

# Das Internet der Dinge

Till Hänisch, DHBW-Heidenheim, 2015

[www.tillh.de/Industrie40IoT.pdf](http://www.tillh.de/Industrie40IoT.pdf)

SMART CLOTHS AUTONOMOUS DRONES SMART DUST CLOUD COMPUTING  
BIG DATA SENSOR NETWORKS  
SMART FACTORY INTERNET OF EVERYTHING  
EHEALTH INDUSTRIE 4.0  
FOG COMPUTING SMART GRID INTELLIGENT GRID  
GOOGLE CAR CONNECTED CAR PERVASIVE COMPUTING  
INTERNET OF THINGS  
RFID INTERNET OF EVERYTHING DATA SCIENCE SMART DEVICES  
3D PRINTING WEARABLES ROBOTICS  
UBIQUITOUS COMPUTING  
TELEPRESENCE AUTO-ID M2M INDUSTRIAL INTERNET  
SUBNETS OF THINGS

# Industrie 4.0



<http://www.heise.de/newsticker/meldung/Industrie-4-0-zum-Anfassen-1838897.html>

# 3D Druck mal anders

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<http://www.multivu.com/players/uk/7565251-dubai-first-3d-printed-office/>

# Industrial Internet

## INDUSTRIAL INTERNET NOW

### KONECRANES Initiative

Industrial Internet Now is an online forum on how the industrial internet will change the world of material handling.

— READ MORE —

TECHNOLOGY 

PEOPLE 

DATA 

SAFETY & PRODUCTIVITY 

THE FUTURE 

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01.07.2015

### Sensors, software and breaking down barriers

Equipment, platforms and components in the manufacturing industry are going through a rapid change as companies are capitalizing and investing in ...

VIA MANUFACTURING BUSINESS TECHNOLOGY



Data, People | 26.06.2015

### When worlds collide, innovations are born

INTERVIEW W/ JARKKO VESA



17.06.2015

### Chinese steel industry plans to build internet pla...

Chinese steel industry is currently coping with the nation's economic slowdown. What the industry members are offering as a solution is an ...

VIA CHINA DAILY





linux

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[Ähnlich](#)

[andere Diskussionen \(5\)](#)

**1578** [/bin](#) (i.imgur.com)  
eingereicht 2 Jahre zuvor von [strolls](#)  
 **172 Kommentare** [Weitersagen](#)

Alle 172 Kommentare - sortiert nach: [beste](#) ▼

[\[-\] 3van](#) 343 Punkte 2 Jahre zuvor

**That feeling when a trash can is running a newer kernel than most of your machines at work.**

[Permalink](#) [Speichern](#) [Schenke Gold](#)

Portale

Suchmaschinen,  
SEO

Social Web

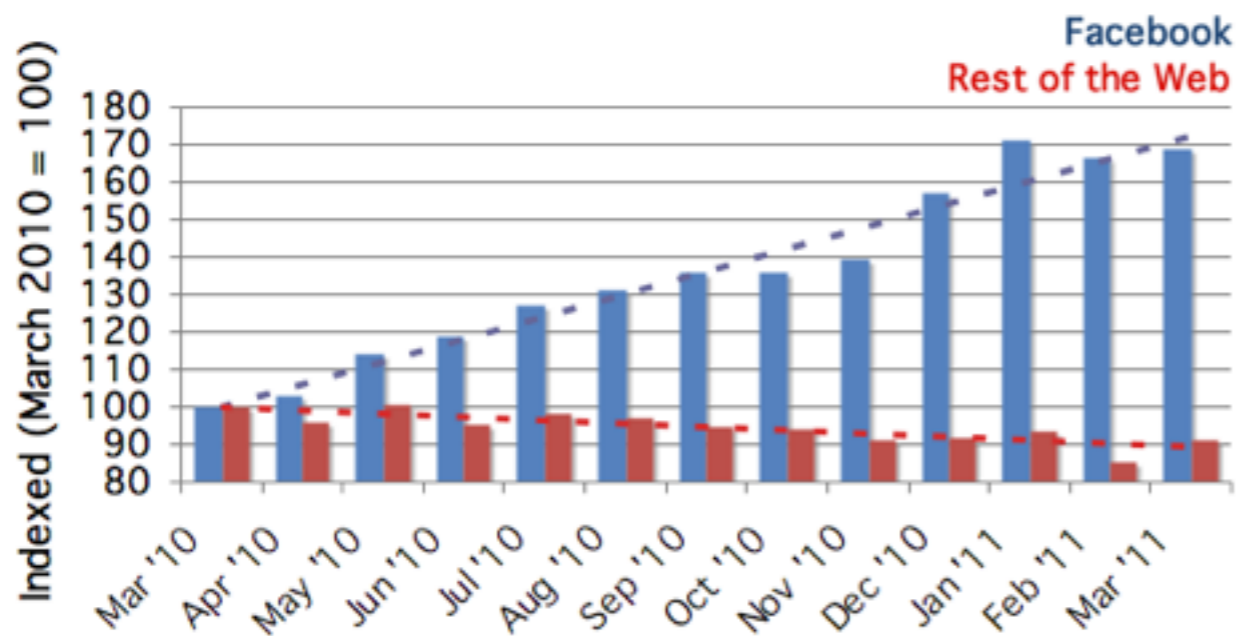
2000

2005

2010

### Why Media Companies Must Embrace Facebook

Consumption in Total Minutes of U.S. Web Use (Indexed)



Source: Ben Elowitz, Wetpaint / comScore



Portale

Suchmaschinen,  
SEO

Social Web

2000

2005

2010

Was kommt  
danach ?



Was war davor ?

