



BUSINESS
CYCLE
FORUM

**KIELER
KONJUNKTUR
GESPRÄCHE**

Evolution or Revolution?

The Economic Consequences of Digitalization

15/16 April 2019

Deutsche Bundesbank, Hamburg

Deutsche Bundesbank, Kiel Institute for the World Economy | Hamburg, 15 April 2019

99th Kieler Konjunkturgespräche: Evolution or Revolution? The Economic Consequences of Digitalization

Opening Remarks

Stefan Kooths
Forecasting Center



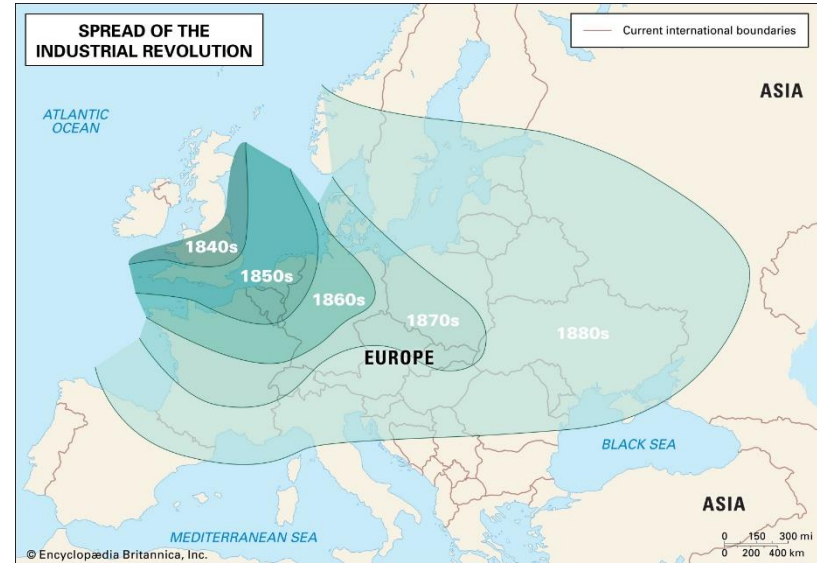
Evolution or revolution?

