

Digital Transformation

The fourth industrial revolution

Agenda

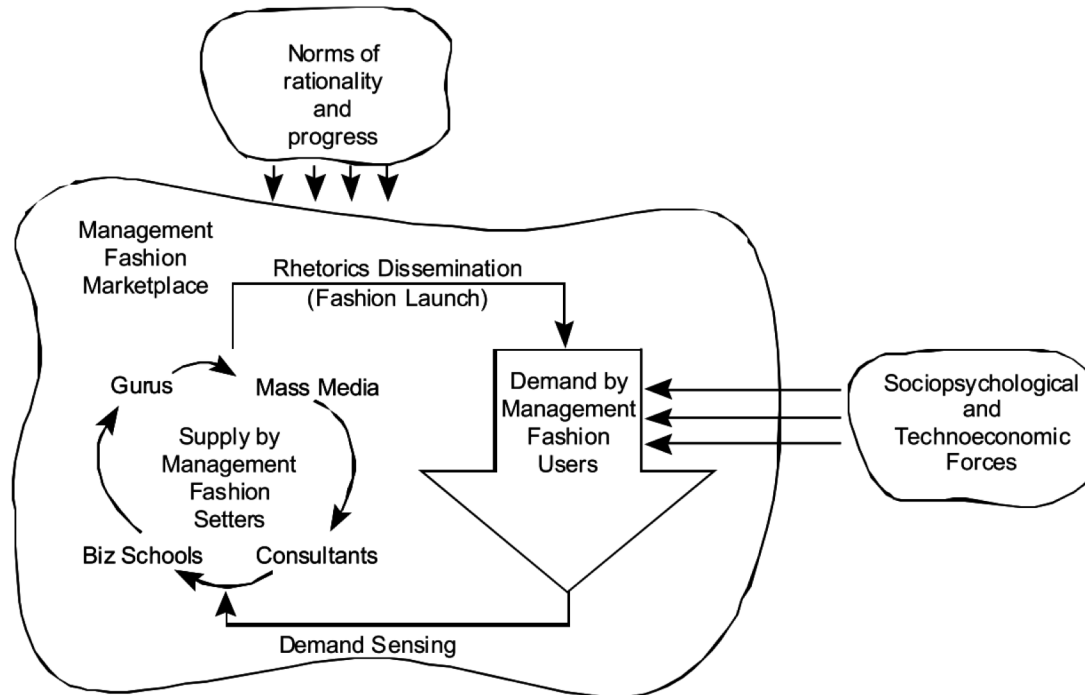
- Digital trends
- New business models

Digital trends

Google™ Trends



Fashion waves in management and the innovation rhetoric

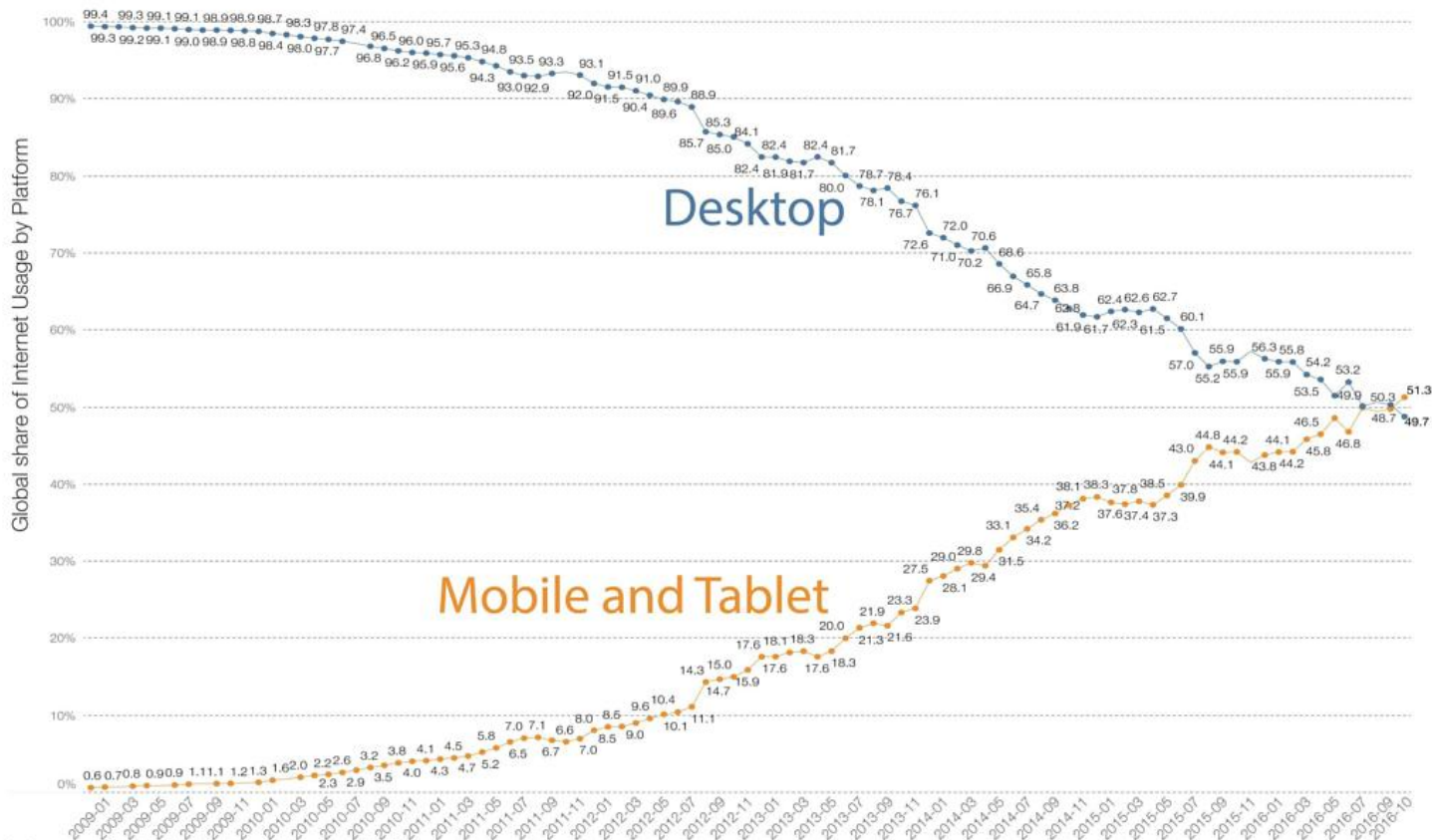


Source: Baskerville, R. and Myers, M.D. (2009). Fashion waves in Information Systems research and practice. *MIS Quarterly*, 33(4), 647–662.



Global share of internet usage by platform worldwide (2009 to October 2016)

These estimates are published by StatCounter.com



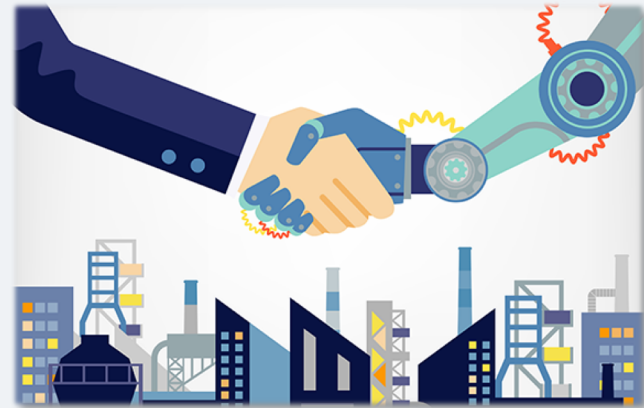
Data source: StatCounter (accessed 1 November 2016)

The interactive data visualization is available at OurWorldinData.org. There you find the raw data and more visualizations on this topic.