Eine kurze Geschichte  
des Internets

# Mailboxes, Usenet: Die Anfänge

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```
L      LLLLLL  LLLLLL L      L      L      LLLLL  LLLL  LLLLLL
L      L      L      L LL  L      L L  L      L      L      L      L
L      LLL    L      L L L  L      LLLLLL  LLLL  L      L      L
L      L      L      L L L  L L L      L L  L      L      L      L
LLLLLL  LLLLLL  LLLLLL L      LL L      LL      L      LLLL  LLLLLL
```

ELECTRONIC NEWS

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November 15, 1992

Volume 2 : Number 11

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WORDS ON WORKS ISSUE

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About Words on Works: Judy Malloy

PALM-SIZE PLASTIC CASE SERIES: Joe Rosen

DEUS EX MACHINA/CLOSET OF ANGELS: Deborah Whitman

PORTRAITS OF PEOPLE LIVING WITH AIDS: Hazen Reed

QUIBBLING, A HYPERFICTION: Carolyn Guyer

THE WORD THE PLAY: Jim Rosenberg

<<<<< PROGRAMS AND PRODUCTS >>>>>

Hypertext/Hypermedia at MLA: Terence Harpold

Ryosuke Cohen's BRAIN CELL: Judy Malloy

<<<<< FAST and LEONARDO JOURNAL INFORMATION >>>>>

FAST Updates: Annie Lewis

FAST Calendar: Annie Lewis

# Das WWW

Amazon.com: Online Shopping for Electronics, Apparel, Computers, Books, DVDs & more

