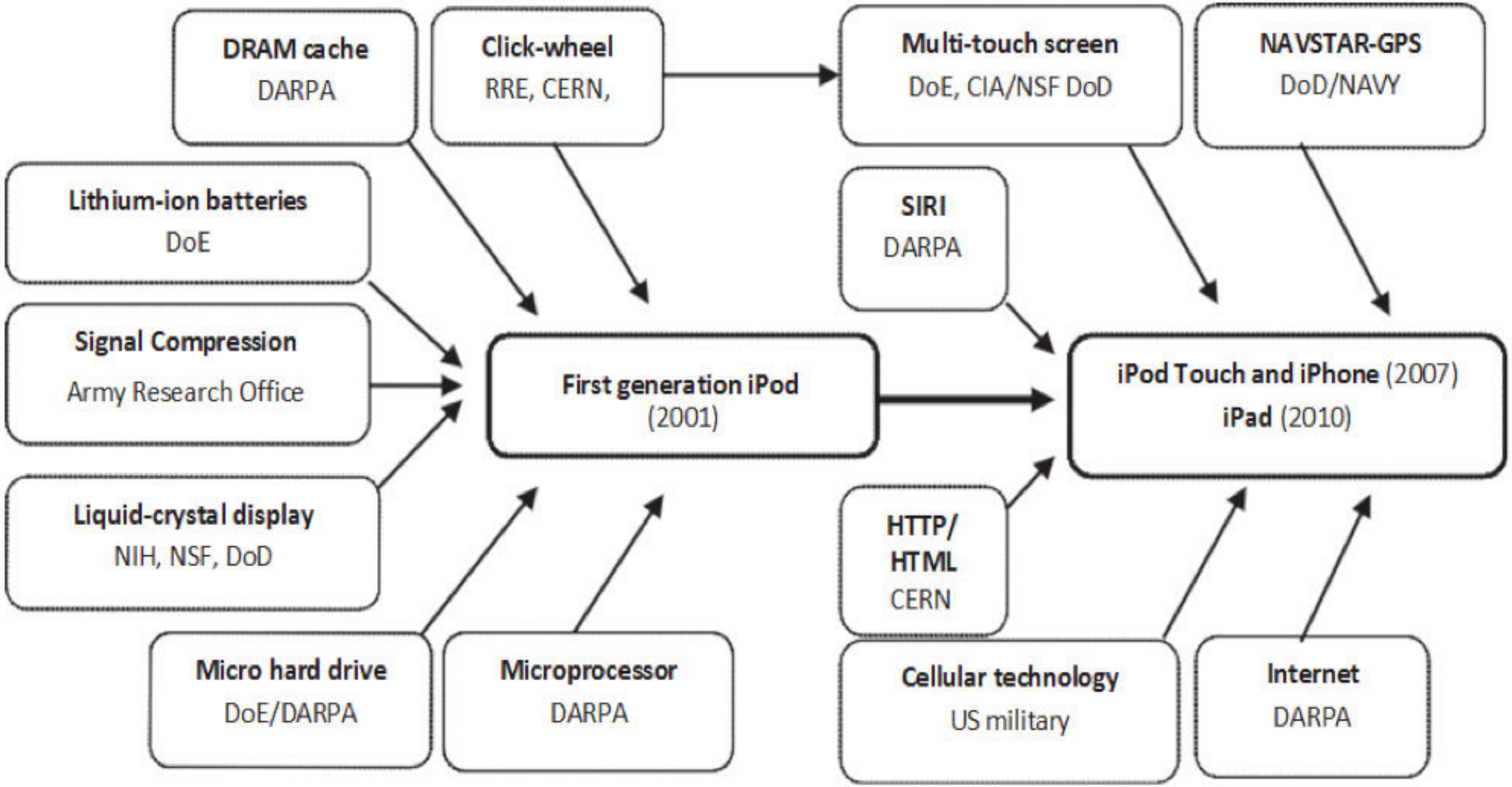
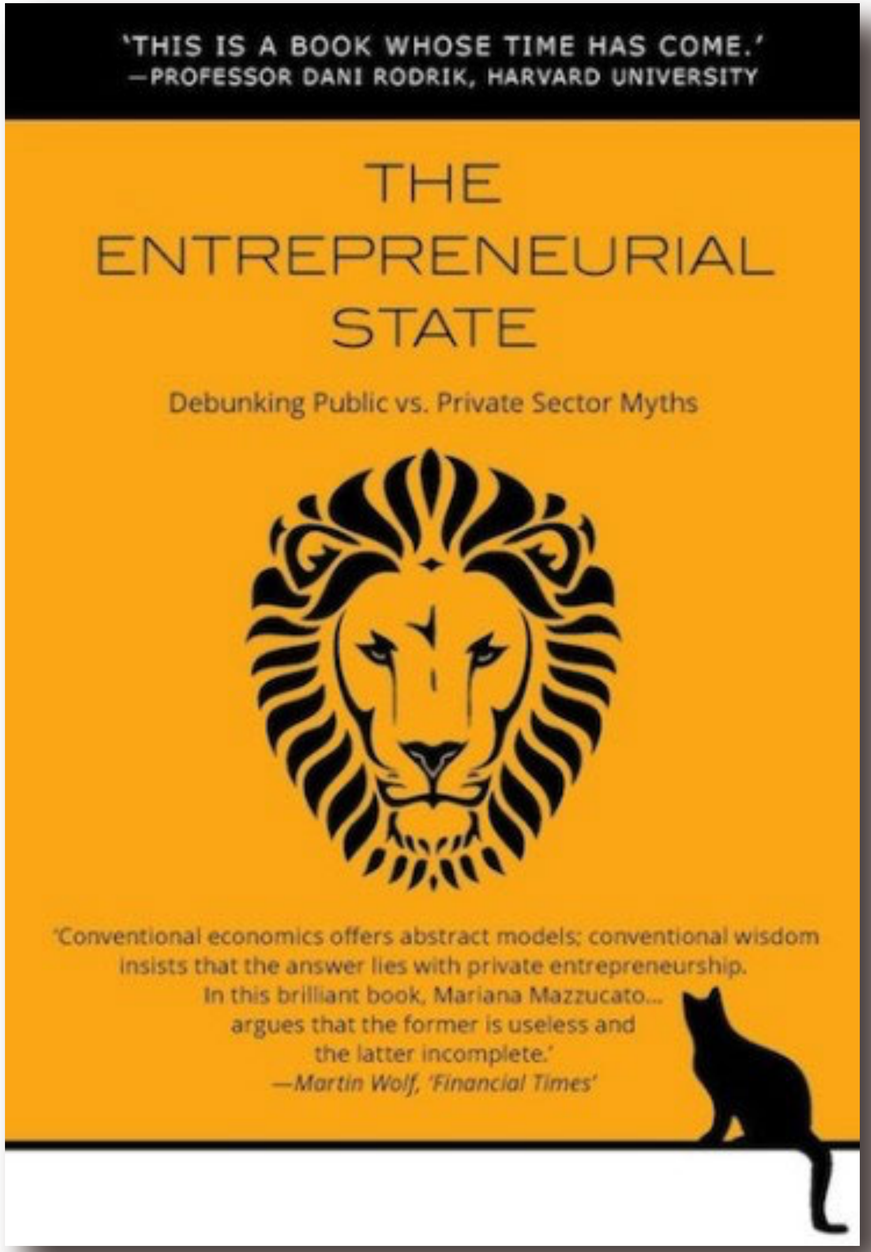
