

# Do we Require an Ethics of Data Science?

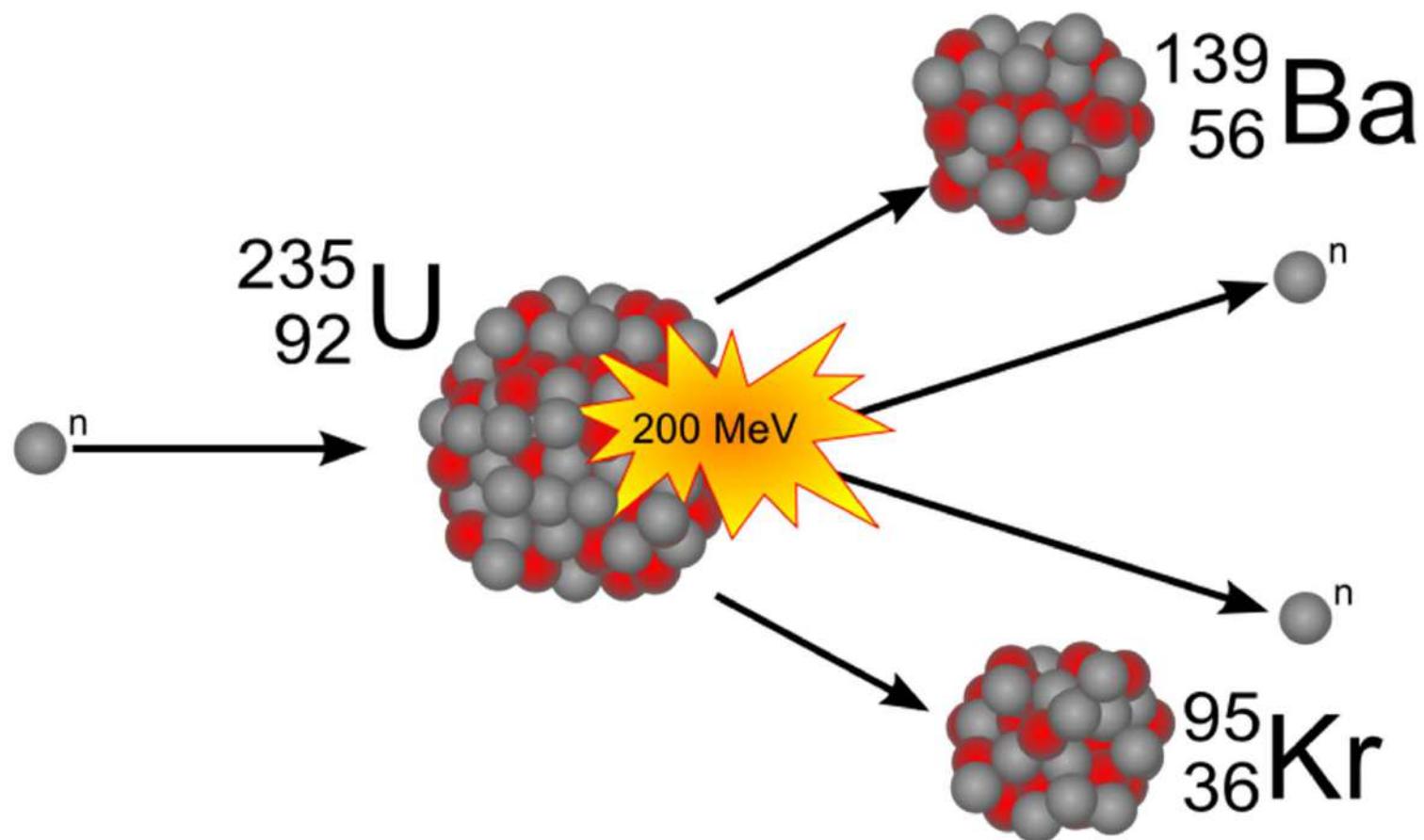
**clemens.cap@uni-rostock.de**

# Clemens H. Cap



Von J Brew - originally posted to Flickr as Nuclear Fission Deutsches Museum, CC BY-SA 2.0, <https://commons.wikimedia.org/w/index.php?curid=4291036>

[https://upload.wikimedia.org/wikipedia/commons/2/23/Nuclear\\_Fission\\_Experimental\\_Apparatus\\_1938\\_-\\_Deutsches\\_Museum\\_-\\_Munich.jpg](https://upload.wikimedia.org/wikipedia/commons/2/23/Nuclear_Fission_Experimental_Apparatus_1938_-_Deutsches_Museum_-_Munich.jpg)





Von United States Department of Energy - This image is available from the National Nuclear Security Administration Nevada Site Office Photo Library under number XX-33. This tag does not indicate the copyright status of the attached work. A normal copyright tag is still required., Gemeinfrei, <https://commons.wikimedia.org/w/index.php?curid=443729>



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<https://www.theguardian.com/world/ng-interactive/2015/aug/05/hiroshima-nuclear-guide-anniversary-atomic-bomb>



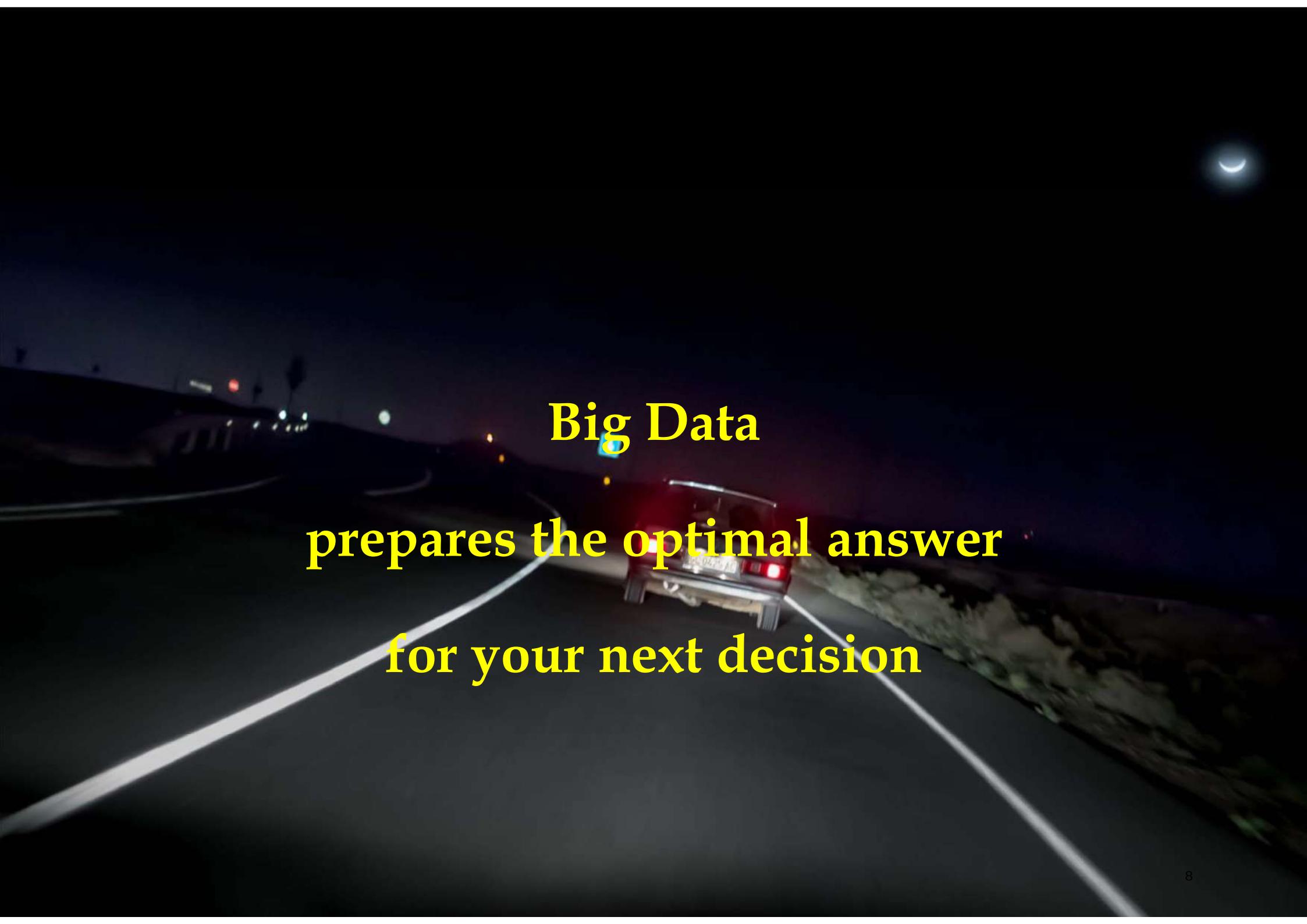
**Do not use this  
in armed conflicts**

