

Industrie 4.0 und das Internet der Dinge

Till Hänisch, DHBW-Heidenheim, 2015
www.tillh.de/Industrie40APVpdf

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



<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.

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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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[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.

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SAY BIG DATA

ONE MORE TIME

Predictive Analytics

Vorhersagen

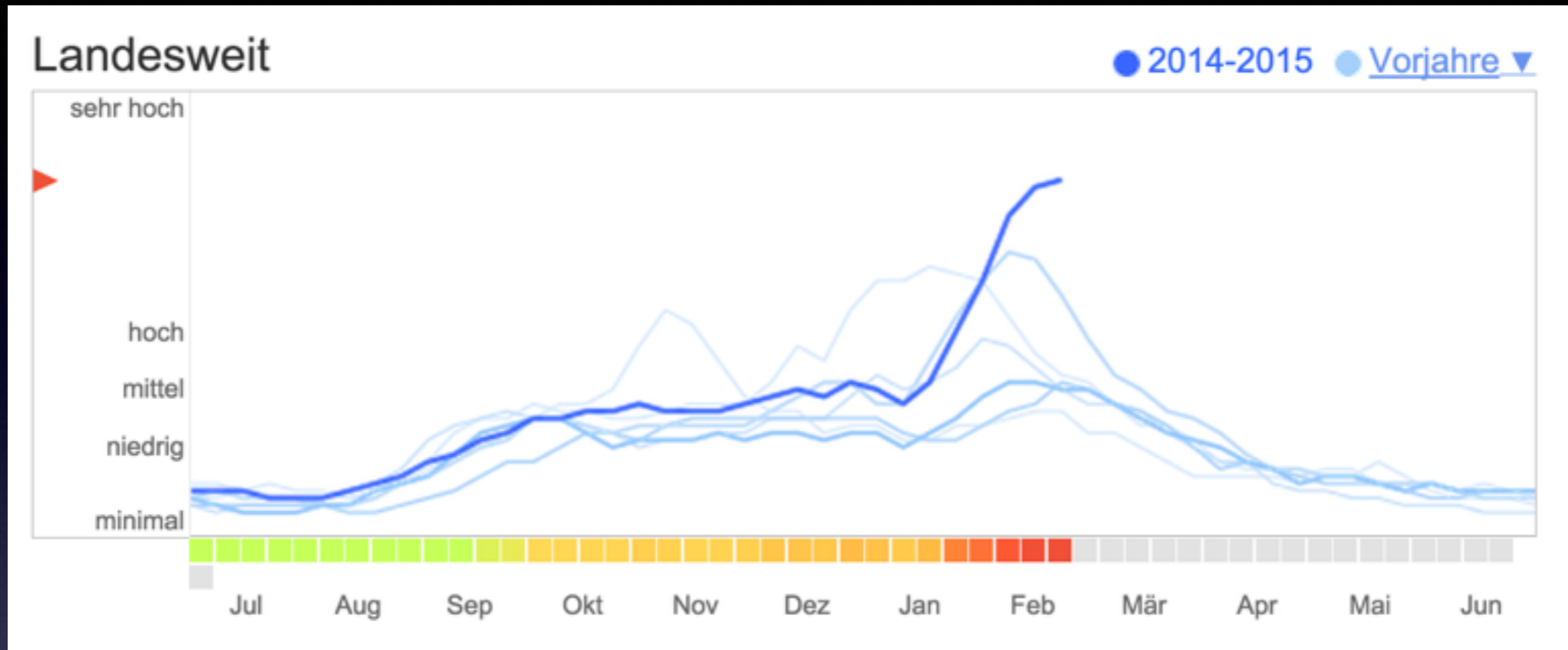
Beispiel: Wird ein Kunde einen Kredit zurückzahlen ?