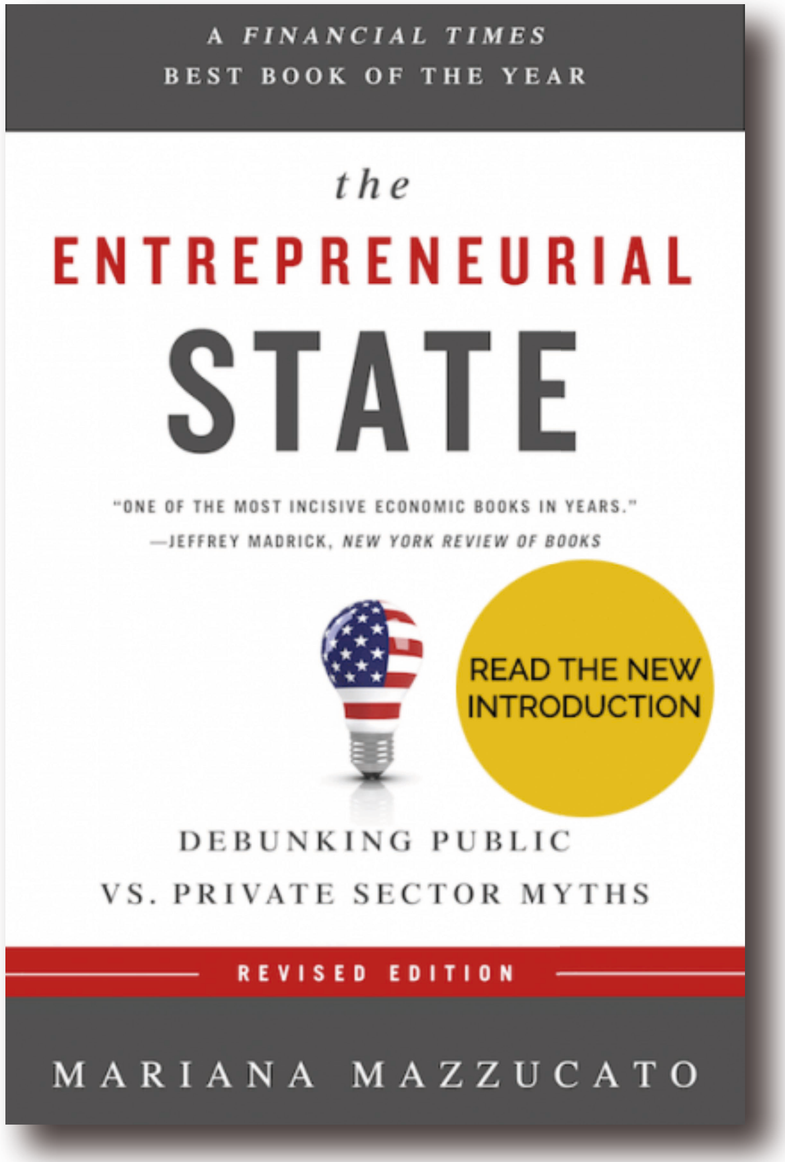