Public Domain, <https://commons.wikimedia.org/w/index.php?curid=2558099>

<https://www.theguardian.com/world/ng-interactive/2015/aug/05/hiroshima-nuclear-guide-anniversary-atomic-bomb>

A dense word cloud visualization representing various topics in data science and related fields. The words are colored in shades of red, orange, yellow, and white, with larger words indicating higher frequency or importance. Key themes include:

- Data Science**: A central topic, appearing in multiple variations like "data science", "predictive learning", and "data mining".
- Machine Learning**: A major area, with sub-topics like "graph mining", "clustering", "classification", and "learning".
- Data Mining**: Another central theme, with terms such as "data mining", "clustering", "mining", and "mining".
- Analytics**: A significant component, with "analytics" appearing prominently and associated with "data", "web", and "social networks".
- Web**: A key element, with "web" appearing in several contexts including "advertising", "discovery", and "text mining".
- Graph**: A specialized topic, with "graph" appearing in "graph mining", "graph analytics", and "graph degeneracy".
- Clustering**: A specific technique, with "clustering" appearing in "data mining" and "data science".
- Machine Learning**: A broad field, with "machine learning" appearing in "data science", "predictive learning", and "data mining".
- Big Data**: A emerging trend, with "big data" appearing in "data science", "distributed", and "new".
- Search**: A related field, with "search" appearing in "text", "fuzzy", and "semantic".
- Classification**: A specific method, with "classification" appearing in "data mining".
- Databases**: A supporting technology, with "databases" appearing in "data mining".
- Efficiency**: An important metric, with "efficient" appearing in "data mining".
- Uncertainty**: A challenge, with "uncertainty" appearing in "data mining".
- Caching**: A technique, with "caching" appearing in "data mining".
- Polytechnique**: A specific institution, with "polytechnique" appearing in "data mining".
- Ranking**: A method, with "ranking" appearing in "data mining".
- Semantic**: A layer, with "semantic" appearing in "data mining".
- Engineering**: A discipline, with "engineering" appearing in "data mining".
- Industrial**: An application area, with "industrial" appearing in "data mining".
- New**: A future-oriented term, with "new" appearing in "data mining".
- Generation**: A generational concept, with "generation" appearing in "data mining".
- Processing**: A workflow step, with "processing" appearing in "data mining".
- Querying**: A retrieval method, with "querying" appearing in "data mining".
- Limiting**: A constraint, with "limiting" appearing in "data mining".
- Master**: A role, with "master" appearing in "data mining".
- Check**: A validation step, with "check" appearing in "data mining".
- Big**: A scale, with "big" appearing in "data mining".
- Mobile**: A device type, with "mobile" appearing in "data mining".
- Text**: A data type, with "text" appearing in "data mining".
- Machine**: A component, with "machine" appearing in "data mining".
- Learning**: A process, with "learning" appearing in "data mining".
- Social Networks**: A network type, with "social networks" appearing in "data mining".
- Personalization**: A user-specific feature, with "personalization" appearing in "data mining".
- Information**: A resource, with "information" appearing in "data mining".
- Validation**: A quality assurance step, with "validation" appearing in "data mining".
- Design**: A creative process, with "design" appearing in "data mining".
- Systems**: A technical infrastructure, with "systems" appearing in "data mining".
- Projects**: A group of tasks, with "projects" appearing in "data mining".
- XML**: A data format, with "xml" appearing in "data mining".
- Organized**: A state, with "organized" appearing in "data mining".
- Community**: A social group, with "community" appearing in "data mining".
- Composition**: A structural element, with "composition" appearing in "data mining".
- Retrieval**: A search method, with "retrieval" appearing in "data mining".
- Schneider**: A person's name, with "schneider" appearing in "data mining".
- Presented**: A verb, with "presented" appearing in "data mining".
- Virtual**: A state, with "virtual" appearing in "data mining".
- Algorithms**: A set of rules, with "algorithms" appearing in "data mining".
- Retrieval**: A search method, with "retrieval" appearing in "data mining".
- Details**: A specific information, with "details" appearing in "data mining".
- Extraction**: A process, with "extraction" appearing in "data mining".
- Intell**: A prefix, with "intell" appearing in "data mining".
- Web Advertising**: A specific field, with "web advertising" appearing in "data mining".
- Discovery**: A search method, with "discovery" appearing in "data mining".
- Text Mining**: A specific field, with "text mining" appearing in "data mining".
- Dimensionality**: A data characteristic, with "dimensionality" appearing in "data mining".
- Networks**: A complex system, with "networks" appearing in "data mining".
- Modeling**: A process, with "modeling" appearing in "data mining".
- Semantics**: A meaning layer, with "semantics" appearing in "data mining".
- Management**: A control function, with "management" appearing in "data mining".
- Rank**: A position, with "rank" appearing in "data mining".
- Link**: A connection, with "link" appearing in "data mining".
- Annotations**: A descriptive note, with "annotations" appearing in "data mining".
- Organizing**: A process, with "organizing" appearing in "data mining".
- Disambiguation**: A resolution step, with "disambiguation" appearing in "data mining".
- Database**: A storage system, with "database" appearing in "data mining".
- Successfully**: A result, with "successfully" appearing in "data mining".
- Received**: A status, with "received" appearing in "data mining".
- Community**: A social group, with "community" appearing in "data mining".
- Skyline**: A view, with "skyline" appearing in "data mining".
- Composition**: A structural element, with "composition" appearing in "data mining".
- Organizational**: A structural element, with "organizational" appearing in "data mining".
- Objects**: A physical entity, with "objects" appearing in "data mining".
- Erg**: A prefix, with "erg" appearing in "data mining".
- Selected**: A choice, with "selected" appearing in "data mining".
- Special**: A category, with "special" appearing in "data mining".
- Participated**: A verb, with "participated" appearing in "data mining".
- Scenarios**: A possible outcome, with "scenarios" appearing in "data mining".
- Objects**: A physical entity, with "objects" appearing in "data mining".
- Organizational**: A structural element, with "organizational" appearing in "data mining".
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A photograph of a dark road at night. A red car is driving away from the viewer, its taillights glowing. The road curves to the right. In the upper right corner, a crescent moon hangs in a dark sky. The overall atmosphere is mysterious and forward-looking.