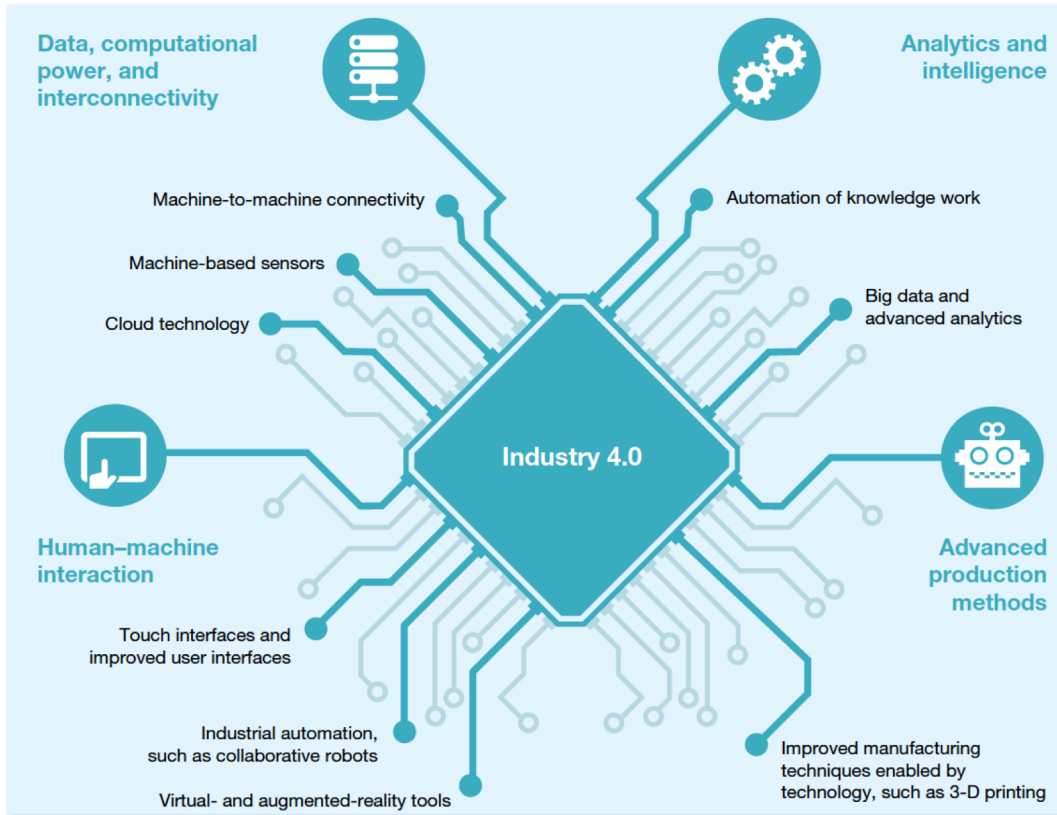
Licensed under CC-BY-SA by the author Max Roser.

Internet of things

A system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.



The fourth industrial revolution



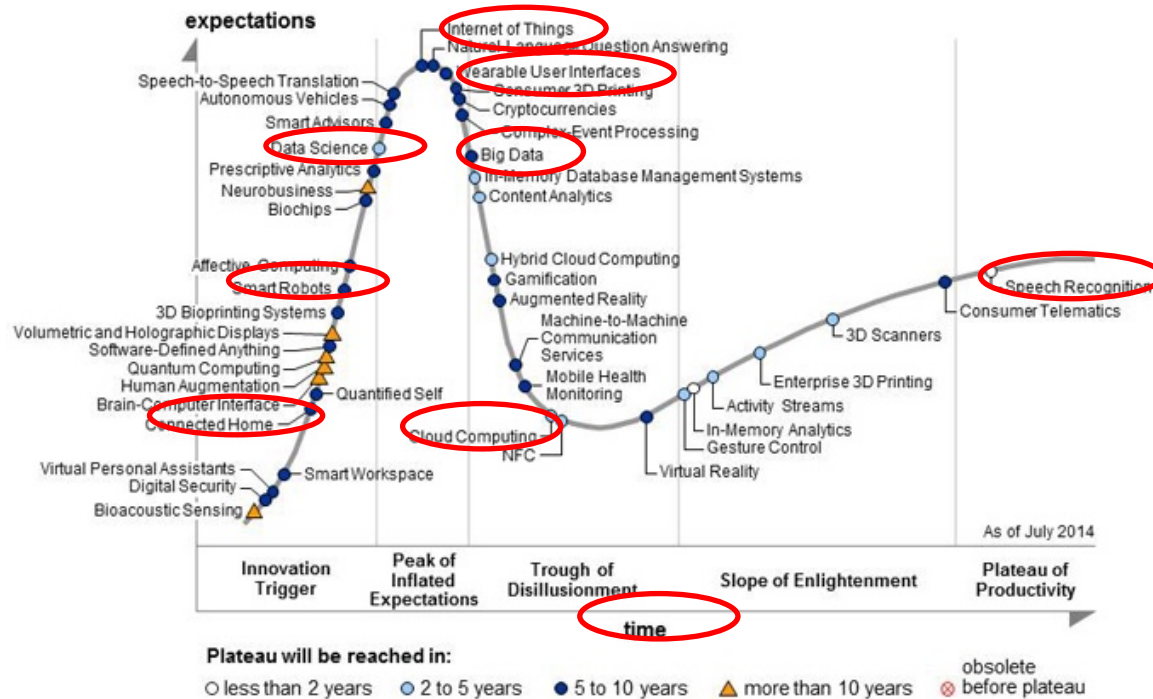
Fonte: McKinsey

“Piano Nazionale per l’Industria 4.0”