Figure 13 from The Entrepreneurial State: debunking public vs. private sector myths (2015, p. 116)

http://marianamazzucato.com/the-entrepreneurial-state/





The myth of a lumbering, bureaucratic state versus a dynamic, innovative private sector.

http://marianamazzucato.com/the-entrepreneurial-state/

Weitere Zutat: »Sociality«

Wenn Geld die Währung des Geldmarkts ist,
was ist die Währung der »Social Markets«?

- VERTRAUEN

[Matthias Trier: Sociality of Online Market Interaction: Challenges and Implications. EcoCom, 08/11/2013, Berlin, Germany]

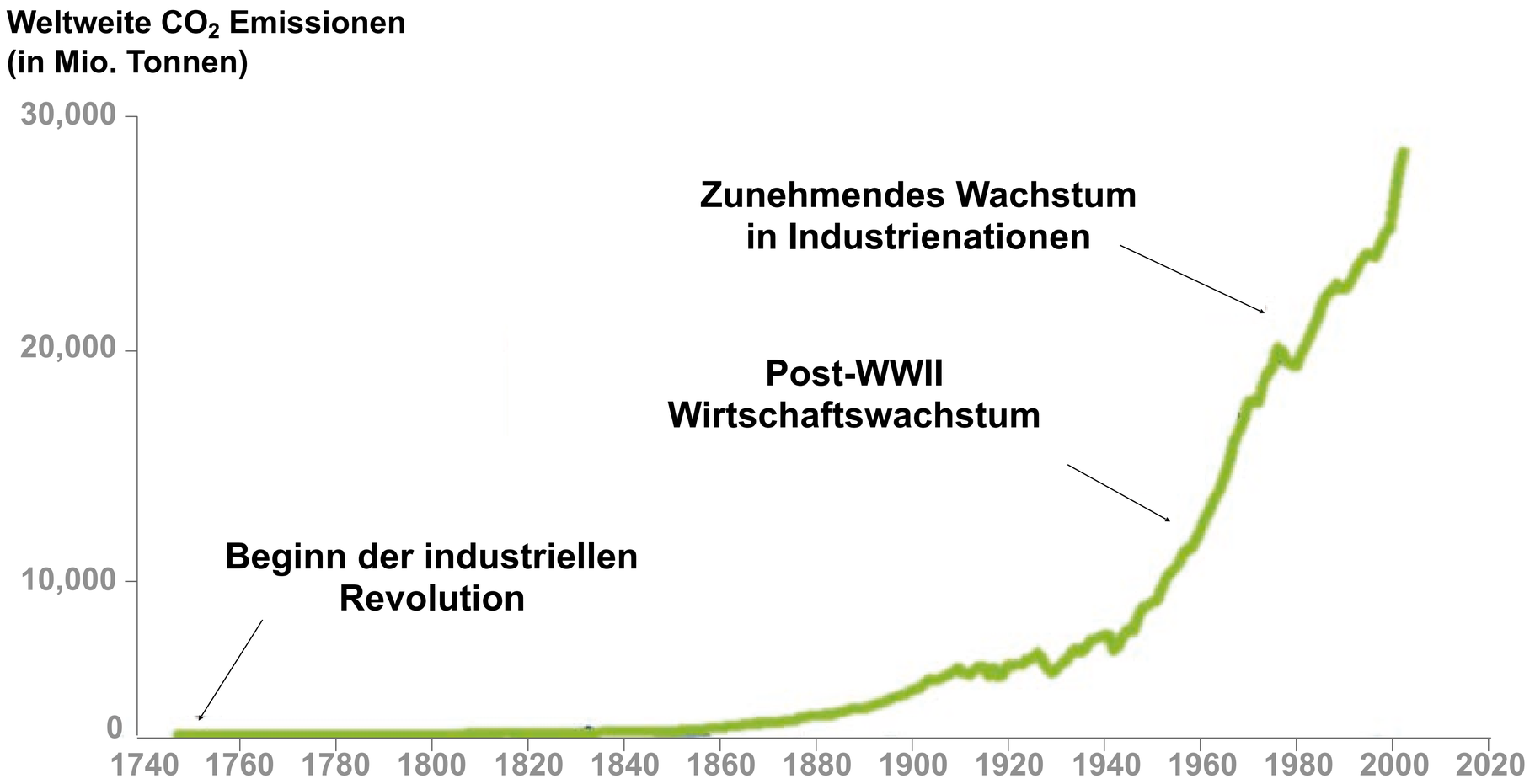
3

Digitalisierung als Instrument für mehr Nachhaltigkeit?

- Warum das nicht so einfach ist

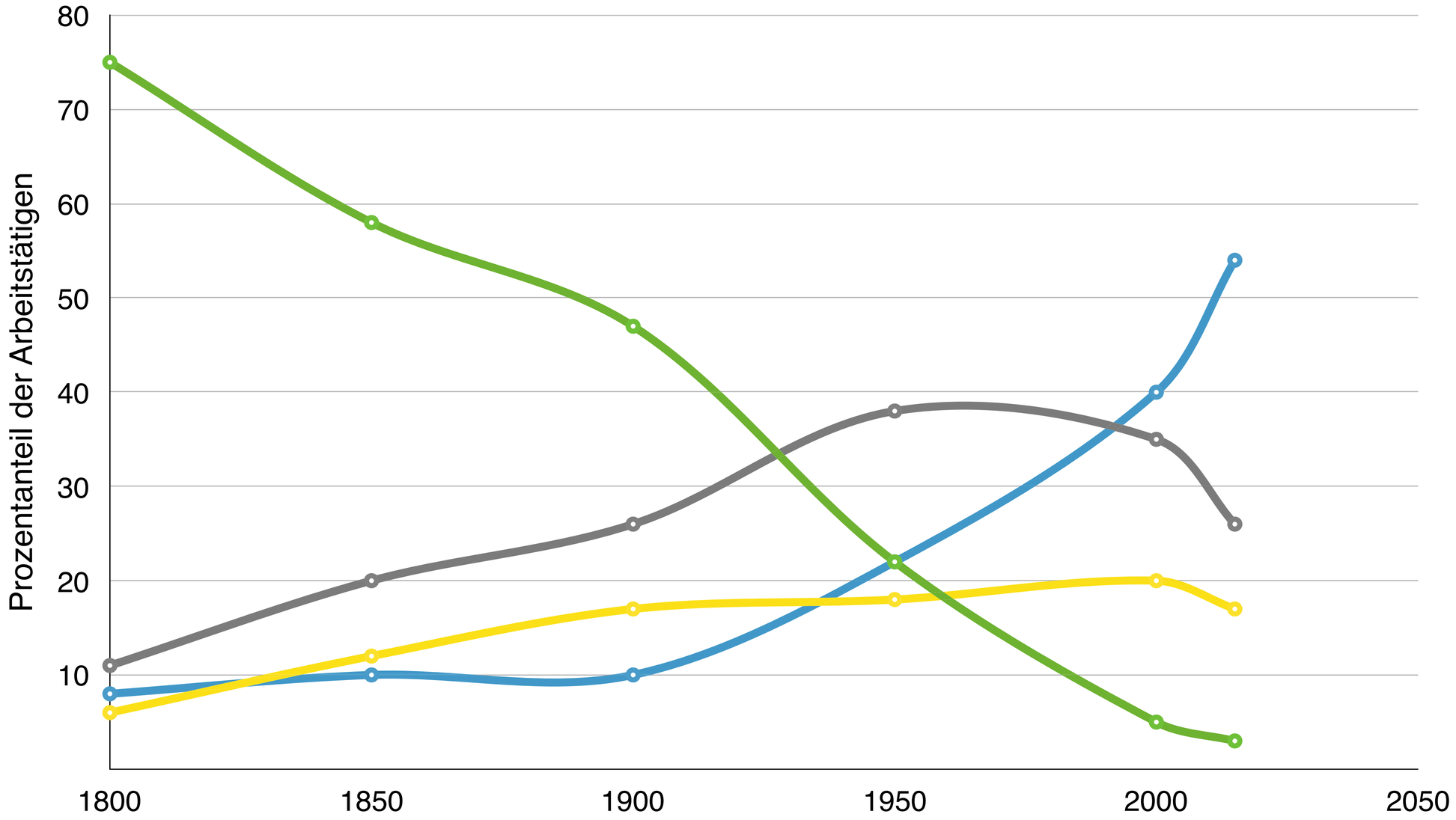
Welche Nachhaltigkeitseffekte können mit der Informations- und Kommunikationstechnik erzeugt werden?