**Big Data**  
prepares the optimal answer  
for your next decision



A dark night scene showing a car driving away from the viewer on a winding road. The road is marked with white dashed lines. In the background, there are streetlights and a crescent moon in the sky. The overall atmosphere is mysterious and somber.

Big Data

ruins lives



A dark night scene showing a car driving away from the viewer on a winding road. The road is marked with white dashed lines. In the background, there are streetlights and a crescent moon in the sky. The overall atmosphere is mysterious and somber.

Big Data

ruins lives

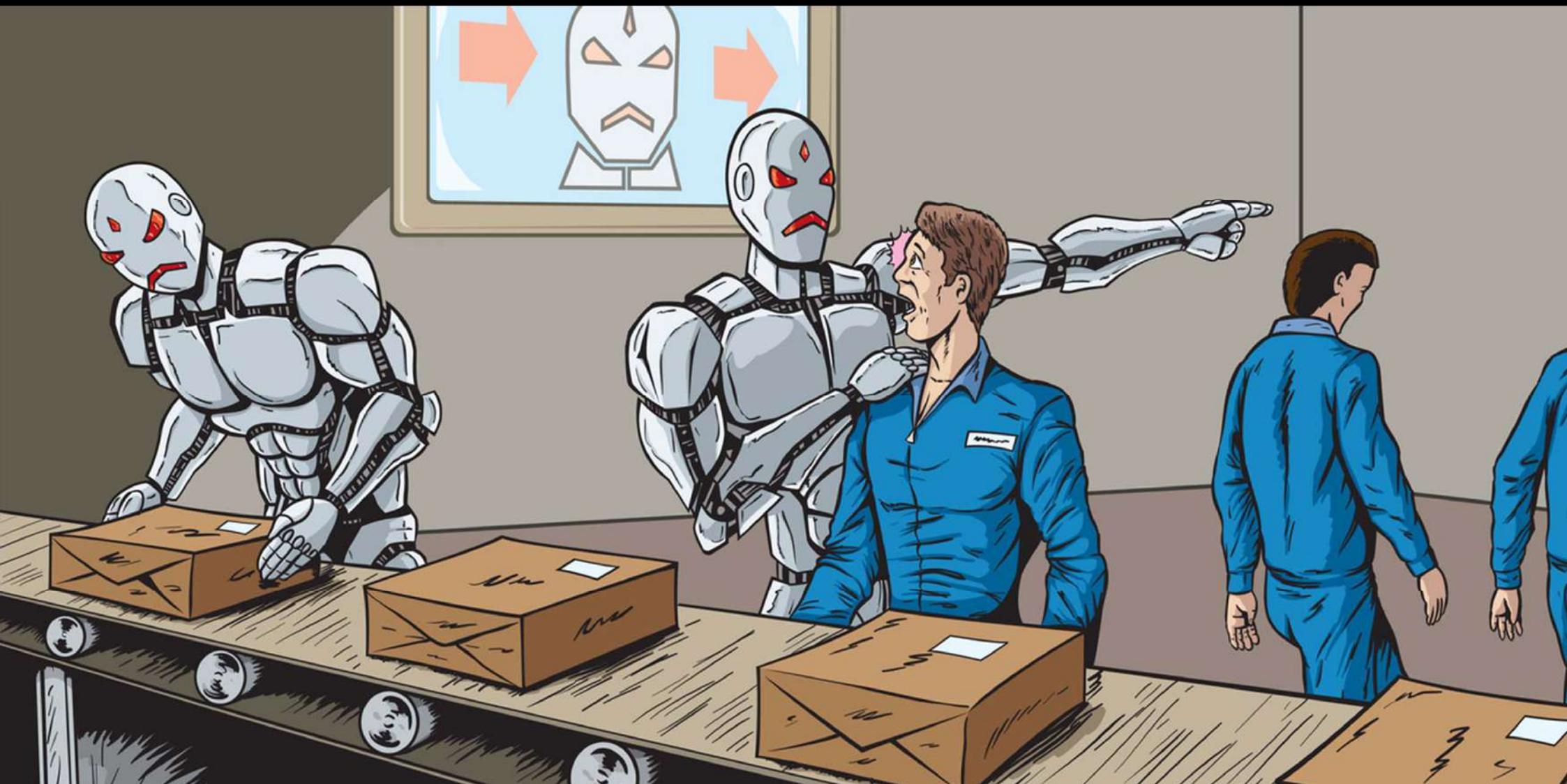


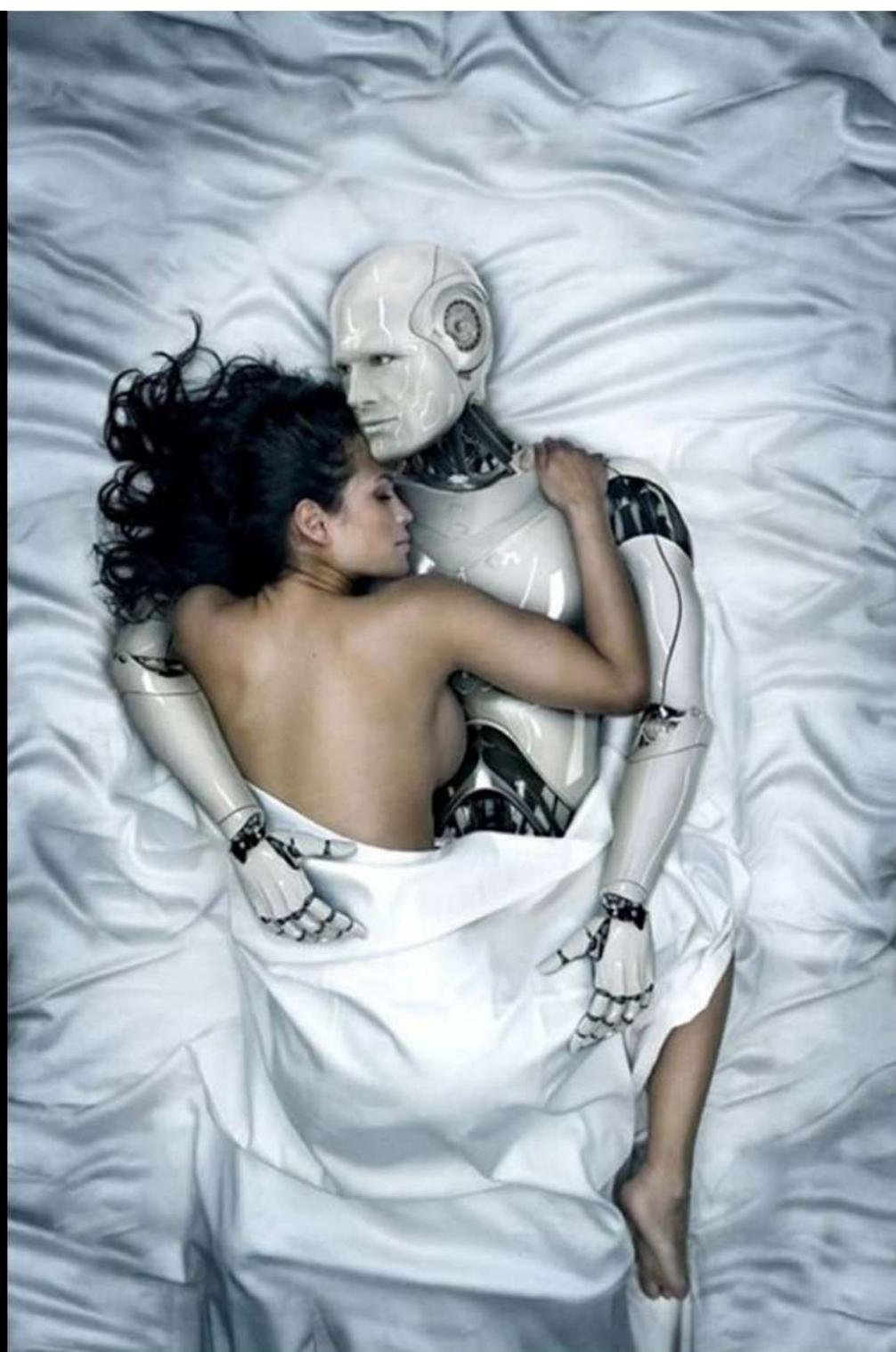
Pos.	Name	Kurs	Markt-Kapitalisierung
1	APPLE Aktie	137,75€ <a href="#">Data</a>	733,49 Mrd.
2	ALPHABET Aktie	882,55€ <a href="#">Data</a>	577,69 Mrd.
3	MICROSOFT Aktie	63,59€ <a href="#">Data</a>	497,05 Mrd.
4	AMAZON Aktie	892,08€ <a href="#">Data</a>	437,19 Mrd.
5	JOHNSON & JOHNSON Aktie	115,23€	318,60 Mrd.
6	EXXON Aktie	70,41€	314,04 Mrd.
7	TENCENT HOLDINGS LTD. /	30,98€	293,53 Mrd.
8	JPMORGAN CHASE Aktie	73,18€	271,02 Mrd.
9	WELLS FARGO Aktie	45,86€	239,02 Mrd.
10	NESTLE Aktie	76,34€	236,79 Mrd.