http://www.amazon.com/gp/homepage.html/104-3141628-0961534

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  - Jewelry & Watches
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- Computer & Office**
  - Computers
  - Office Products
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- Consumer Electronics**
  - Audio & Video
  - Camera & Photo
  - Cell Phones & Service
  - Computer & Video Games
  - All Consumer Electronics

### Around the DVD Store

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[The Hot List: New DVDs as Low as \\$15.98](#)
-  **47% off**  
[Hot Future DVD Releases](#)
-  **12% off**  
[DVD Editors' June Picks](#)

### Kickin' It with Calvin and Hobbes

 **34% off**

Treat yourself to a break this summer with the [The Complete Calvin and Hobbes](#). You'll get hours of laugh-out-loud fun from this three-volume hardcover set that comes with its own sturdy slipcase and includes all the Calvin and Hobbes cartoons that have ever been syndicated.

### Save on World of Warcraft

How on Earth could we offer games so cheaply? Are we crazy? Are we trying to undermine the value of the U.S. dollar? Whatever the reason...

### Sylvania DOT-it Lights

Where do you need light? Get the [bright, white LED light](#) that sticks practically anywhere.

### Extra Savings on Power and Lawn Tools

Save an **Extra 10%** Through July 4, get [an extra 10%](#) on your total purchase of [power tools](#) and [lawn care products](#) from [Amazon.com Tools](#). [See details.](#)

> [More deals in Tools](#)

### Ice Cream Ball

Have a

# Social Media



Suchen



Hast Du bereits ein Konto? [Einloggen](#)



**Lady Gaga** ✓

@ladygaga New York, NY

*mother monster*

<http://www.ladygaga.com>

+ Folgen

Text follow ladygaga to your carrier's shortcode

Updates

Favoriten

Following

Follower

Listen

2 neue Tweets



**ladygaga** Lady Gaga

The single most special moment of my career. Naoto Kan, thank you for the honor. I'll miss you Japan: My Teal Rose

<http://twitpic.com/5j112a>

30 Juni



**ladygaga** Lady Gaga

TEAL AMBITION performance of BORN THIS WAY in Paris: [bit.ly/mocM2d](http://bit.ly/mocM2d) I love it! The Edge of Glory at piano: [bit.ly/kdpu9l](http://bit.ly/kdpu9l)

30 Juni



**ladygaga** Lady Gaga

SMAP SMAP REVENGE. BORN THIS WAY TATOO TUXEDO MEETS TARANTINO NINJA. <http://twitpic.com/5ii6gm>

29 Juni