—> Scoring, Klassifikation

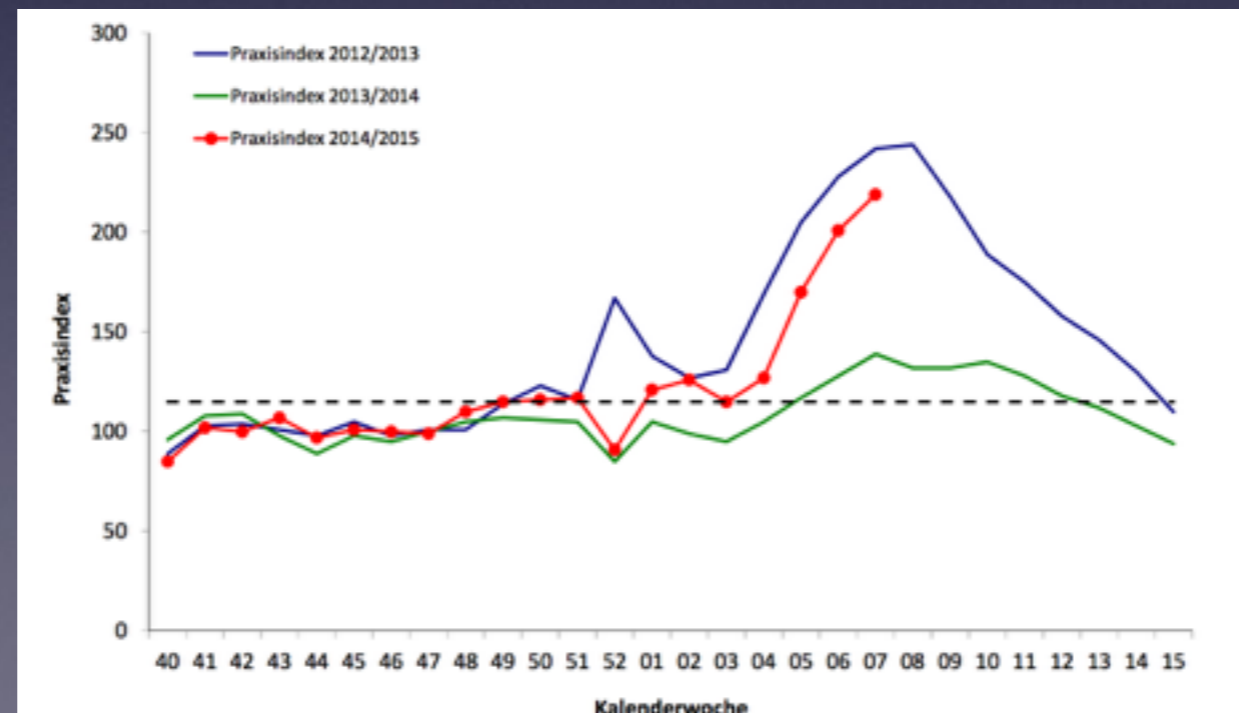
Erkennen von Mustern in Daten, auf deren Basis extrapoliert wird.

„Vorhersagen sind schwierig, insbesondere wenn sie die Zukunft betreffen“ ...