[http://3.bp.blogspot.com/\\_Krh8C1isyus/S9kgMQqe8AI/AAAAAAAII/sPvySI6U9j0/s1600/243.jpg](http://3.bp.blogspot.com/_Krh8C1isyus/S9kgMQqe8AI/AAAAAAAII/sPvySI6U9j0/s1600/243.jpg)

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# **Observation 1:**

## **Loss of privacy and solidarity**

**This observation  
is only our smallest problem.**

For instant messages, we use TLS (transport-level security) to encrypt your messages between your Skype client and the chat service in our cloud...

Most messages will only be sent via our cloud to provide the optimal user experience.

<https://support.skype.com/en/faq/FA31/does-skype-use-encryption>

## Datenschutz: Microsoft liest Skype-Chats mit



Think your Skype messages get end-to-end encryption? Think again

Ars catches Microsoft accessing links we sent in our test messages.

<https://arstechnica.com/security/2013/05/think-your-skype-messages-get-end-to-end-encryption-think-again/>

# Dropbox...opening my docs?

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 September 12, 2013

 vintsurf

InfoSec

 No Comments

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I had the opportunity recently to beta-test [HoneyDocs](#), a web app that generates documents that can ‘buzz home.’ This is done by a unique, embedded GET request that is initiated when the generated document has been opened.

# How closely is Google really reading your e-mail?

<https://www.washingtonpost.com/news/the-switch/wp/2014/08/04/how-closely-is-google-really-reading-your-e-mail/>

ZEIT  ONLINE | DATENSCHUTZ

START POLITIK WIRTSCHAFT GESELLSCHAFT KULTUR WISSEN **DIGITAL** STUDIUM KARRIERE

Start › Digital › Datenschutz › Kinderpornografie im Netz: Microsoft und Google spielen Polizei

KINDERPORNOGRAPHIE IM NETZ

## Microsoft und Google spielen Polizei

IT-Firmen scannen den Mailverkehr ihrer US-Nutzer auf verdächtige Fotos. Im Kampf gegen Kinderpornografie ermitteln sie gegen jeden – auch ohne Verdacht. Ist das legal? VON JOHANNES WENDT

## Mobile Devices als Lebensgefährten

Anders als die meisten Erwachsenen, die noch in analogen Zeiten aufgewachsen sind und klar zwischen on- und offline unterscheiden, denken Jugendliche beide Welten ganz natürlich zusammen. Ihre digitalen Aktivitäten sind nahtlos in ihre Lebenswelten integriert – ohne ihr „echtes Leben“ zu beeinträchtigen. So verbringen unter 20-Jährige zwar vier bis fünf Stunden am Tag vor Screens, aber trotzdem treffen sie sich drei- bis viermal pro Woche mit ihren Freunden (DAK 2013). Und diese „Offline-Freunde“ sind ihnen wichtiger als reine Online-Freundschaften (Welt Online 2014).

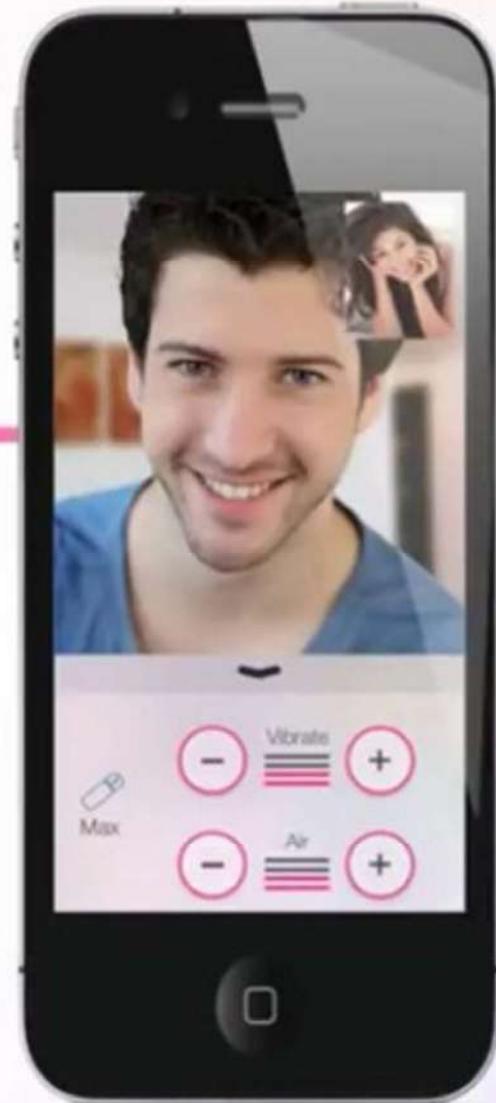
Der Generationenunterschied definiert sich zunehmend über den Umgang mit digitalen Medien. Mobile Devices und soziale Netzwerke sind für Jugendliche keine Spielzeuge, nicht einmal Werkzeuge. Sie sind Lebensgefährten, ein organischer Teil ihrer Lebenswelten. Und sie prägen die Faktoren, auf denen die neuen Werthaltungen der Liquid Youth beruhen: Vernetzung, Transparenz, Flexibilität.