**ladygaga** Lady Gaga

INTERVIEW IN JAPAN: GAGAPANDA! PART 1: [tinyurl.com/3e6tpyj](http://tinyurl.com/3e6tpyj) PART 2: [tinyurl.com/6yppg4lo](http://tinyurl.com/6yppg4lo)

28 Juni

## Folge Lady Gaga auf Twitter

Verpasse keine Updates von Lady Gaga. Melde dich heute an und folge deinen Interessen!

Anmelden »

## Fragst du dich, wie Lady Gaga Twitter nutzt?

Entdecke, wem @ladygaga folgt



Über @ladygaga

917

Tweets

142.812

Following

11.334.158

Follower

203.565

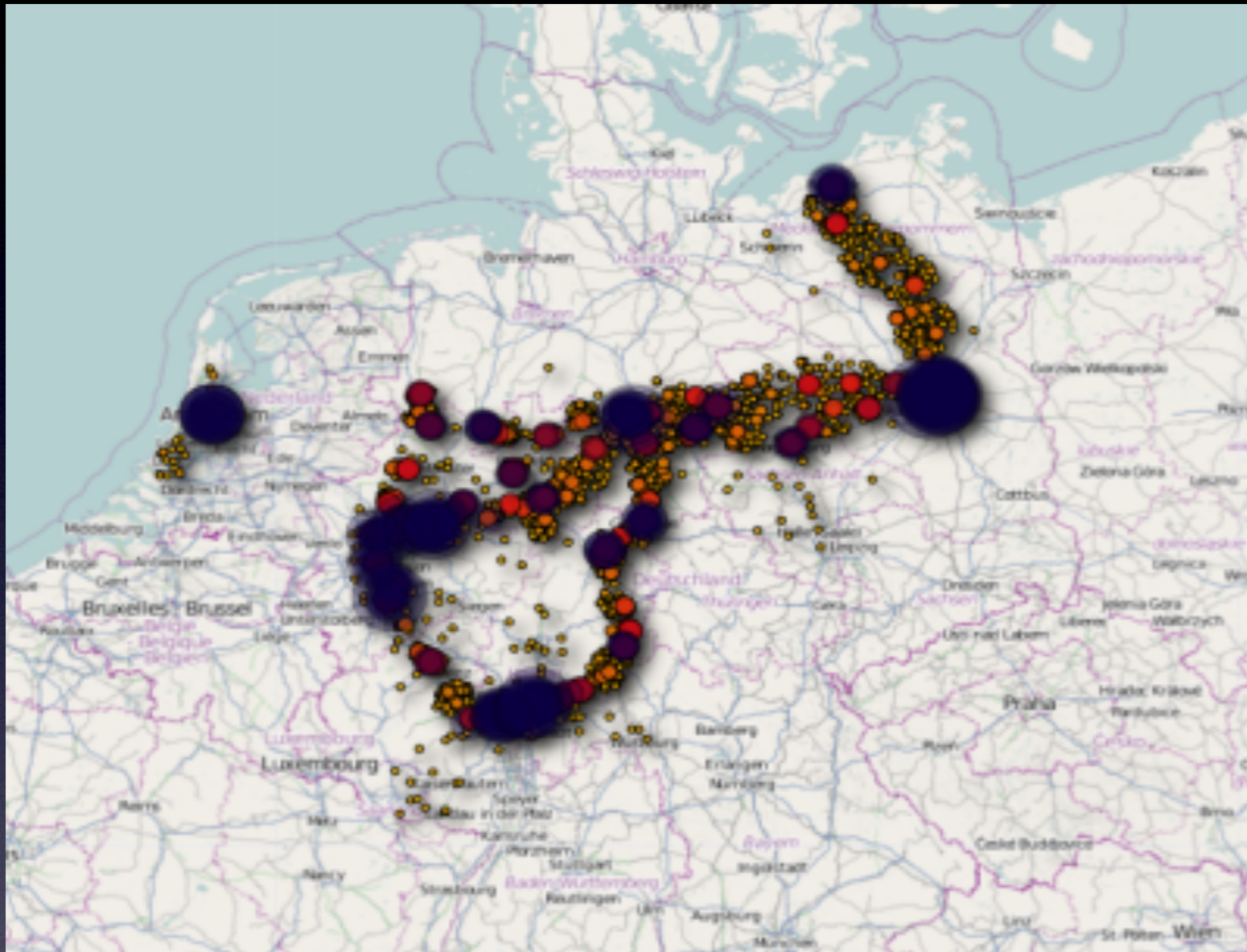
Gelistet

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© 2011 Twitter



# physical web



[<http://www.datenschutz.rlp.de/de/presseartikel.php?pm=pm2011042601>]

[<http://www.zeit.de/datenschutz/malte-spitz-vorratsdaten>]

WWW

Social Web

Physical Web

1990

2005

2020

Mehr Teilnehmer, nicht nur Menschen

Mehr Verbindung zur realen Welt

keine Revolution sondern Evolution !

Things talk

to the Internet

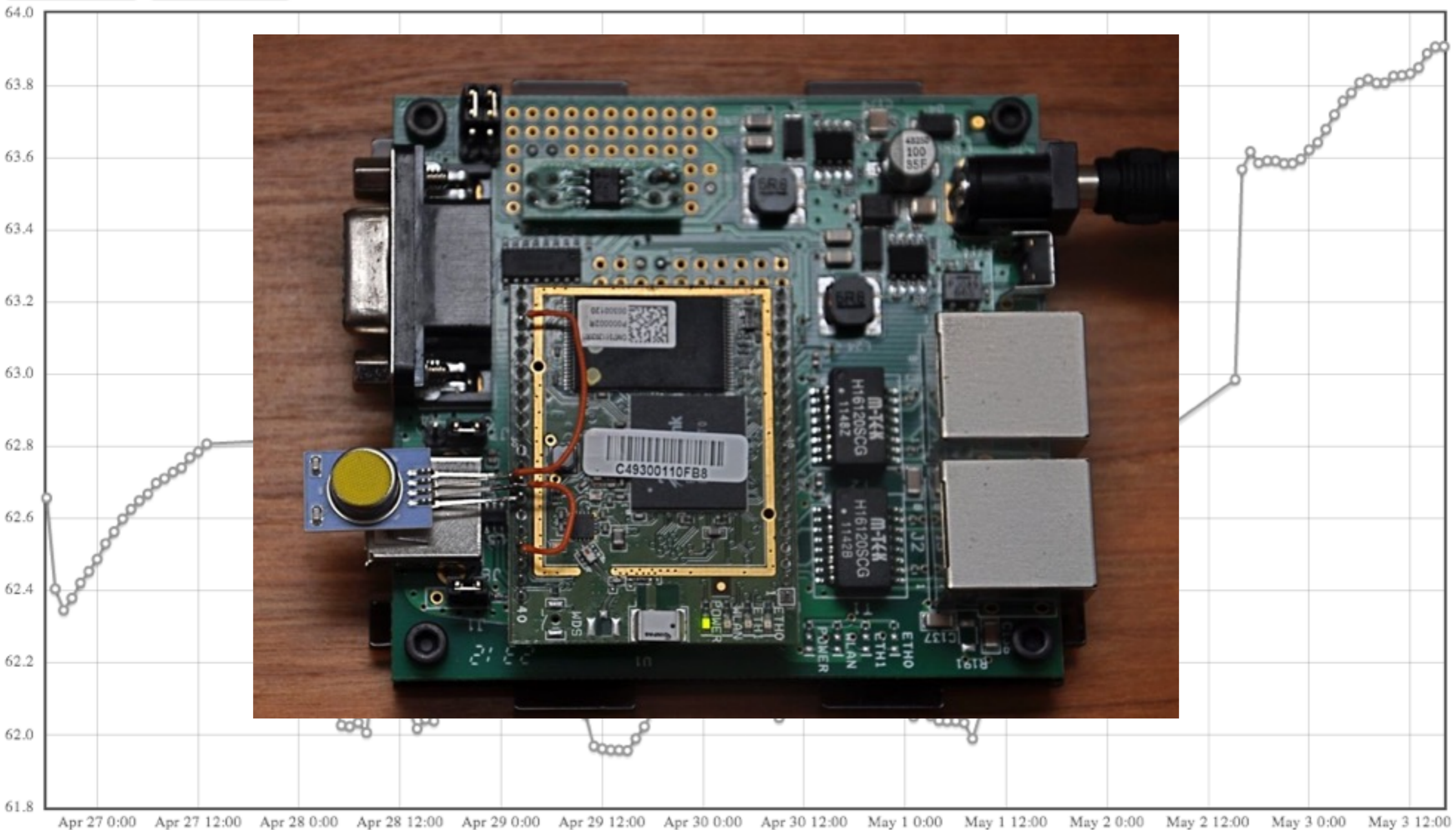


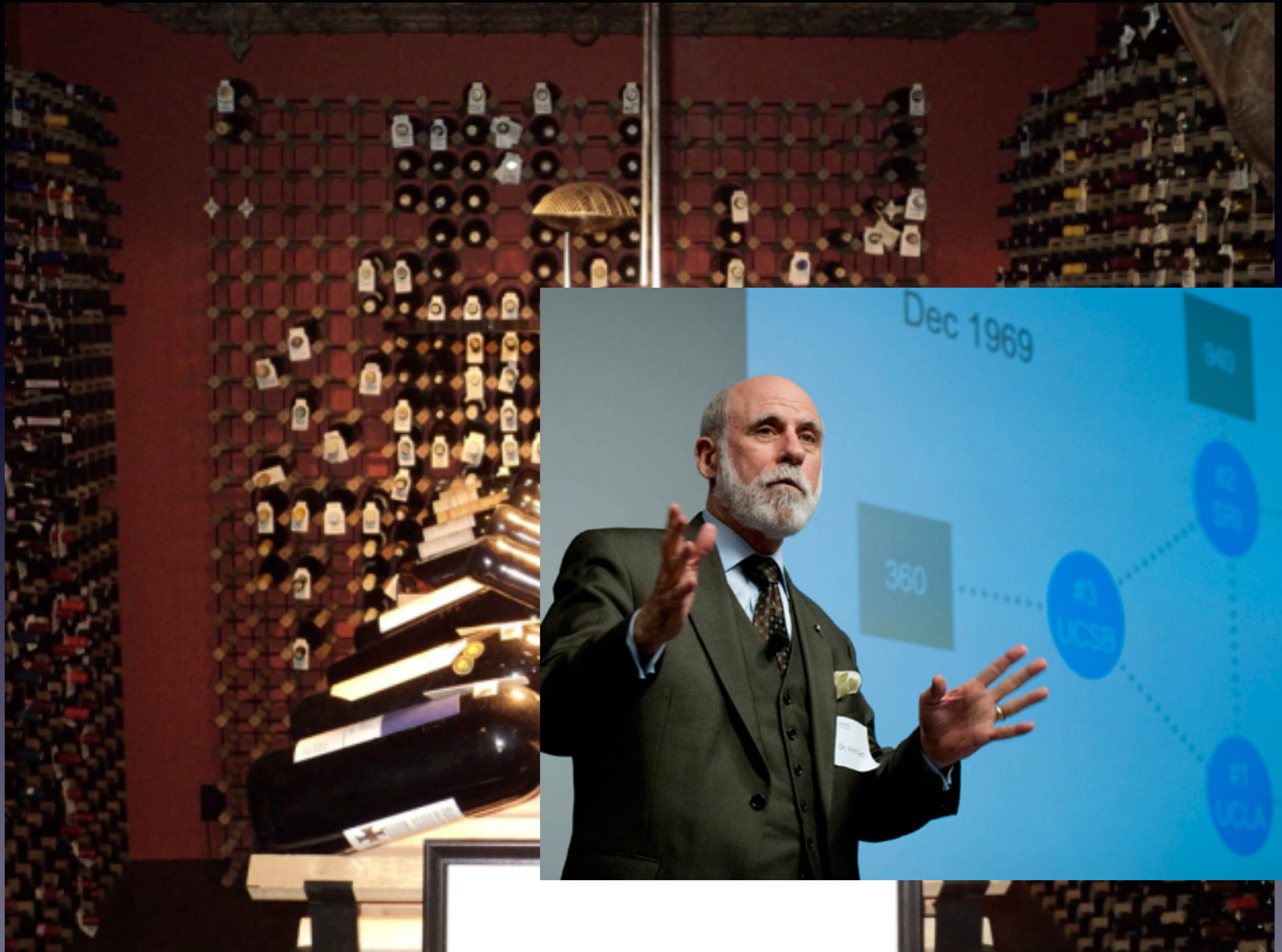
Things act

via the Internet



Humidity last week



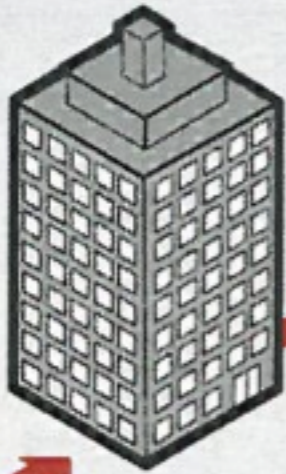


# Ferngesteuerter Stromkunde

Die Idee eines intelligenten Stromnetzes

## Netzbetreiber

steuert ständig das Stromangebot. Bei zu hohem Verbrauch schaltet er über den Smart Meter gezielt Geräte ab.