Industria 4.0: Le tecnologie abilitanti

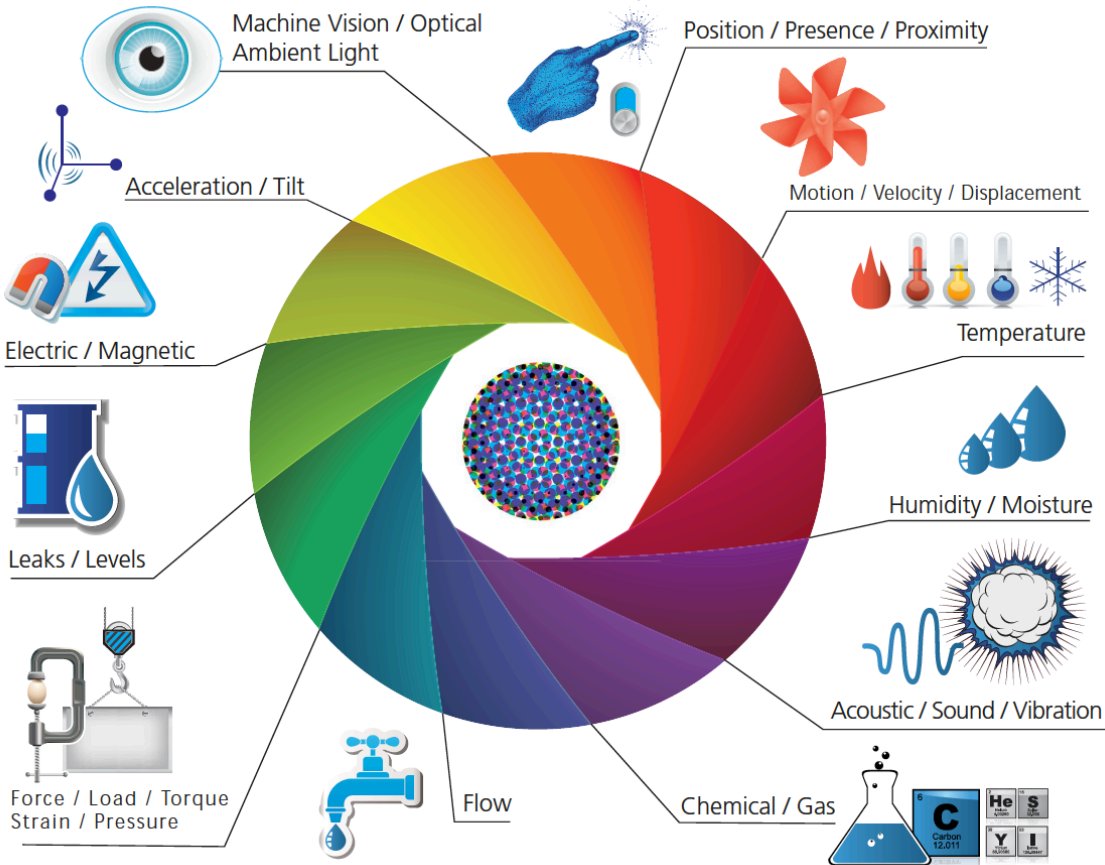


The Gartner hype cycle



Source: Gartner

Sensors



Data never sleeps

DOMO DATA NEVER SLEEPS 3.0

How much data is generated every minute?

Data is being created all the time without us even noticing it. Much of what we do every day now happens in the digital realm, leaving an ever-increasing digital trail that can be measured and analyzed. Just how much data do our tweets, likes and photo uploads really generate? For the third time, Domo has the answer—and the numbers are staggering.



THE GLOBAL INTERNET POPULATION GREW 18.3% FROM 2013-2015 AND NOW REPRESENTS 3.2 BILLION PEOPLE.