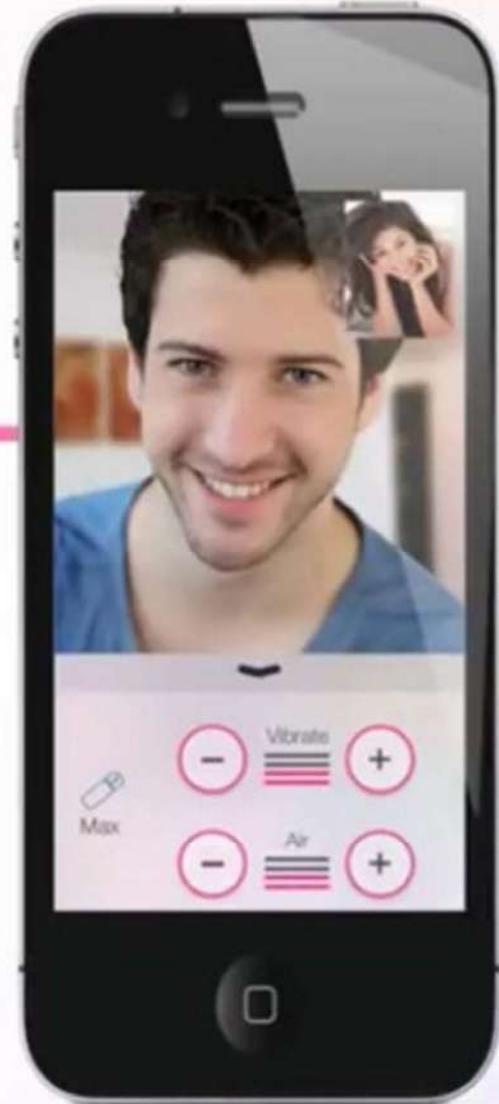
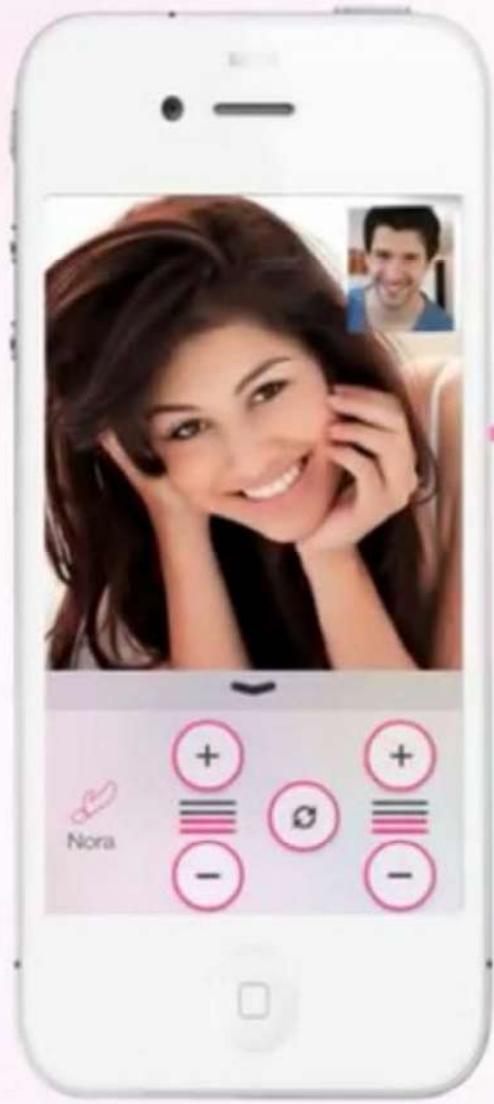


# Dildo

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<http://www.heute.at/love/erotik/Diese-pikanten-Daten-senden-Vibratoren-an-Hersteller;art23700,1325930>  
<http://europe.newsweek.com/sex-toys-connected-internet-risk-being-hacked-437366?rm=eu>  
<http://motherboard.vice.com/read/dildo-data-hacking>

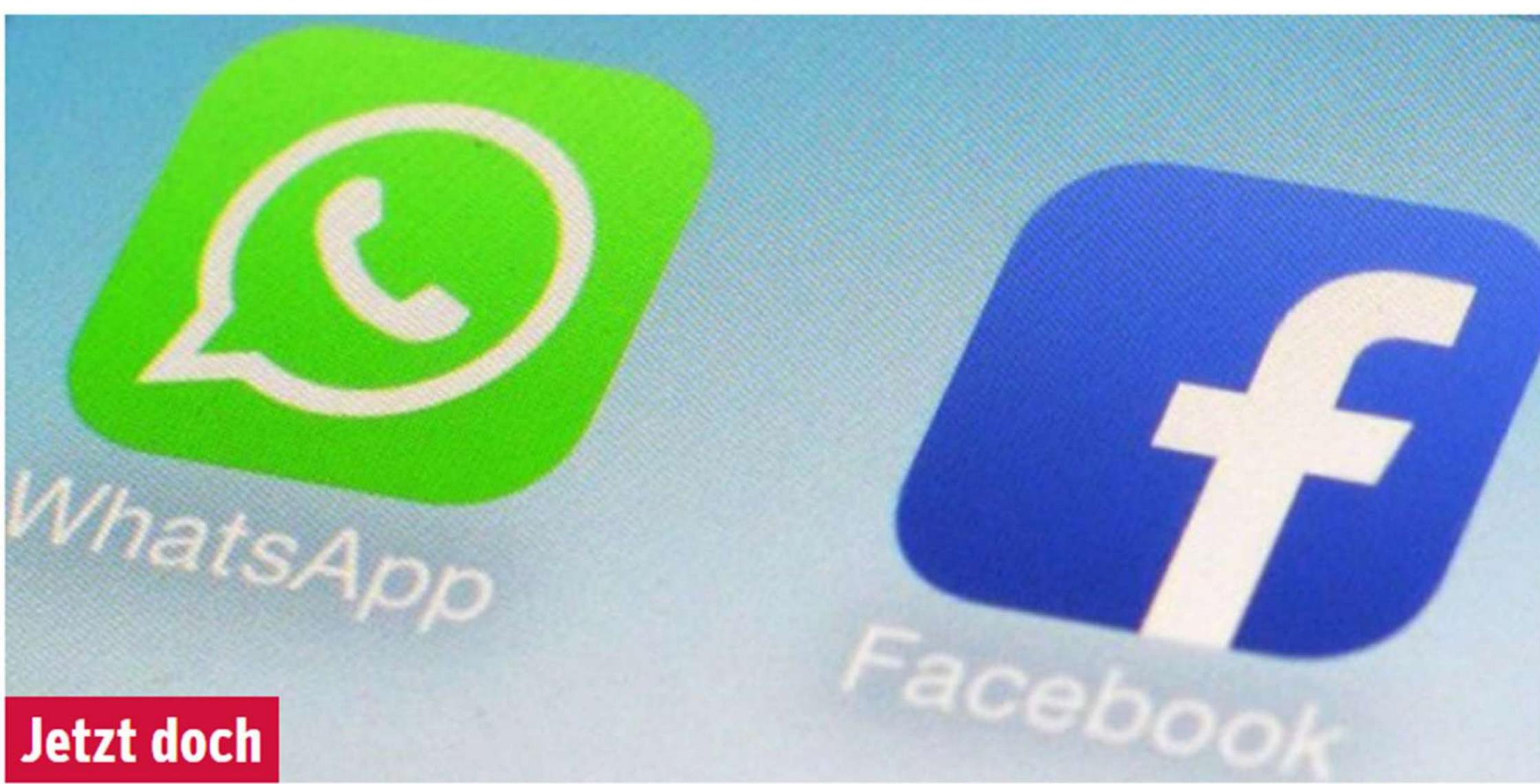




## Manufacturer receives and stores

- Duration of use
- Intensity of vibration
- Temperature of device

**Covered by terms of use & EULA  
Data provided to the authorities  
upon request.**



**Jetzt doch**

# WhatsApp gibt Facebook Daten weiter

Choose Your

## Departure Flight

SUN

MON

TUE

WEDNESDAY

THU

FRI

SAT

Feb 24

Feb 25

Feb 26

February 27

from \$132

Feb 28

Mar 01

Mar 02

All prices are now

**ROUND-TRIP**

Take a look at all the new features we've added to AA.com

Lowest Fare

Refundable

Business / First

Flights	Departure	Arrival	Choice	Choice Essential	Choice Plus	Business / First
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Sort Options ▾ ◊ ◊ ◊ ◊ ◊ ◊