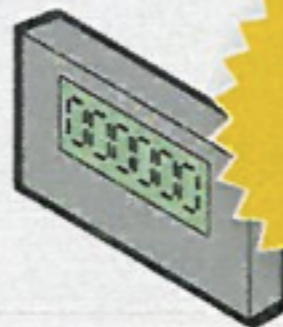


## Smart Grid

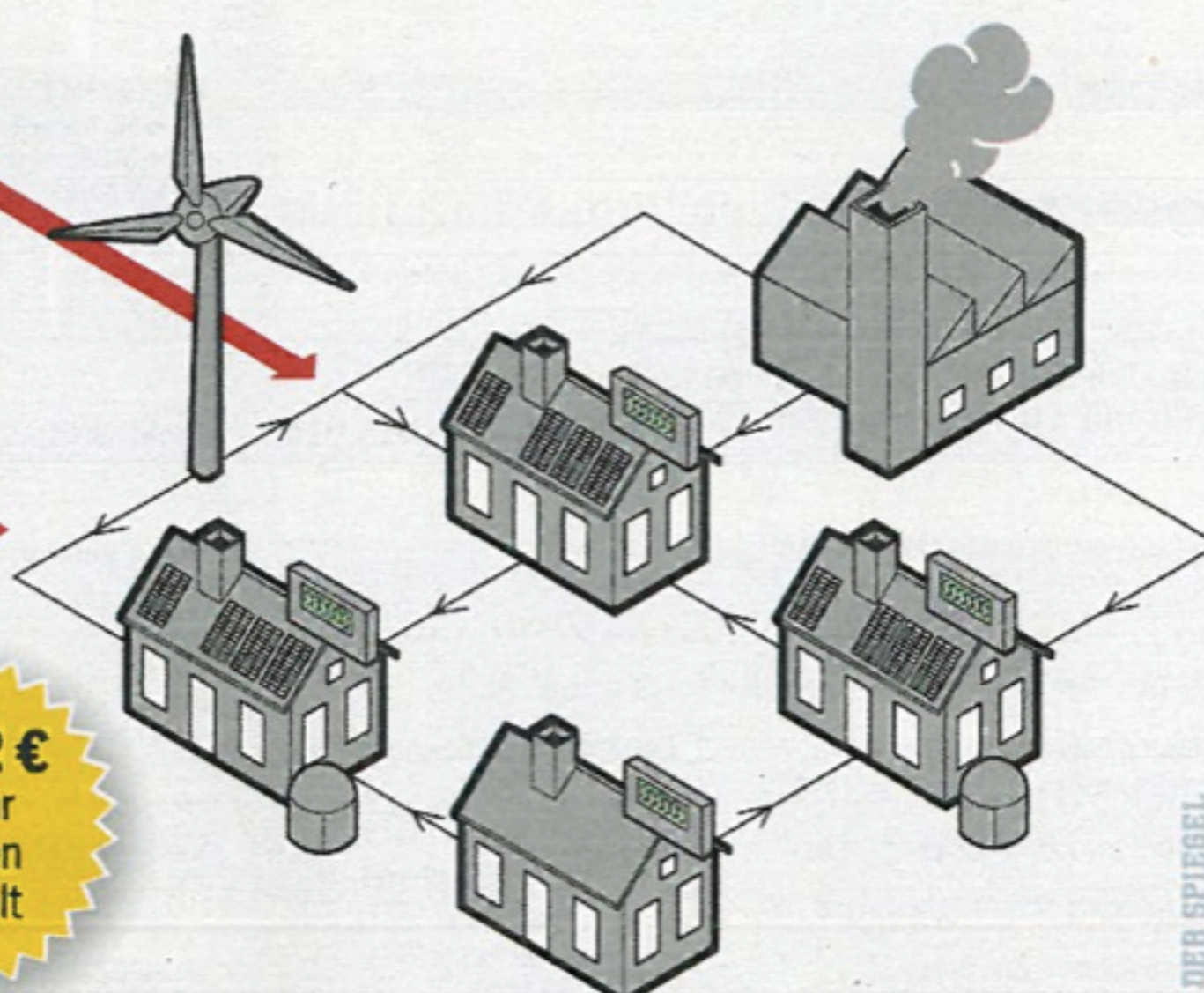
Netzwerk, das alle Akteure des Energiemarkts miteinander verbinden soll.

## Smart Meter

Intelligenter Stromzähler, der in jedem Haushalt installiert werden soll; übermittelt Verbrauchsdaten an den Energieversorger.



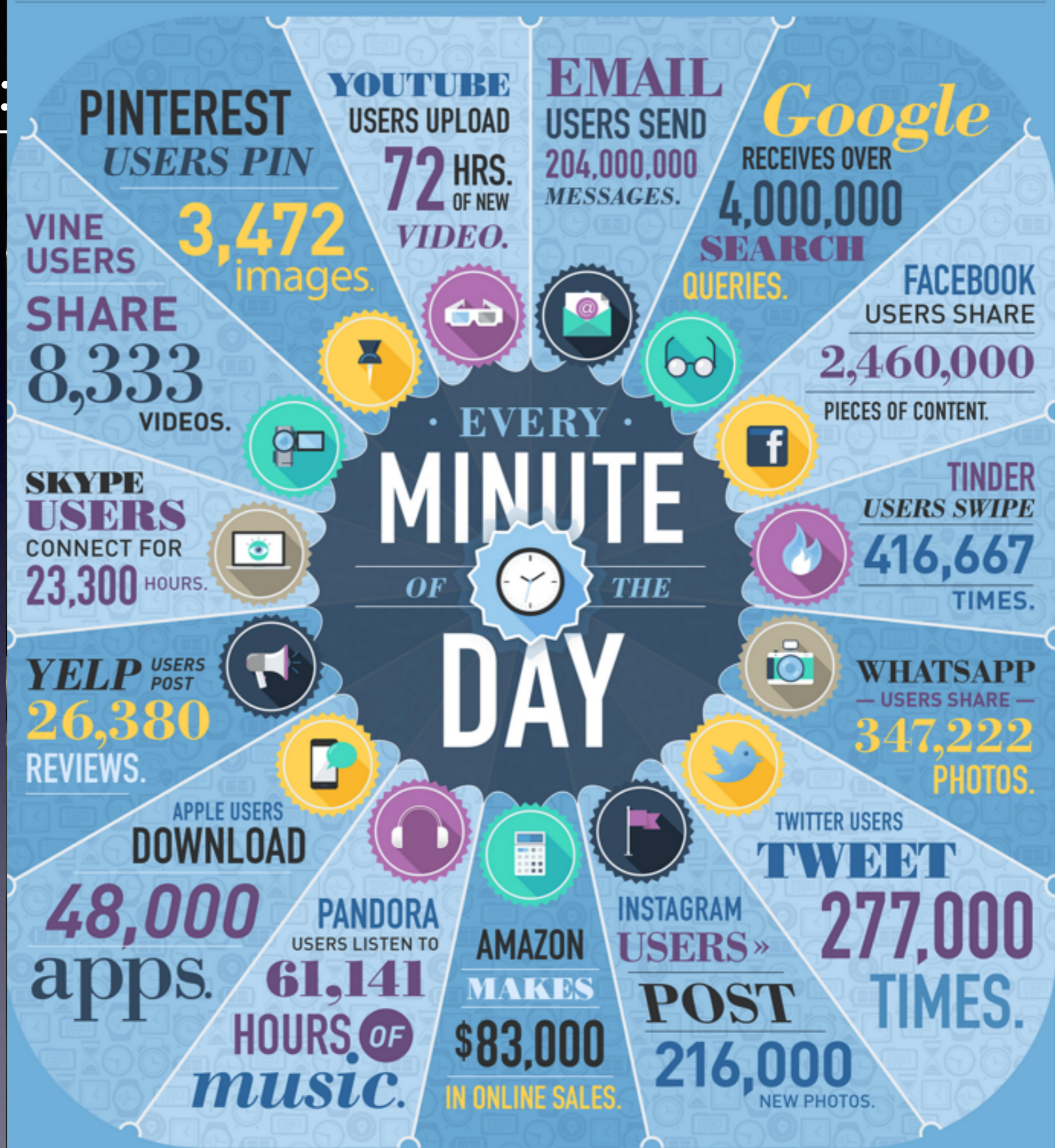
bis zu **72 €**  
pro Jahr  
für jeden  
Haushalt



Figur  
utility

DER SPIEGEL

d and



# Sensornetze: Warum jetzt ?

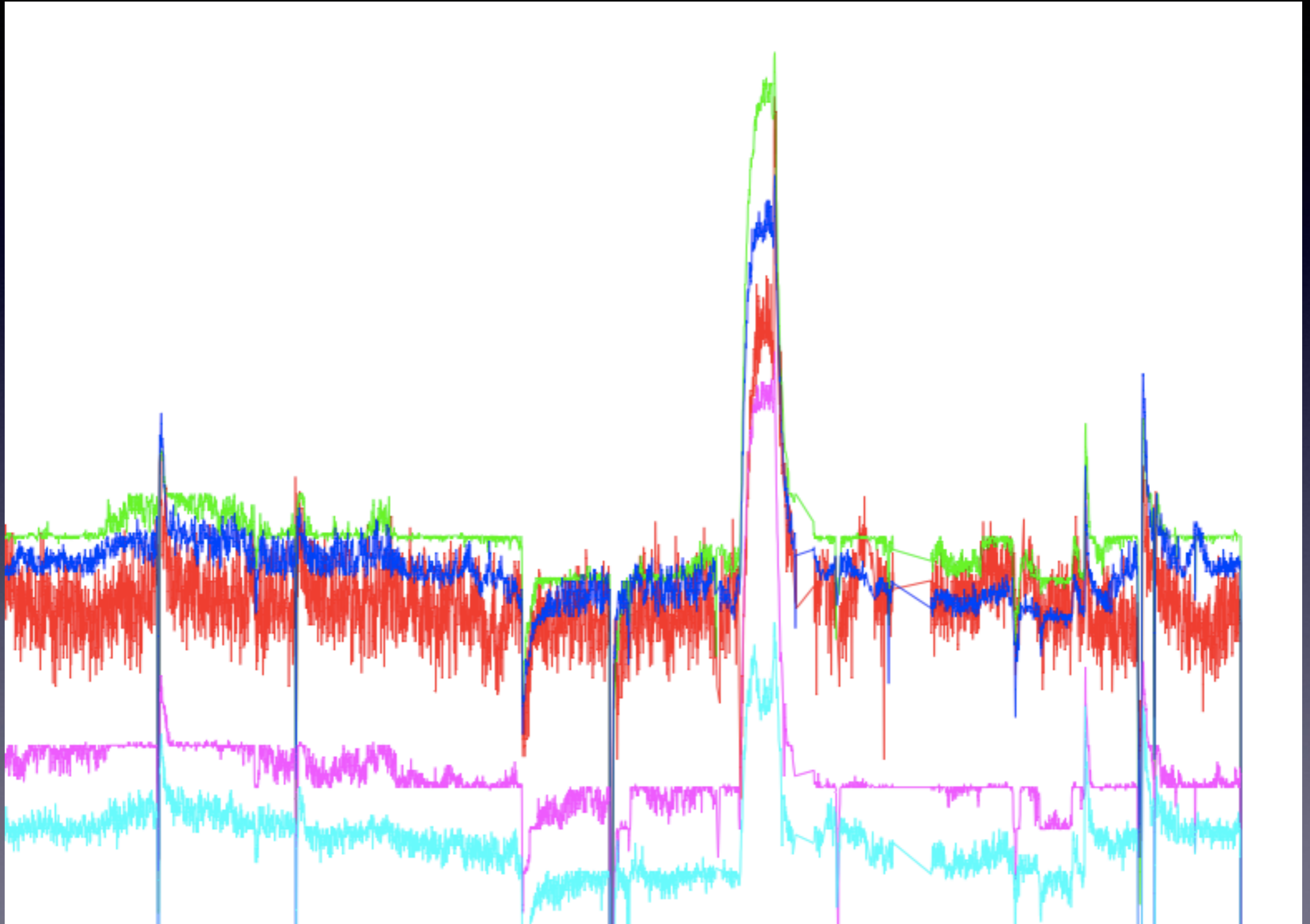
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- Miniaturisierung
- Drahtlose Übertragung
- Bessere Batterien
- Sinkende Kosten



# Industrial Internet konkret

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# Sensornetze:

## Smart Bridges

Adding sensor networks to infrastructure will make them cyberphysical systems

By Steven Cherry

Posted 7 Aug 2013 | 15:32 GMT

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<http://spectrum.ieee.org/podcast/at-work/test-and-measurement/smart-bridges>

was geht mich das an ?



# Beispiel: Nest



2014 für > 3 Milliarden US\$  
von google aufgekauft

Then pays for itself.

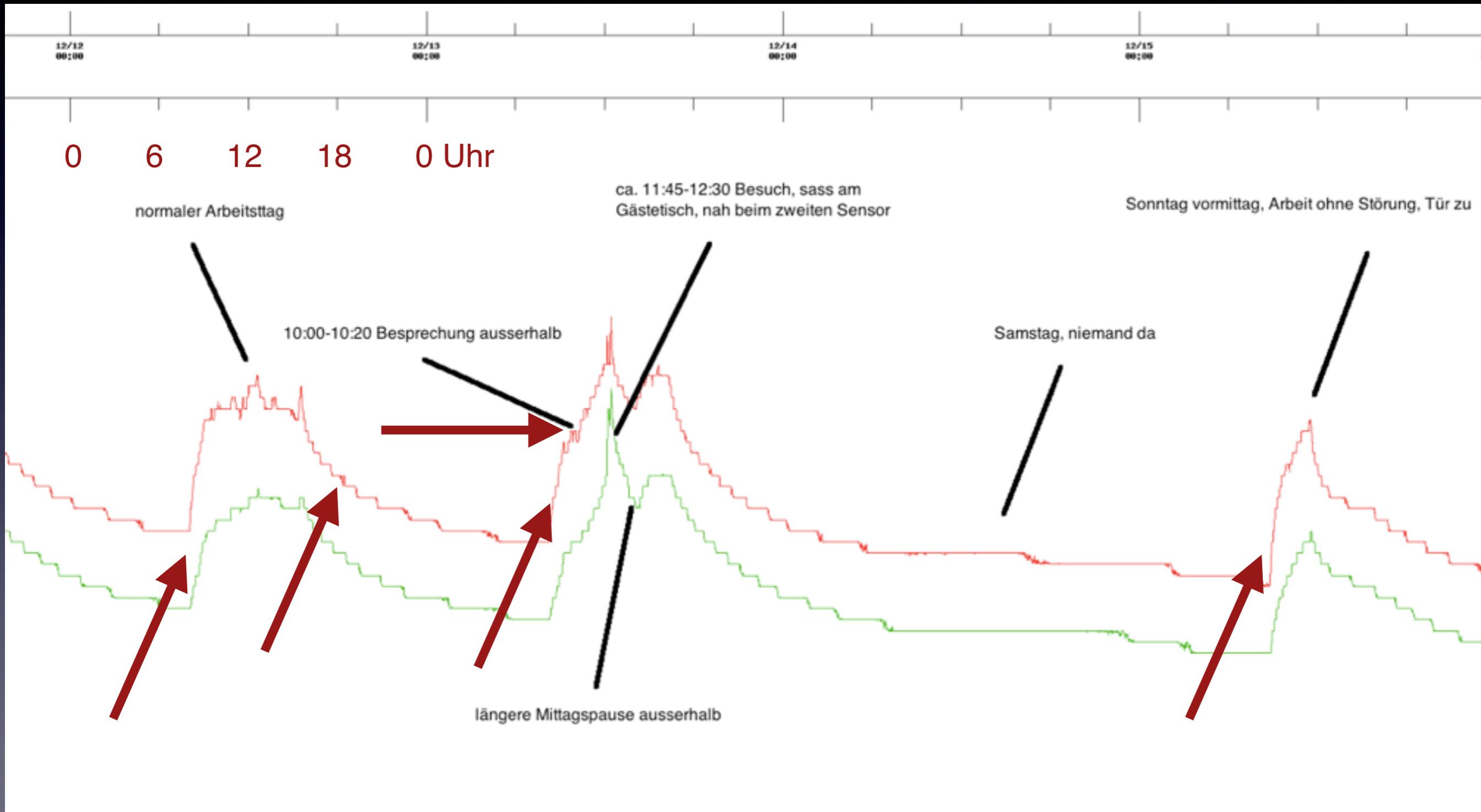
Meet the Nest Learning Thermostat.

[BUY NOW >](#)