Seit Beginn der industriellen Revolution wuchs der weltweite CO_2-Austoß auf 32.000 Mio. Tonnen im Jahr 2012



[Arnold Picot, Stefan Hopf: ICT as an Instrument for More Sustainability: Why It Is Not That Simple. In Herzog, M.A.: Economics of Communication. ICT Driven Fairness and Sustainability for Global and Local Marketplaces, GITO 2015] GeSI (2012)

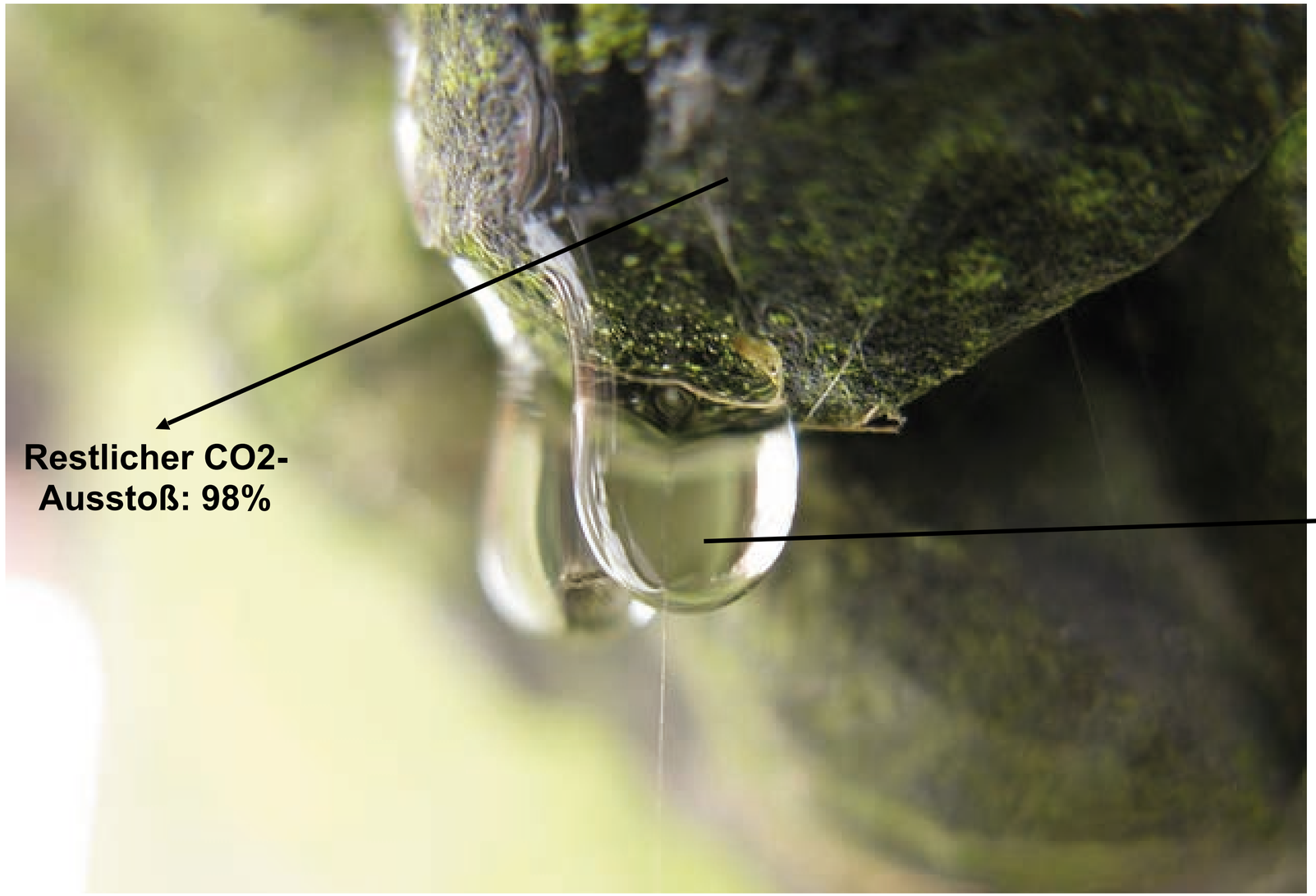
Arbeitsmarkt (Langfristiger Strukturwandel nach Gries)

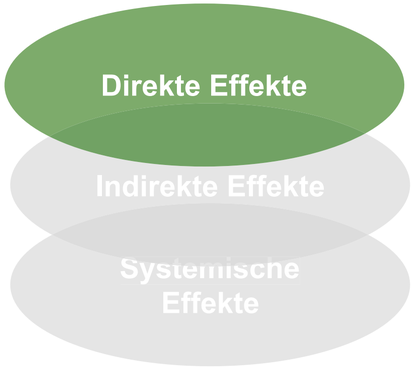


[Gries, W.: Dienstleistungen für das 21. Jh – Chancen nutzen, Risiken bewältigen. In: Bullinger, H-J. (Hrsg.): Dienstleistungen der Zukunft – Mäkte, Unternehmen und Infrastrukturen im Wandel, S. 3-23, Gabler 1995]
Ergänzt durch akkumulierte Daten des statistischen Bundesamtes vom September 2000 und September 2015

[Michael Rost 2015 Folien Ringvorlesung: Mit Wachstum in die Katastrophe, S. 98]