448	[+]	09:30 am LAX	10:45 am LAS	<input type="radio"/> \$348	<input type="radio"/> \$416	<input type="radio"/> \$436	<input type="radio"/> \$1105
170	[+]	11:35 am LAX	12:50 pm LAS	<input type="radio"/> \$348	<input type="radio"/> \$416	<input type="radio"/> \$436	<input type="radio"/> \$1105
1714	[+]	03:10 pm LAX	04:25 pm LAS	<input type="radio"/> \$348	<input type="radio"/> \$416	<input type="radio"/> \$436	<input type="radio"/> \$1105

Choose Your

## Departure Flight

SUN

MON

TUE

WEDNESDAY

THU

FRI

SAT

Feb 24

Feb 25

Feb 26

February 27

from \$159

Feb 28

Mar 01

Mar 02

All prices are now

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Flights	Departure	Arrival	Choice	Choice Essential	Choice Plus	Business / First
---------	-----------	---------	--------	------------------	-------------	------------------

Sort Options ▾ ◊ ◊ ◊ ◊ ◊ ◊

448	[+]	09:30 am LAX	10:45 am LAS	<input type="radio"/> \$159	<input type="radio"/> \$227	<input type="radio"/> \$247	<input type="radio"/> \$488
170	[+]	11:35 am LAX	12:50 pm LAS	<input type="radio"/> \$159	<input type="radio"/> \$227	<input type="radio"/> \$247	<input type="radio"/> \$488
1714	[+]	03:10 pm LAX	04:25 pm LAS	<input type="radio"/> \$159	<input type="radio"/> \$227	<input type="radio"/> \$247	<input type="radio"/> \$488

All prices are now

**ROUND-TRIP**

Take a look at all the new features we've added to AA.com



LAX to LAS

Wednesday February 27, 2013

Shopping Cart

Your Round-Trip Cost:  
**\$0 USD**

[Baggage and Optional Service Charges.](#)



# Digital Enlightenment



**Digital enlightenment is man's emergence  
from his self-imposed immaturity.**

**Immaturity is the inability to use one's data and digital devices  
without guidance, paternalism and surveillance from another.**

**This immaturity is self-imposed when its cause lies  
not in lack of technical possibilities  
but in lack of resolve and courage to use it  
without guidance, paternalism and surveillance from another.**

**Have courage to regain the authority over your own data and devices.**

# Digital Enlightenment

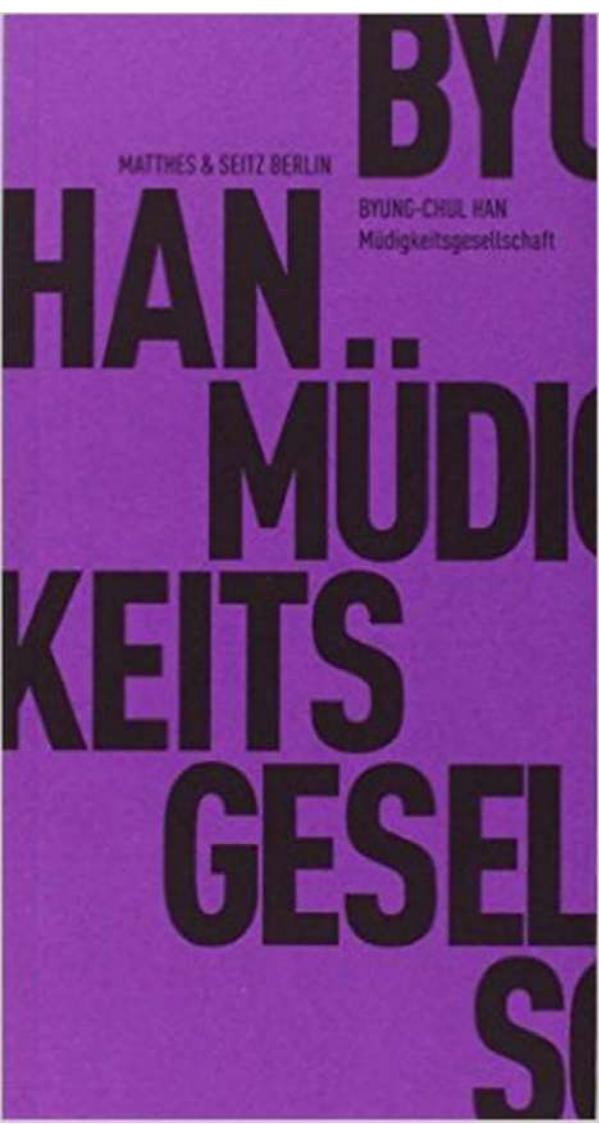
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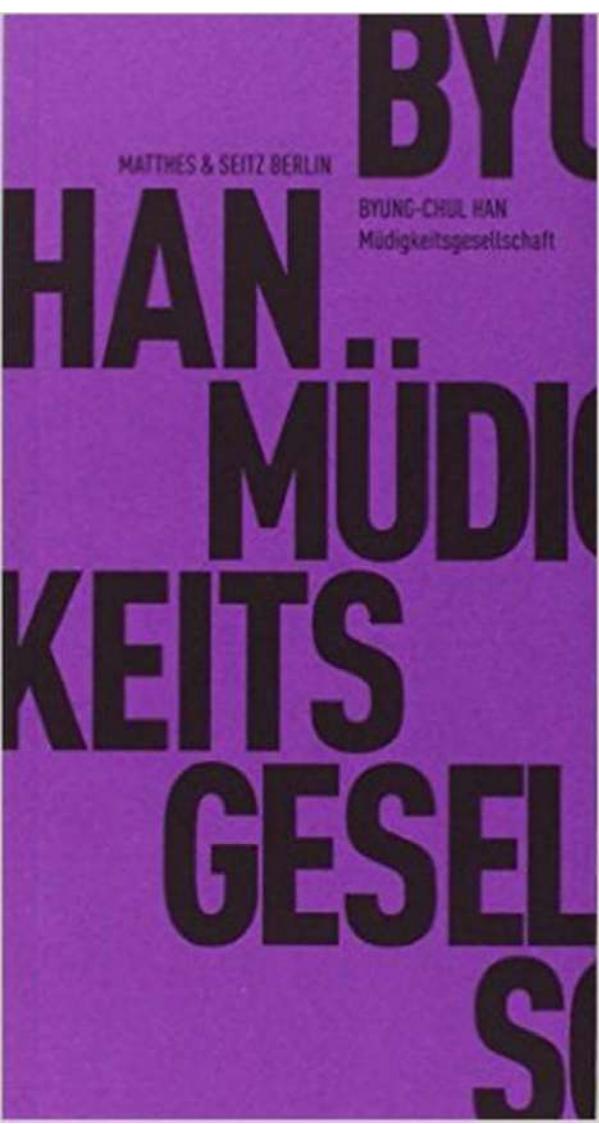
**This immaturity is self-imposed when its cause lies not in lack of technical possibilities but in lack of resolve and courage to use it without guidance, paternalism and surveillance from another.**