[Watch the ad ▶](#)



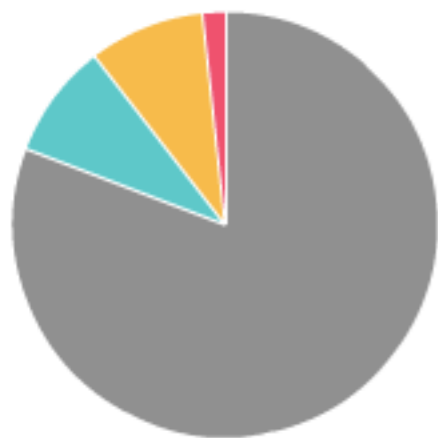
# was kann man damit anfangen ?





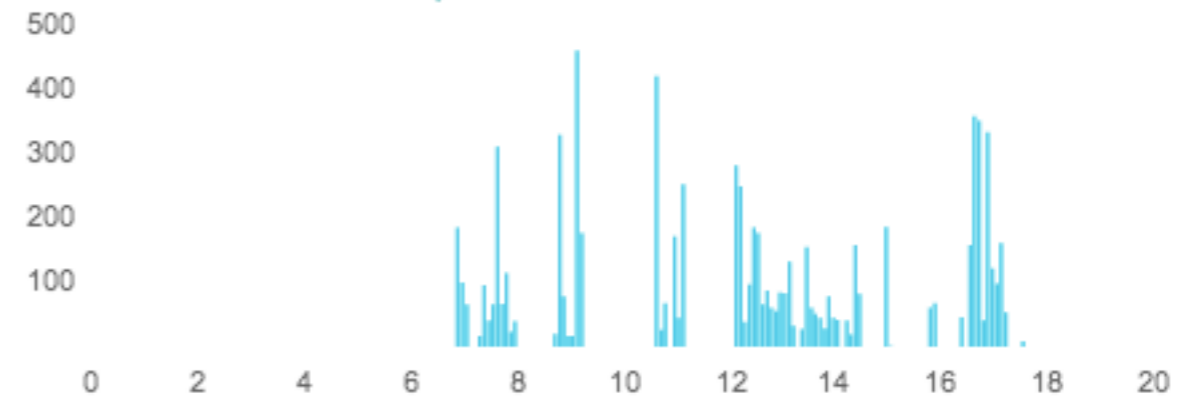
Verbrannte Kalorien Schritte Stockwerke **Aktive Zeit**

## Analyse der heutigen Aktivität (ohne Schlaf)



<b>Im Sitzen</b> ↑ <b>19Std 24Min</b> (80,8%)	<b>Relativ aktiv</b> ↓ <b>2Std 7Min</b> (8,8%)
<b>Leicht aktiv</b> ↓ <b>2Std 5Min</b> (8,7%)	<b>Sehr aktiv</b> ↑ <b>24Min</b> (1,7%)

Verbrannte Kalorien **Schritte** Stockwerke Aktive Zeit



CASE STUDY Fall Alert Devices



35 MILLION people over 65



# WEARABLES

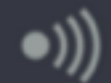
## SAVING LIVES SINCE 1975

Getting help after an immobilizing fall improves the chance of survival by 80%

6 MILLION Lifeline users



1 MILLION needed help



I've fallen and I can't get up!

### THE LIFELINE PENDENT

Market Leading Device: 500,000 current subscribers



12 MILLION will fall each year



6 MILLION can't get up again



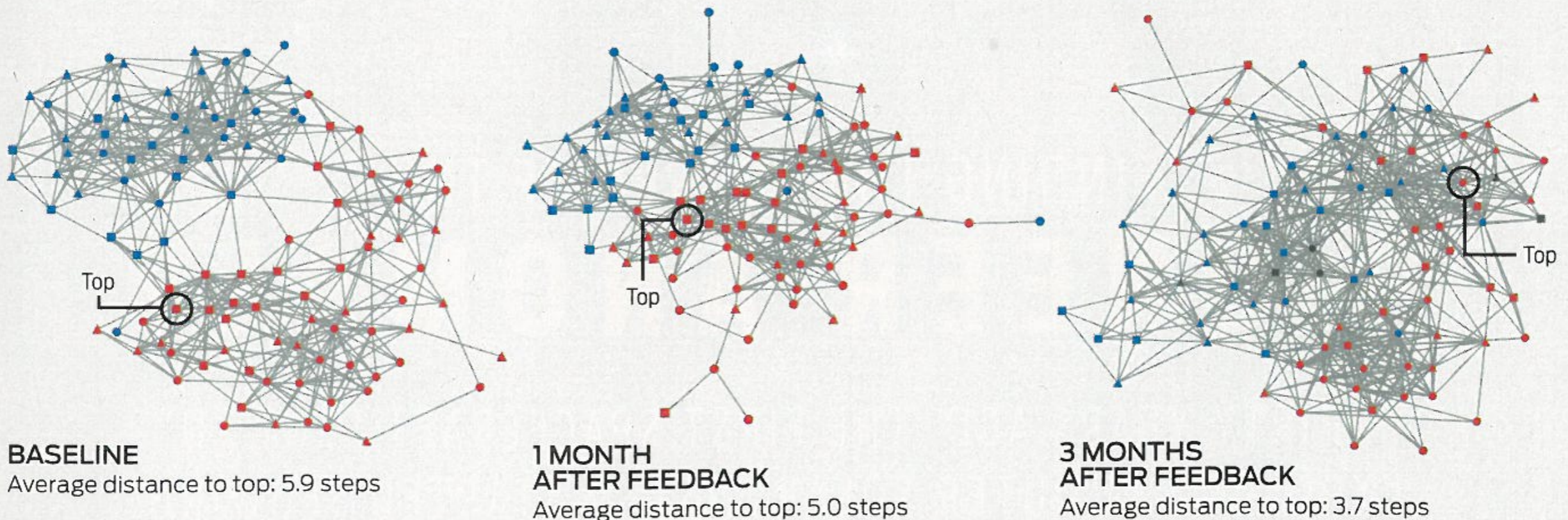
Philips acquired Lifeline in 2006 for \$750 million!



Brought to you by MISFIT [www.misfitwearables.com/references](http://www.misfitwearables.com/references)

# Engineering happiness

Engineering health:  
Monitoring von Klinikpersonal bei  