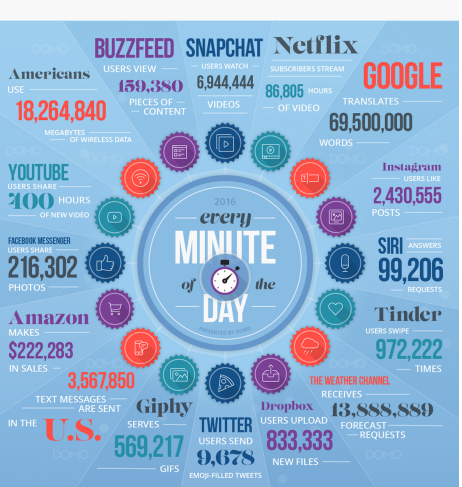
With each click, share and like, the world's data pool is expanding faster than we can comprehend. Business leaders are paying attention to sources of data resources to make crucial decisions about the future. The team at Domo can help your business make sense of this endless stream of data by providing executives with all their critical information in one intuitive platform. Domo delivers the insights you need to transform the way you run your business. [Learn more at www.domo.com](http://www.domo.com)

SOURCES: SNAPCHAT, NETFLIX, GOOGLE, BUZZFEED, TWITTER, THE WEATHER CHANNEL, AMERICANZ, GIPHY, YOUTUBE, BUZZFEED, AMAZON, CHIRP, MARY MAMERS 2016 REPORT, TINDER, REDDIT, UBER, FACEBOOK, PINTEREST, APPLE, NETFLIX, REDDIT, AMAZON, TINDER, BUZZFEED, MARKETINGPROFS, STATISTIBAN.COM

DOMO DATA NEVER SLEEPS 4.0

How much data is generated every minute?

In the fourth annual edition of Data Never Sleeps, newcomers like Giphy and Facebook Messenger highlight our insatiable appetite for video. Just how many GIFs, videos, and emoji-fueled Tweets flood the internet every minute? See for yourself below.



GLOBAL INTERNET POPULATION GROWTH 2012-2016 (IN BILLIONS)

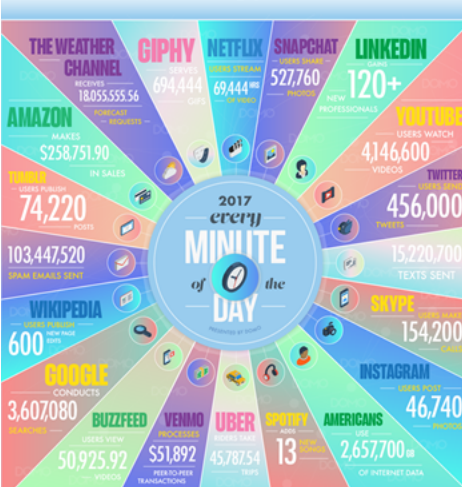
Data has become the new enterprise currency. The ability to collect, analyze, and leverage it effectively will distinguish the best from the rest. Domo helps you stay ahead by bringing your data and people together in the cloud, where everyone in your organization can easily access the information they need to make faster, better-informed decisions and optimize business performance. [Learn more at www.domo.com](http://www.domo.com)

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DOMO DATA NEVER SLEEPS 5.0

How much data is generated every minute?

90% of all data today was created in the last two years—that's 2.5 quintillion bytes of data per day. In our 5th edition of Data Never Sleeps, we bring you the latest stats on just how much data is being created in the digital sphere—and the numbers are staggering.



GLOBAL INTERNET POPULATION GROWTH 2012-2017 (IN BILLIONS)

The world's internet population has grown 1.7B from 2012 and now represents 3.7 billion people.

With each click, share, video, and like, businesses are using data to make decisions about the future. Domo gives everyone in your business real-time access to data from virtually any data source in a single platform for smarter decision-making at any moment. [Learn more at domo.com](http://www.domo.com)

SOURCES: SNAPCHAT, NETFLIX, GOOGLE, BUZZFEED, TWITTER, THE WEATHER CHANNEL, AMERICANZ, GIPHY, YOUTUBE, BUZZFEED, AMAZON, CHIRP, MARY MAMERS 2016 REPORT, TINDER, REDDIT, UBER, FACEBOOK, PINTEREST, APPLE, NETFLIX, REDDIT, AMAZON, TINDER, BUZZFEED, MARKETINGPROFS, STATISTIBAN.COM

AI is not...

AI is...



Magic!



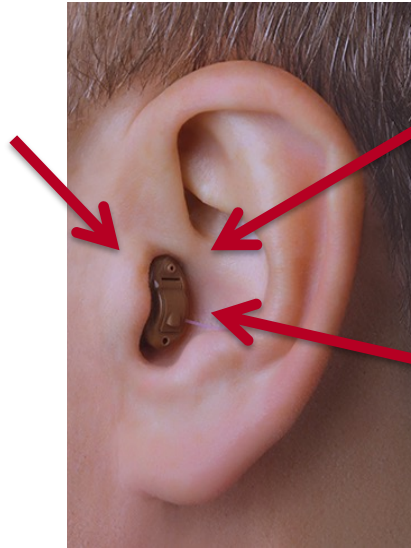
Automation!