Beispiel: google flu trends



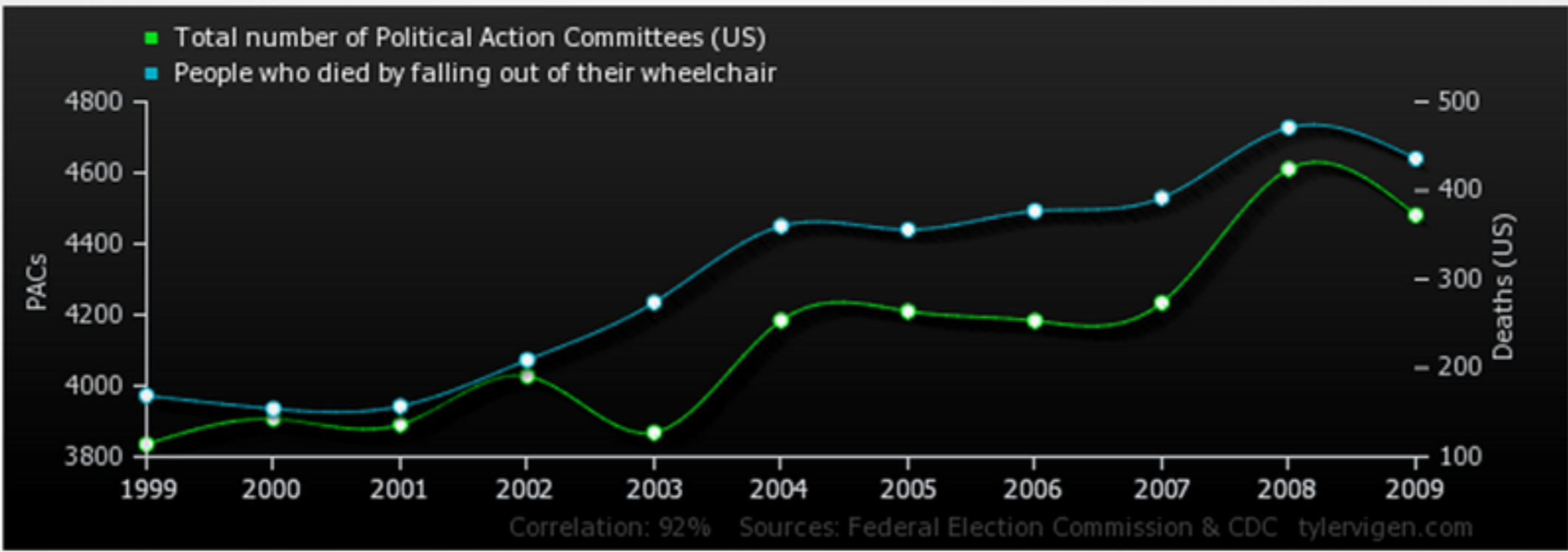
[<http://www.google.org/flutrends/de/#DE>]



[https://influenza.rki.de/Wochenberichte/2014_2015/2015-07.pdf]

Kausalität

Total number of Political Action Committees (US) correlates with People who died by falling out of their wheelchair



Upload this image to imgur

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total number of Political Action Committees (US) PACs (Federal Election Commission)	3,835	3,907	3,891	4,027	3,868	4,184	4,210	4,183	4,234	4,611	4,481
People who died by falling out of their wheelchair Deaths (US) (CDC)	169	154	157	209	274	360	356	377	392	471	436
Correlation: 0.915876											




Sensornetze:

Smart Bridges

Adding sensor networks to infrastructure will make them cyberphysical systems

By Steven Cherry

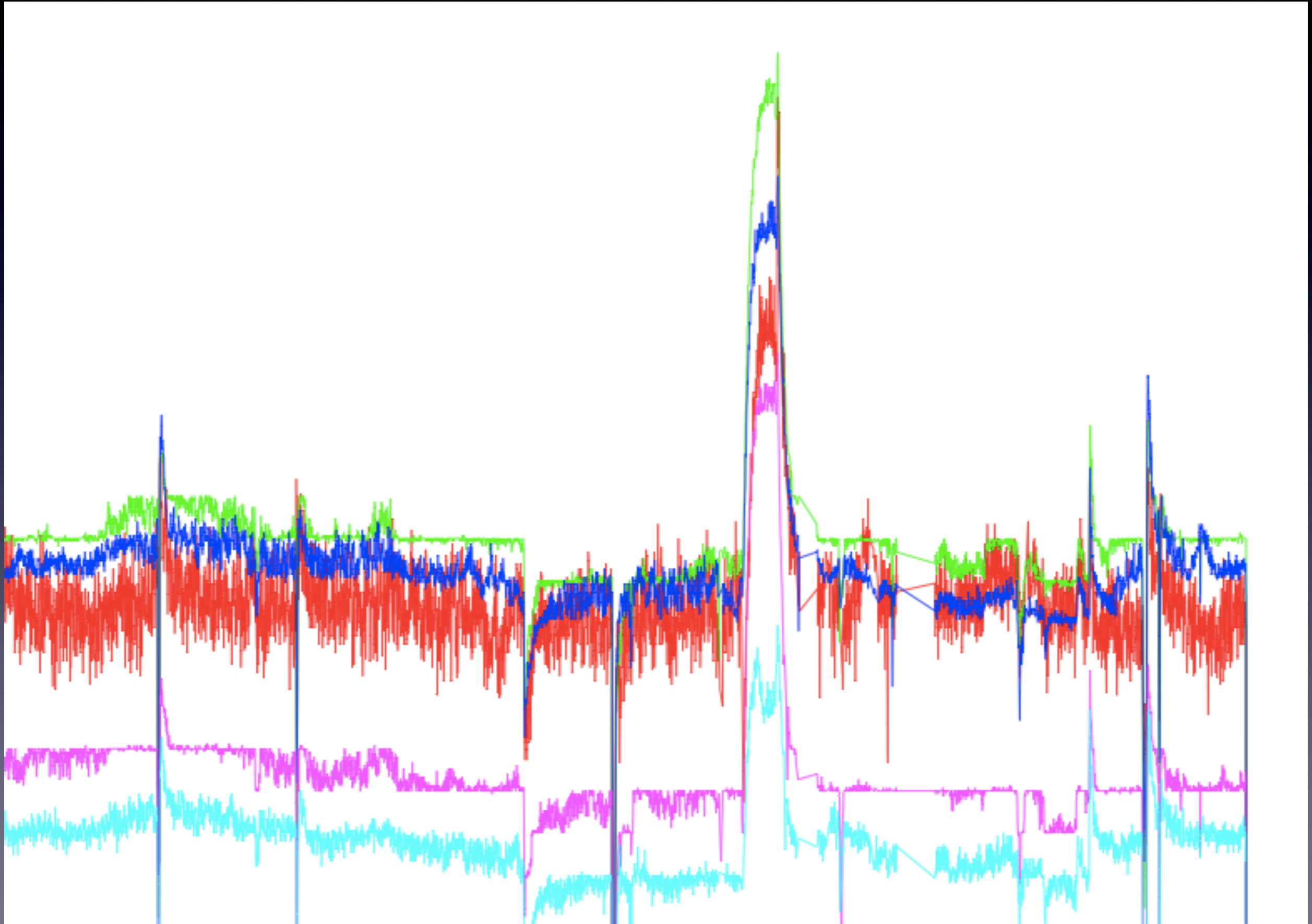
Posted 7 Aug 2013 | 15:32 GMT

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

Industrial Internet konkret



Markt:

Nine settings where value may accrue

Size in 2025, \$ trillion¹

Low estimate High estimate

Factories—eg, operations management, predictive maintenance 1.2–3.7

Cities—eg, public safety and health, traffic control, resource management 0.9–1.7

Human—eg, monitoring and managing illness, improving wellness 0.2–1.6

Retail—eg, self-checkout, layout optimization, smart customer-relationship management 0.4–1.2

Outside—eg, logistics routing, autonomous (self-driving) vehicles, navigation 0.6–0.9

Work sites—eg, operations management, equipment maintenance, health and safety 0.2–0.9

Vehicles—eg, condition-based maintenance, reduced insurance 0.2–0.7

Homes—eg, energy management, safety and security, chore automation 0.2–0.3

Offices—eg, organizational redesign and worker monitoring, augmented reality for training 0.1–0.2

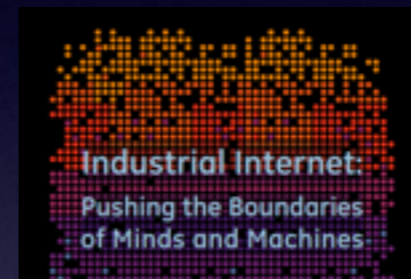
Total \$4 trillion–\$11 trillion

¹Adjusted 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"