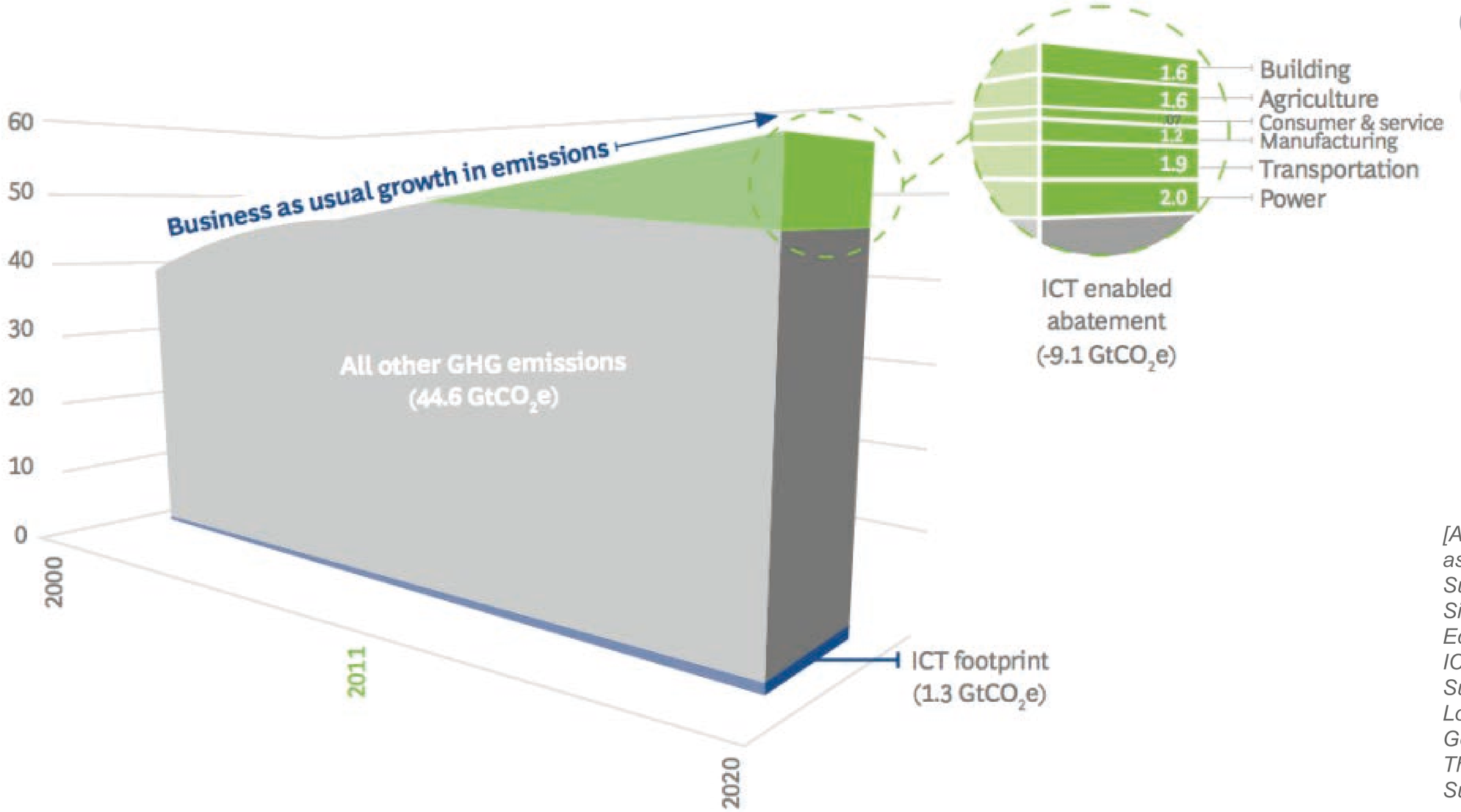
Der Anteil von Informations- und Kommunikationstechnologien am gesamten CO_2-Ausstoß beträgt ca. 2%

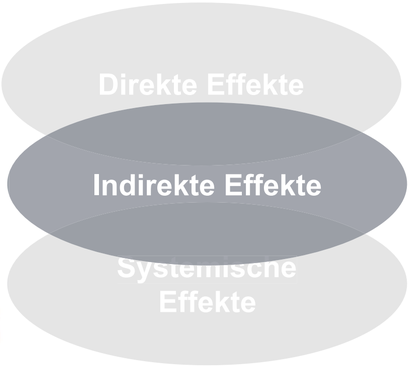




[Arnold Picot, Stefan Hopf: ICT as an Instrument for More Sustainability: Why It Is Not That Simple. In Herzog, M.A.: Economics of Communication. ICT Driven Fairness and Sustainability for Global and Local Marketplaces, GITO 2015]; GeSI (2012)

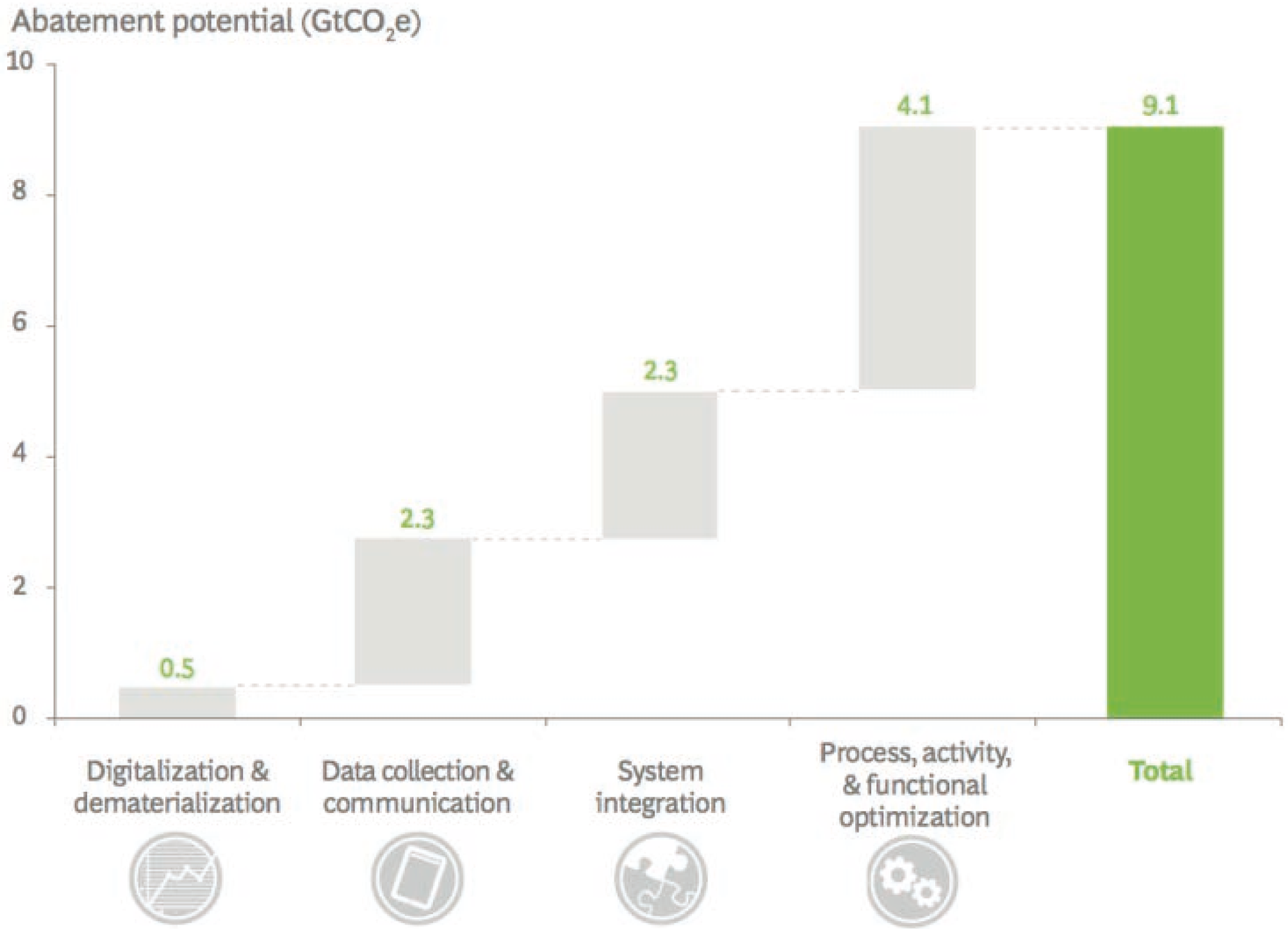
Experten erwarten durch IKT insgesamt ein erhebliches CO_2-Einsparungspotential von ca. 16,5% (9,1 $GtCO_2$) in anderen Sektoren