**Have courage to regain the authority over your own data and devices.**

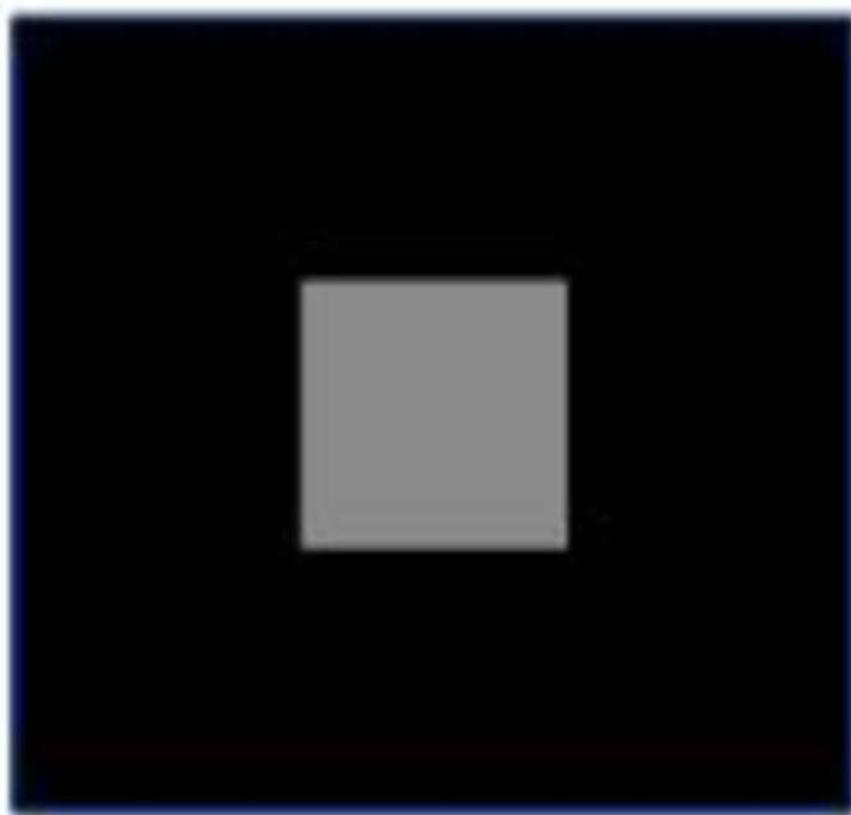




## Byung-Chul Han, Die Müdigkeitsgesellschaft



## Byung-Chul Han, Die Müdigkeitsgesellschaft



Quelle: Daniel Kahneman, Nobelpreisrede 2002, Detecor 2008

# Framing: An example

**Somebody suffers from an aggressive form of cancer**

**A study with 100 patients tells us**

**Therapy A heals 33 patients**

**(Positive Frame)**

**With therapy A, 67 patient die**

**(Negative Frame)**

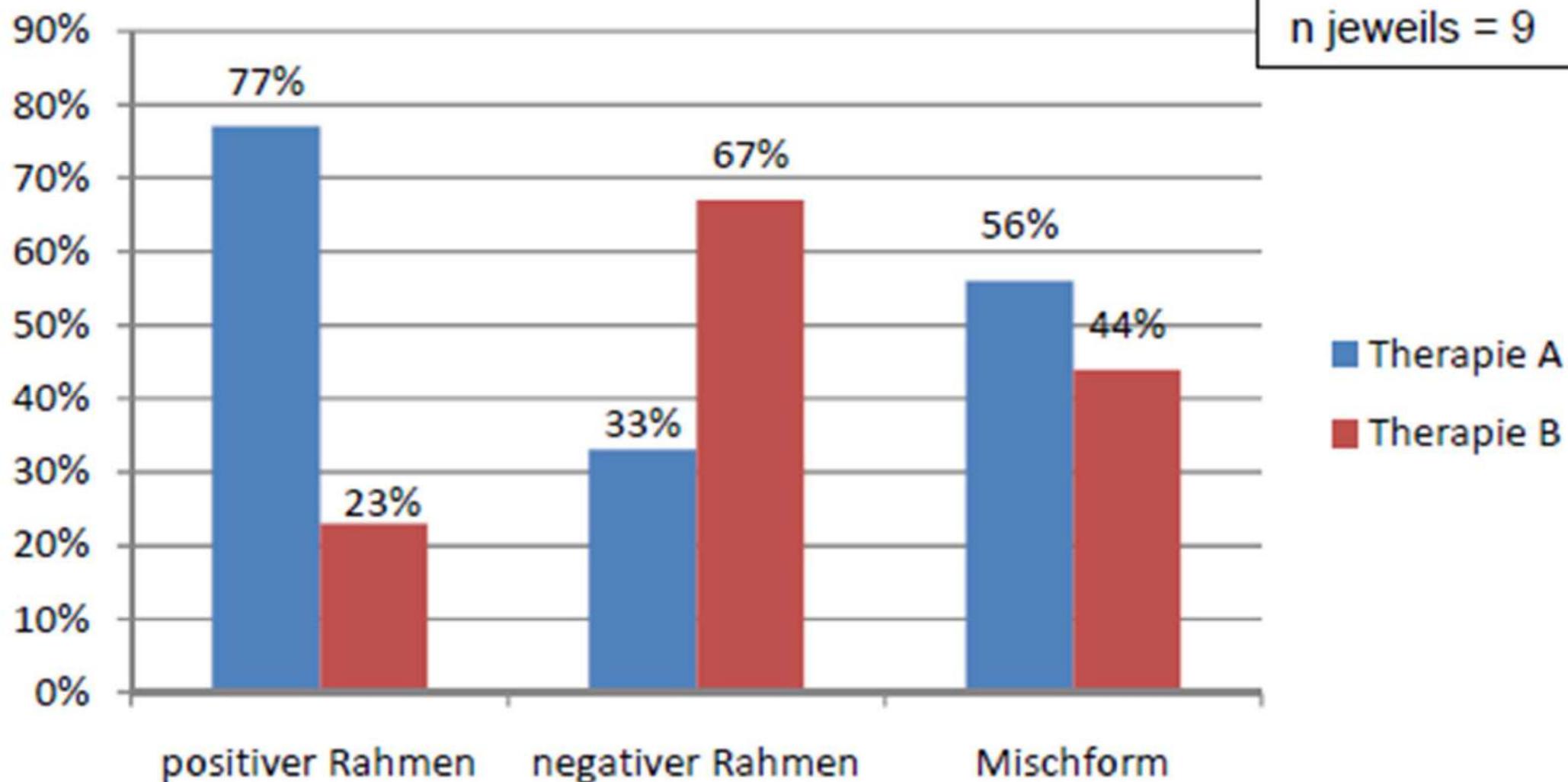
**Therapy B heals 1/3 of all patients**

**We see:**

**All 3 statements are (mathematically) equal**

**Therapies A and B are equally effective**

# Framing and manipulation



# Diese Krankenkassen bezuschussen die Apple Watch

<http://www.welt.de/wirtschaft/article144818188/Diese-Krankenkassen-bezuschussen-die-Apple-Watch.html>

Die Techniker Krankenkasse plant, ihren Mitgliedern die Apple Watch zu subventionieren. Der größte Krankenversicherer ist aber nicht der erste. Zwei anderen Kassen zahlen schon einen Zuschuss.