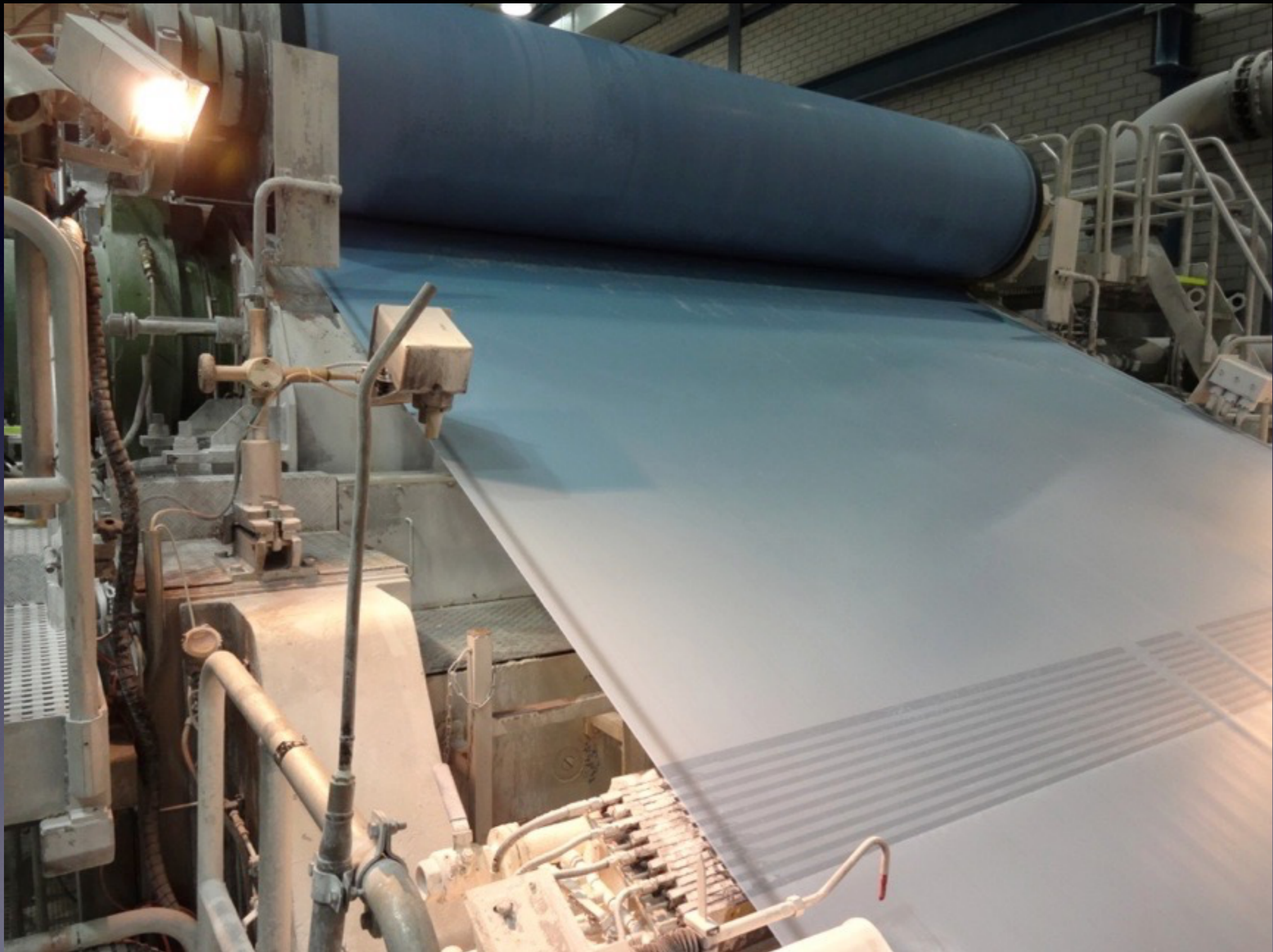
„25-40 percent of current per capita GDP“

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]