Desinfektion (30.000 Tote jährlich  
wegen Klinikinfektionen allein in D)



# Beispiel: iBeacon

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Smartphone wertet Bluetooth LE Broadcast aus (Signal strength) und erkennt so Position im Gebäude

[<http://9to5mac.com/2013/09/27/ibeacon-briefing-what-is-it-and-what-can-we-expect-from-it/>]



# Markt:



<sup>1</sup>Adjusted to 2015 dollars; for sized applications only; includes consumer surplus. Numbers do not sum to total, because of rounding.

McKinsey&Company | Source: McKinsey Global Institute analysis



"IoE Creates \$14.4 Trillion in the next decade"



„25-40 percent of current per capita GDP“

**Machina Research**

„THE GLOBAL IOT MARKET OPPORTUNITY WILL REACH USD4.3 TRILLION BY 2024“

[[http://www.mckinsey.com/insights/business\\_technology/the\\_internet\\_of\\_things\\_the\\_value\\_of\\_digitizing\\_the\\_physical\\_world?imm\\_mid=0d4868&cmp=em-iot-na-na-newsltr\\_20150702](http://www.mckinsey.com/insights/business_technology/the_internet_of_things_the_value_of_digitizing_the_physical_world?imm_mid=0d4868&cmp=em-iot-na-na-newsltr_20150702)]



Wohin führt das ?

# Google car: Vermeidung von Unfällen

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# Big Data