Deutsche Krankenversicherung



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**Observation 2:**

**The frame**

**"Data Science & Big Data  
improve our lives"**

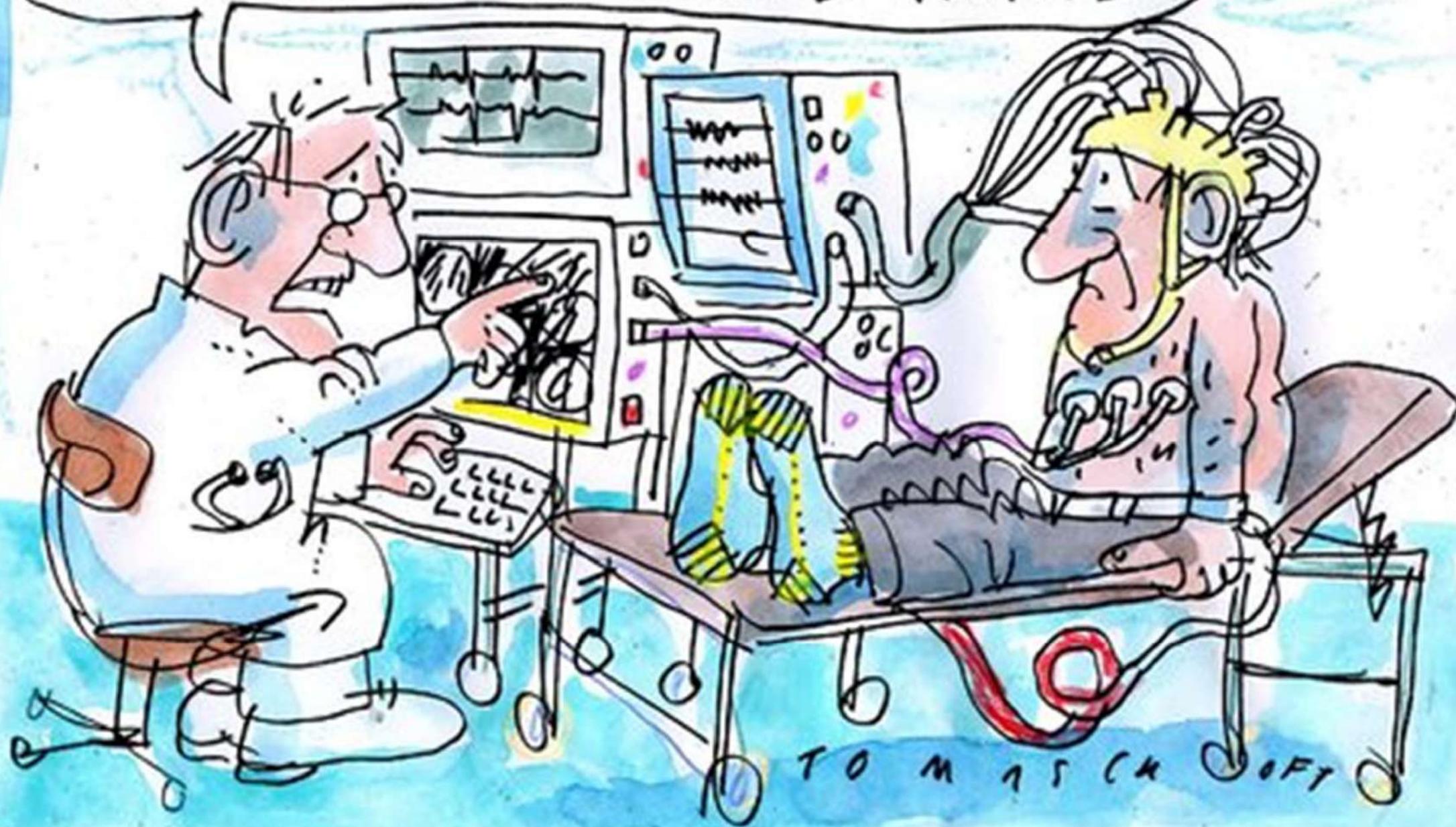
**could be wrong  
and manipulative**







UMFANGREICHE TESTS ZEIGEN: IHNEN FEHLEN  
EIN PAAR FREUNDLICHE WORTE





## The \$300m cable that will save traders milliseconds

In the high-speed world of automated financial trading, milliseconds matter. So much so, in fact, that a saving of just six milliseconds in transmission time is all that is required to justify the laying of the first transatlantic communications cable for 10 years at a cost of more than \$300m.

# High Frequency Trading 2017

## Latency New York – Chicago

<b>Target:</b>	<b>Latency reduction from 4,25 ms to 4,03 ms</b>
<b>Speed of light:</b>	<b>3,93 ms</b>
<b>New Idea:</b>	<b>Improve the protocols</b>
<b>TCP:</b>	<b>200 ns</b>
<b>TCPDirect by Solarflare:</b>	<b>20 – 30 ns</b>

Partnersuche

**"Die Ressource 'gebildeter Mann' wird  
knapp"**

# How-To Analyze Everyone – Teil V: Der Algorithmus weiß besser als Du, wer zu Dir passt

am 14.03.2014 von Anna Biselli / 6 Kommentare / Teilen



[http://3.bp.blogspot.com/\\_Krh8C1isyus/S9kgMQqe8AI/AAAAAAAII/sPvySI6U9j0/s1600/243.jpg](http://3.bp.blogspot.com/_Krh8C1isyus/S9kgMQqe8AI/AAAAAAAII/sPvySI6U9j0/s1600/243.jpg)



[http://3.bp.blogspot.com/\\_Krh8C1isyus/S9kgMQqe8AI/AAAAAAAII/sPvySI6U9j0/s1600/243.jpg](http://3.bp.blogspot.com/_Krh8C1isyus/S9kgMQqe8AI/AAAAAAAII/sPvySI6U9j0/s1600/243.jpg)

## **"Sagt der Bewerber die Unwahrheit?"**

Spuren im Netz, Rechtschreibfehler im Anschreiben, Mimik im Vorstellungsgespräch: Unternehmen analysieren zunehmend alle Daten von Bewerbern. Wohin führt das?

# The Data That Turned the World Upside Down

HG

HANNES GRASSEGGER & MIKAEL KROGERUS

Jan 28 2017, 3:15pm

Psychologist Michal Kosinski developed a method to analyze people in minute detail based on their Facebook activity. Did a similar tool help propel Donald Trump to victory? Two reporters from Zurich-based Das Magazin went data-gathering.

Of all tyrannies,  
a tyranny sincerely exercised  
for the good of its victims  
may be the most oppressive.

(C. S. Lewis)

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**Observation 3:**

**Data Science is not the solution**

**Data Science is the problem**



**Observation 3:**

**The problem is human greed**

**Data Science is the best tool**



7:14 / 44:05



Paul Watzlawick - Wenn die Lösung das Problem ist (1987)



7:14 / 44:05



Paul Watzlawick - Wenn die Lösung das Problem ist (1987)

The attempt to produce happiness  
almost inevitably produces disaster  
or it leads to fulfillment  
and then this fulfillment turns out  
to be something not the least similar  
to what I had been looking for



# Der Verzicht auf das Machbare

We should not do everything

which is possible



**Atomic weapons**

**are not means to solve armed conflict**

**Data science & big data**

**are not means to improve life**

# Hermann Lübbe

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**Wer glaubt die Antwort,  
die endgültige Lösung zu haben  
wird sich früher oder später berechtigt fühlen  
Gewalt anzuwenden**

**Die Selbstermächtigung zur Gewalt  
ist ein unvermeidbares Resultat dieses Denkens  
(zitiert nach Paul Watzlawick)**

# Conclusion

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**Data Science, Big Data & Co are very interesting,**

**they promise efficiency, profit and optimal solutions**

**and thus turn into a problem of second order**

**The deficiency of big data is meaning**

**The answer is not to do everything which is possible**

**but out of greed it will not be implemented**

**and that is our problem.**