Beispiel: Verschleißmessung von Formiersiebenen



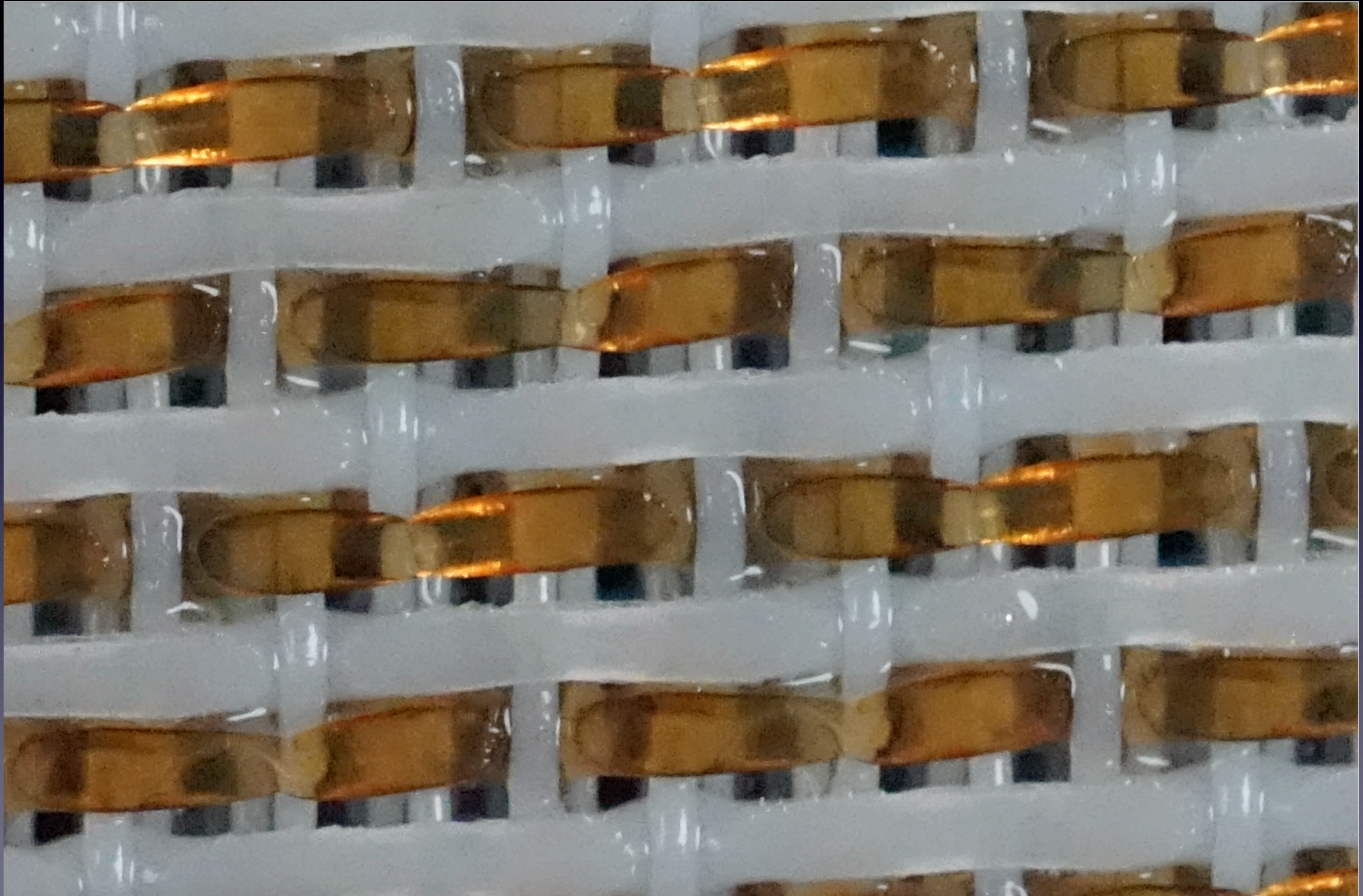
Standard-Kamera mit hochwertiger Optik



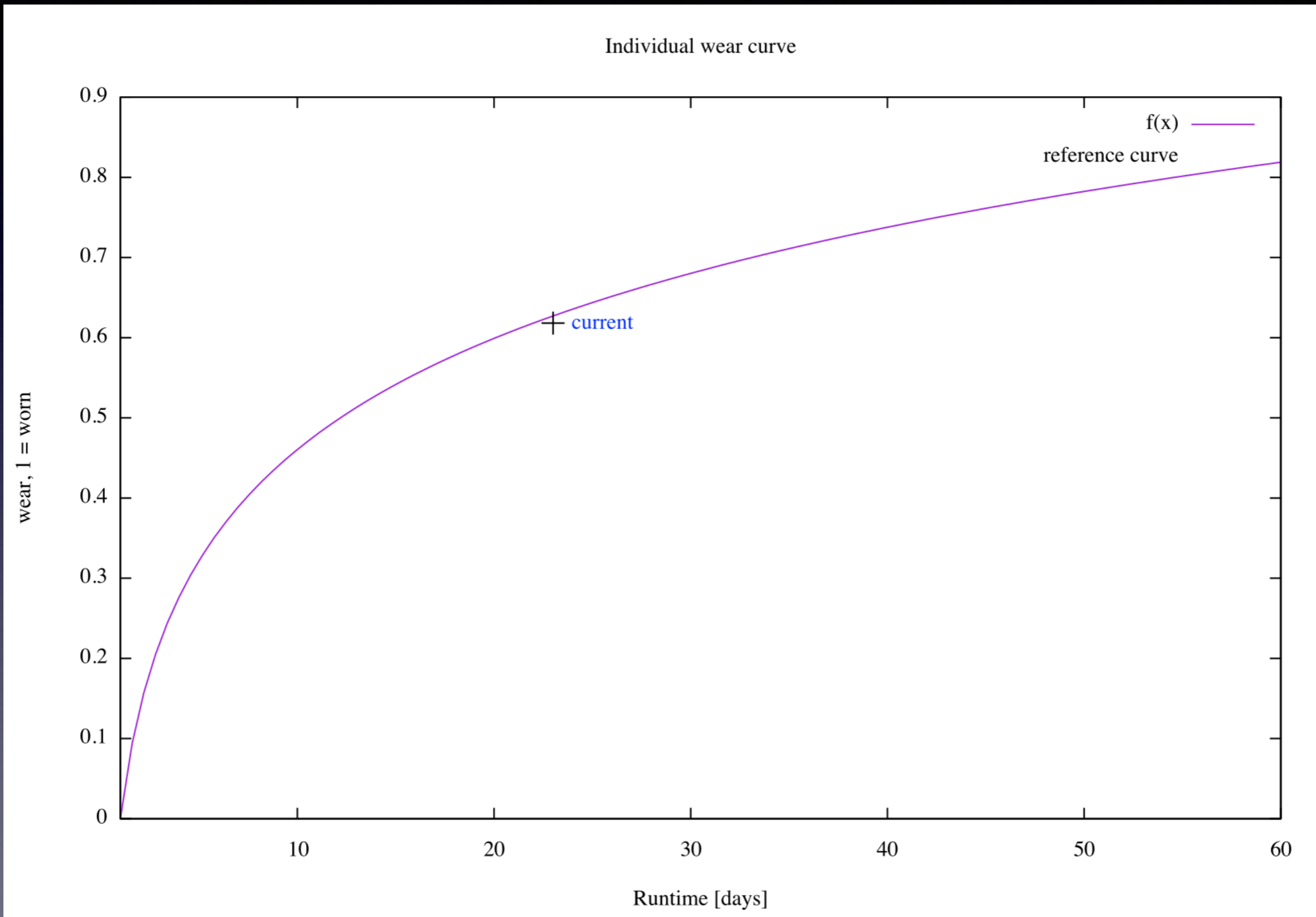
High-Speed Fotografie



Ergebnis



Kontinuierliche Messung



Fragen ?

<http://www.tillh.de/Industrie4APV.pdf>

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