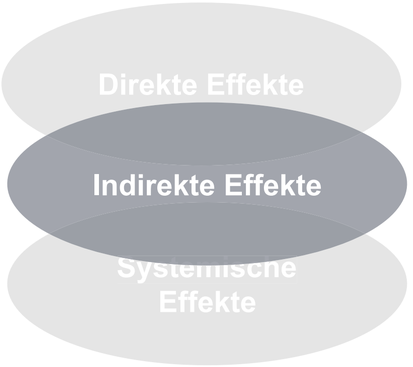




[Arnold Picot, Stefan Hopf: ICT as an Instrument for More Sustainability: Why It Is Not That Simple. In Herzog, M.A.: Economics of Communication. ICT Driven Fairness and Sustainability for Global and Local Marketplaces, GITO 2015]; GeSI SMARTer2020: The Role of ICT in Driving a Sustainable Future, 2012, online

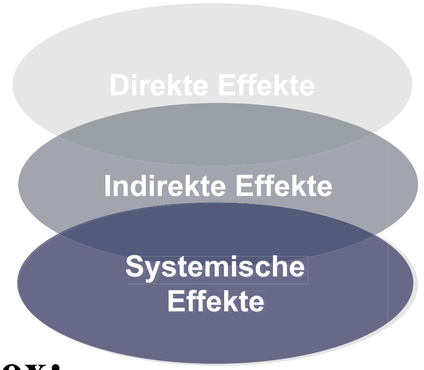
Der CO_2-Austoß von IKT kann hauptsächlich durch Virtualisierung wie z. B. Cloud Computing, aber auch durch Effizienzzuwächse verringert werden