Future devices



Personal assistance (auditive)

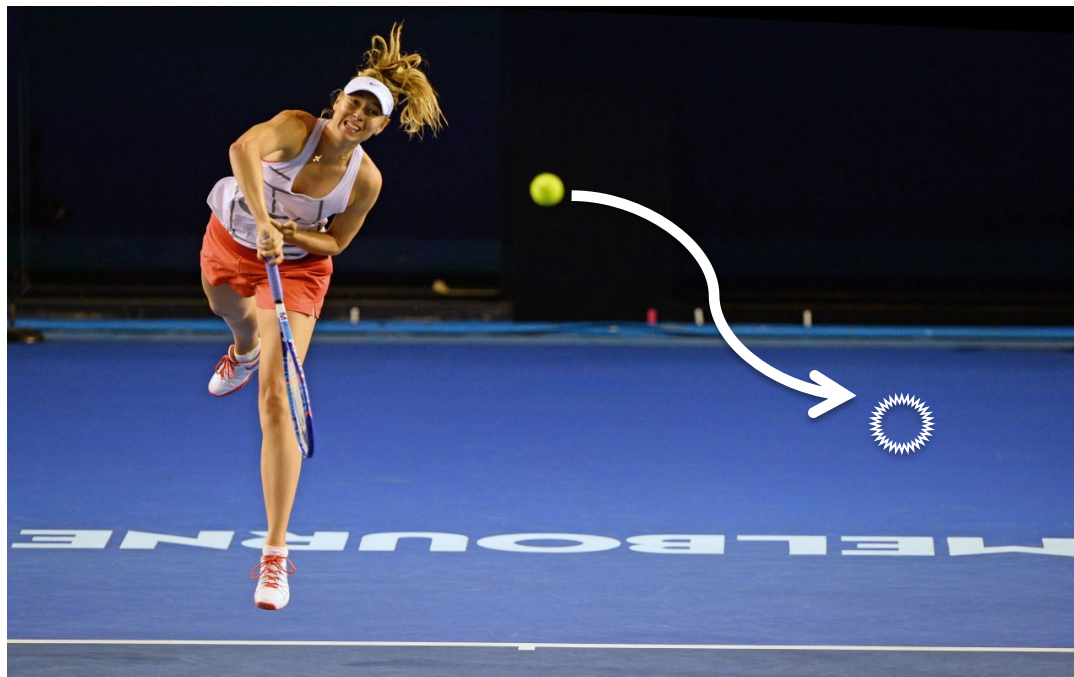
“Don't forget the keys. They are under the napkin on the dining table”



"You haven't given your wife anything nice in the last three days"

"Your blood pressure is a little high. You should take a long walk this afternoon"

Personal assistance (visual)



Personal assistance (social)



Where is business going?



The experiment

*Royal Commission on the
Practice of Subjecting Live
Animals to
Experiments for Scientific
Purposes (1878)*

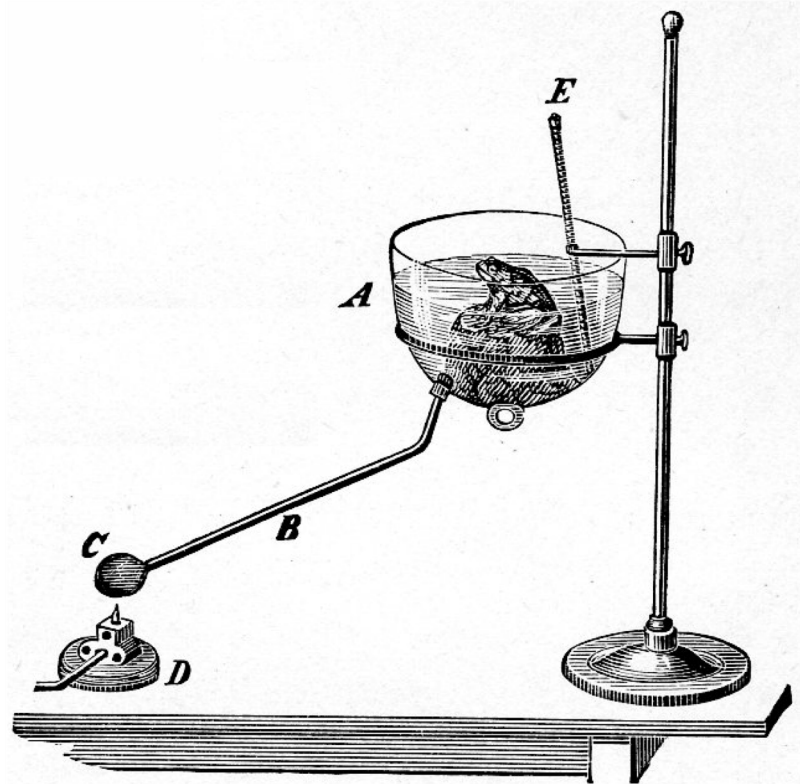
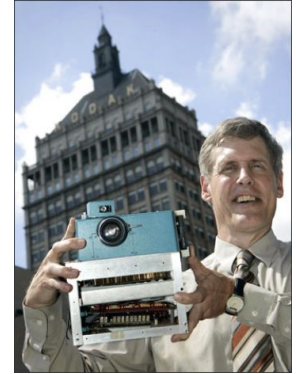