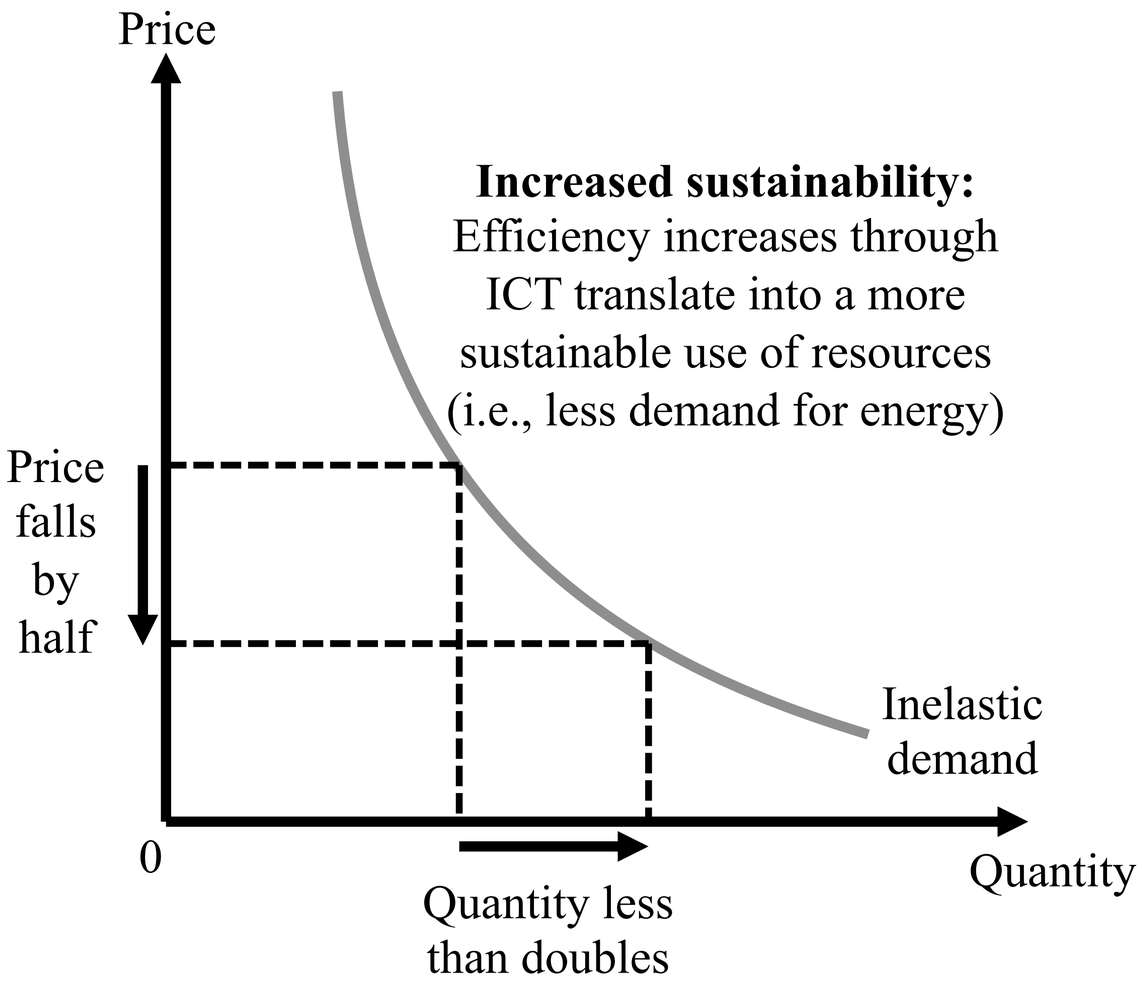


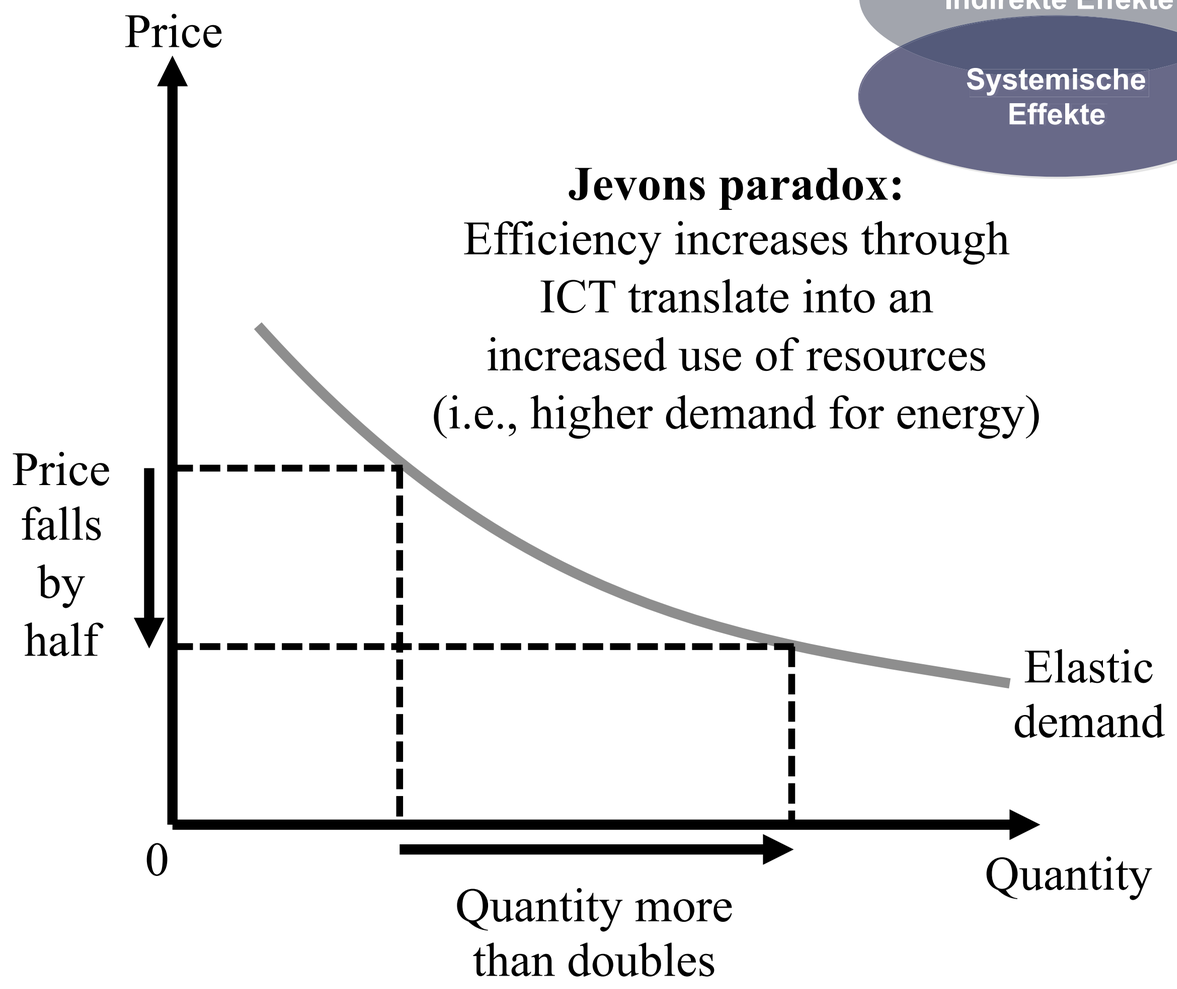


[Arnold Picot, Stefan Hopf: ICT as an Instrument for More Sustainability: Why It Is Not That Simple. In Herzog, M.A.: Economics of Communication. ICT Driven Fairness and Sustainability for Global and Local Marketplaces, GITO 2015]; GeSI SMARTer2020: The Role of ICT in Driving a Sustainable Future, 2012, online