Fig. 70. Boiling a Frog without His Knowing it.
No Sensation with an Extremely Slow
Rate of Change.

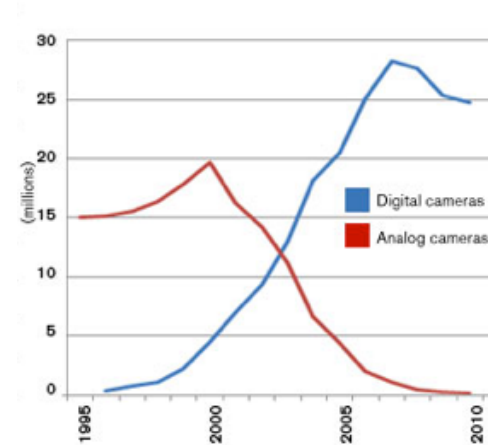
Kodak Digital Camera

- Kodak invented digital camera in 1975
- Kodak was a market leader in film
- Kodak went bankrupt in 2012



Steven Sasson with the prototype of the first digital camera

Camera sales



FOURTH INDUSTRIAL REVOLUTION



1784 mechanical loom

1

Steam engine



1923 Assembly line

2

Mass production



1969 automation (PLC)

3

Internet technology



2014 real time optimization

4

Internet of Things

Fonte: CERP-IoT – Cluster of European Research Projects on the IoT, Kranenburg

While few occupations are fully automatable, 60 percent of all occupations have at least 30 percent technically automatable activities

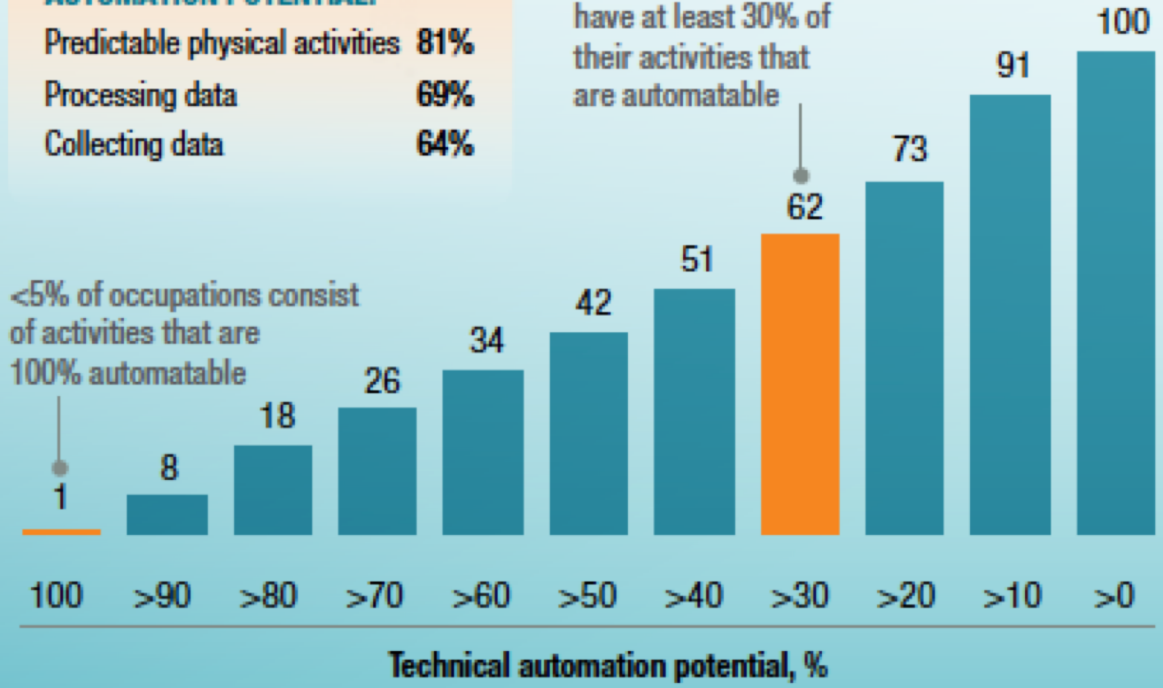
ACTIVITIES WITH HIGHEST AUTOMATION POTENTIAL:

Predictable physical activities	81%
Processing data	69%
Collecting data	64%

About 60% of occupations have at least 30% of their activities that are automatable

Share of roles
100% = 820 roles

<5% of occupations consist of activities that are 100% automatable



Source: McKinsey

A View from **Aviva Hope Rutkin**

Report Suggests Nearly Half of U.S. Jobs Are Vulnerable to Computerization

Oxford researchers say that 45 percent of America's occupations will be automated within the next 20 years.

September 12, 2013

33

R

apid advances in technology have long represented a serious potential threat to many jobs ordinarily performed by people.

A recent report (which is not online, but summarized [here](#)) from the Oxford Martin School's [Programme on the Impacts of Future Technology](#) attempts to quantify the extent of that threat. It concludes that 45 percent of American jobs are at high risk of being taken by computers within the next two decades.



Vulnerable jobs



Transactional, not Social

Hand-eye Coordination

Well Defined Objective Goals

Future jobs



Demonstrations of Skill Establishing a Personal Connection Flexible Problem Solving



1. Sensing hardware captures data

Machines collect and monitor data on process parameters



2. Software analyzes data and facilitates decisions

Models determine optimal process-parameter settings based on historical data



3. Users can steer processes remotely

Parameters are adjusted remotely by operators, or automatically in real time

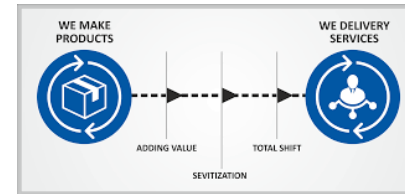
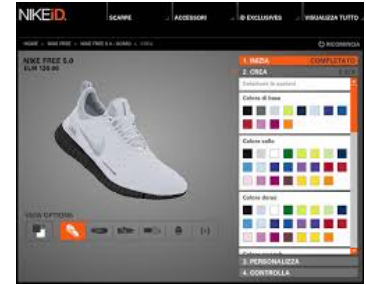


Do you really need a washing machine?



New business models

- Mass customization
- Servitization
- Circular economy
- Networking



The evolution of organizing logics for value creation

Organizing logic: the managerial rationale for designing and evolving specific organizational arrangements in response to an enterprise's environmental and strategic imperatives

Vertically integrated hierarchies

Value creation:
economies of scale
and scope

Net-enabled
enterprise
processes (services)

Value creation:
agility and ability to
rapidly recombine
components

Doubly distributed
networks and
multiple design
hierarchies

Value creation:
generativity,
heterogeneity,
digital product
platforms,
meaning-making
capability

Platform as a business model

- Platforms bring together (or match) two (or more) distinct groups in a relationship where the value for one group increases as the number of participants from the other groups increases
- Direct and indirect network externalities: a technology's usefulness increases as its installed base of users increases



examples of digital platforms

- video gaming
 - gathering players and developers
- operating systems
 - gathering users and developers
- internet portals
 - gathering users and advertisers
- payment systems
 - gathering consumers and merchants

Open Interfaces for digital platforms



Free Libre and Open-Source software (FLOSS) is computer software that can be classified as both free software and open source software

- In 1992, Linus Torvalds licensed the Linux project under the GNU General Public License



Creative Commons licenses allow creators to communicate which rights they reserve, and which rights they waive for the benefit of recipients or other creators.

- In 2001, Lawrence Lessig founded the Creative Commons non-profit organization



Application Programming Interfaces (API) is a set of subroutines definitions, protocols, and tools for building software and applications.

- examples are iOS, Facebook, etc.


Exercise

Choose one brand and identify a core service, its interfaces and its complements.

amazon

facebook



Google

Microsoft

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Takk for at du hørte på!

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