Der Rebound Effekt

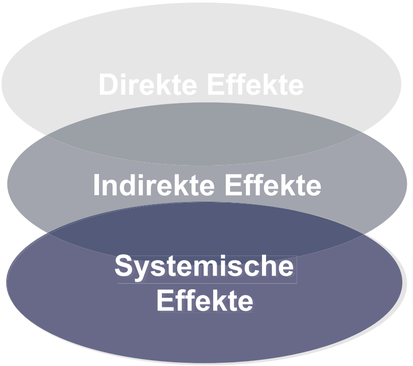




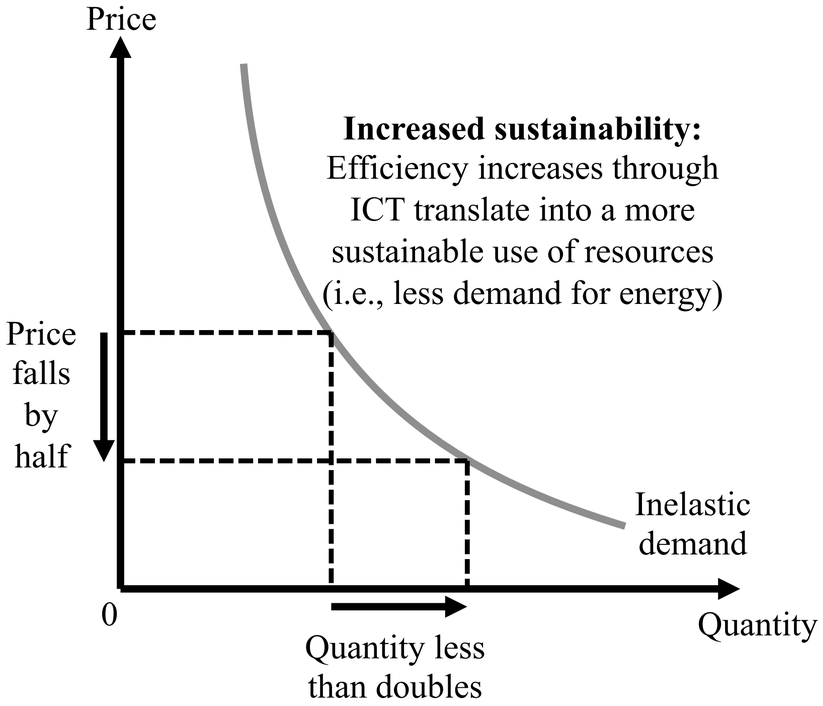


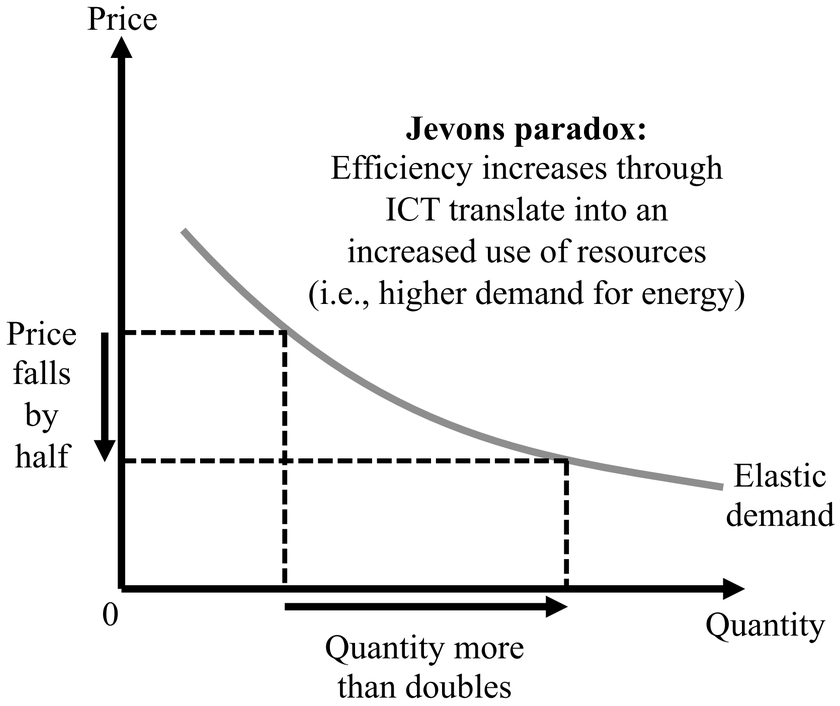
[Arnold Picot, Stefan Hopf:: ICT as an Instrument for More Sustainability: Why It Is Not That Simple. In Herzog, M.A.: Economics of Communication. . ICT Driven Fairness and Sustainability for Global and Local Marketplaces, GITO 2015];

Der Rebound Effekt



- Jevons‘ Paradox: Technologischer Fortschritt, der eine effizientere Ressourcenverwendung ermöglicht, kann letztlich zu einer erhöhten Nutzung (statt Reduktion) dieser Ressourcen führen (Rebound-Effekt)

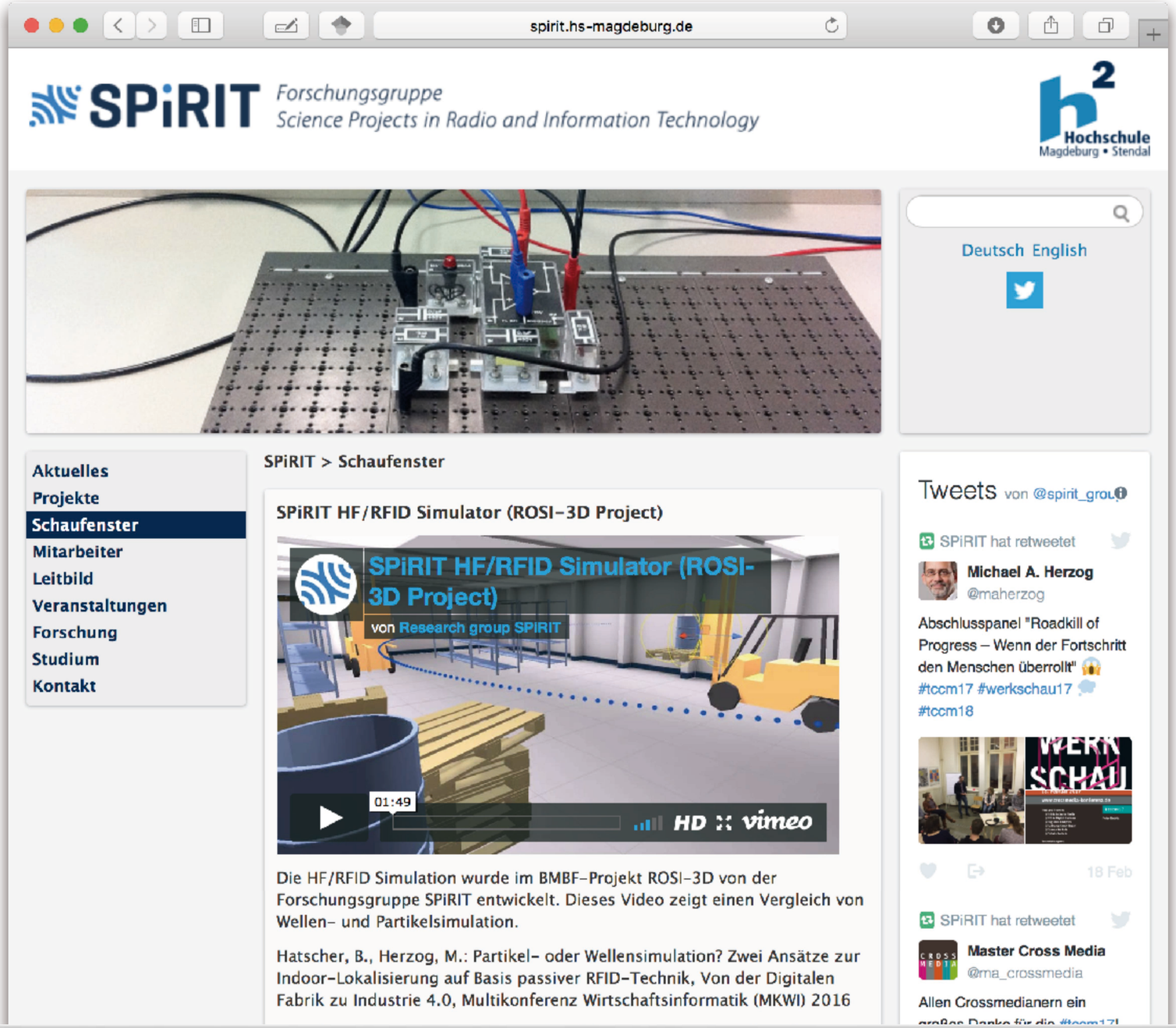




[ebenda]

Mehr davon:

Michael A.Herzog (ed):
Economics of Communication.
ICT Driven Fairness and Sustainability for Global and Local Marketplaces, GITO 2015



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http://spirit.hs-magdeburg.de

twitter: @spirit_group ; @maherzog

Vielen Dank für Ihr Interesse!