Revolution = disruptive change

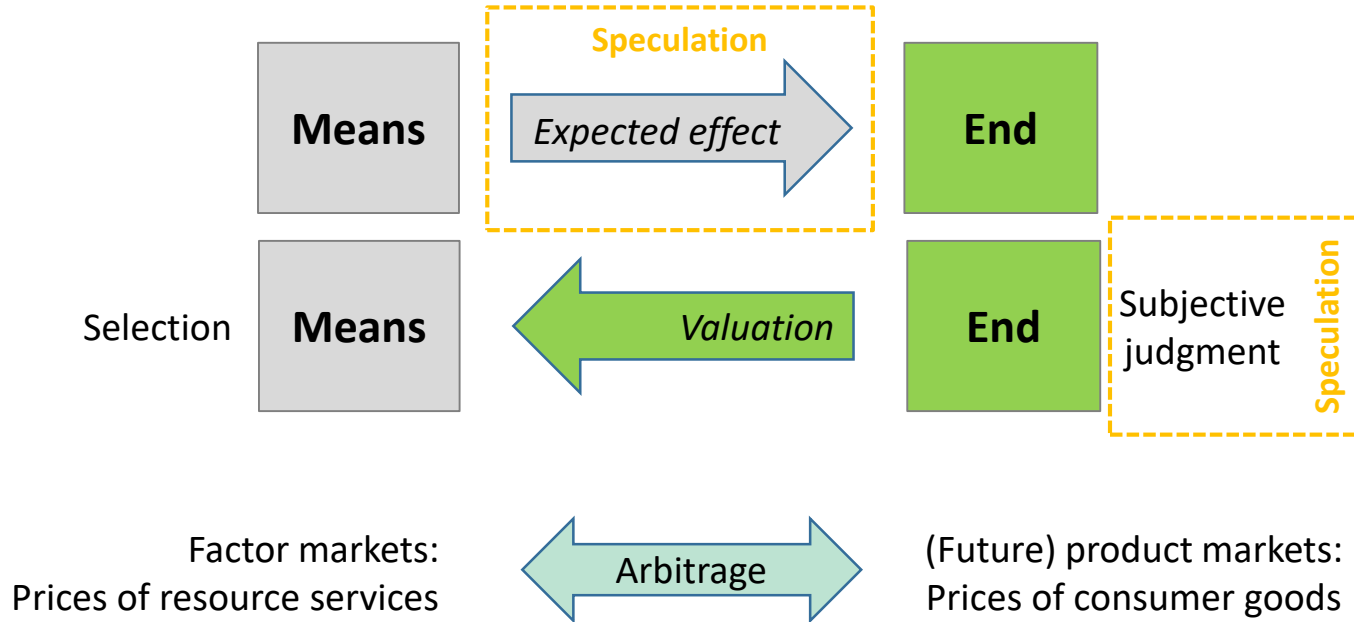
- Political revolution



- Industrial evolution



Human action



*Imperfect communication between two markets
(price of bundle of inputs \neq price of consumption good)*

Not an **end in itself**.
Not simply **erratic**.

Basically driven
by **consumer needs**.

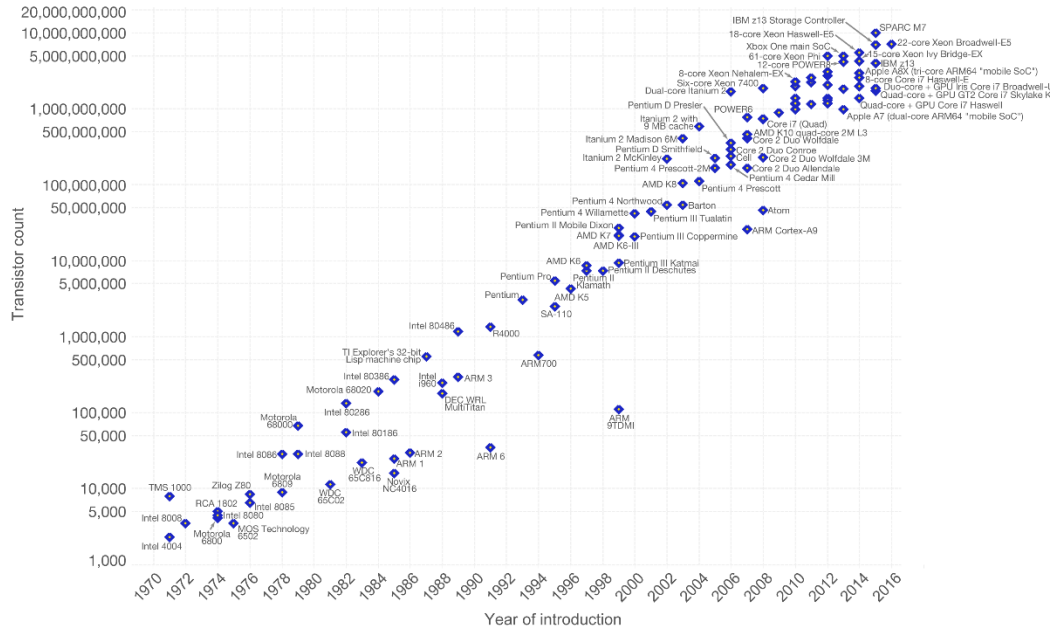
Example: Microprocessors

What about Moore's Law?

Moore's Law

Moore's Law – The number of transistors on integrated circuit chips (1971-2016)

Moore's law describes the empirical regularity that the number of transistors on integrated circuits doubles approximately every two years. This advancement is important as other aspects of technological progress – such as processing speed or the price of electronic products – are strongly linked to Moore's law.



Data source: Wikipedia (https://en.wikipedia.org/wiki/Transistor_count)
The data visualization is available at [OurWorldinData.org](https://www.ourworldindata.org). There you find more visualizations and research on this topic.

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

■ R&D spending

Top-10 semiconductor suppliers

» 2017: \$ 35.9 bn

» 2016: \$ 35.4 bn

» 2015: \$ 34.7 bn

» 2014: \$ 31.8 bn

» 2013: \$ 28.7 bn

Source: IC Insights, Strategic Reviews

⇒ Purposeful human action,
not a technological law

Capital: The conservative element in capitalism

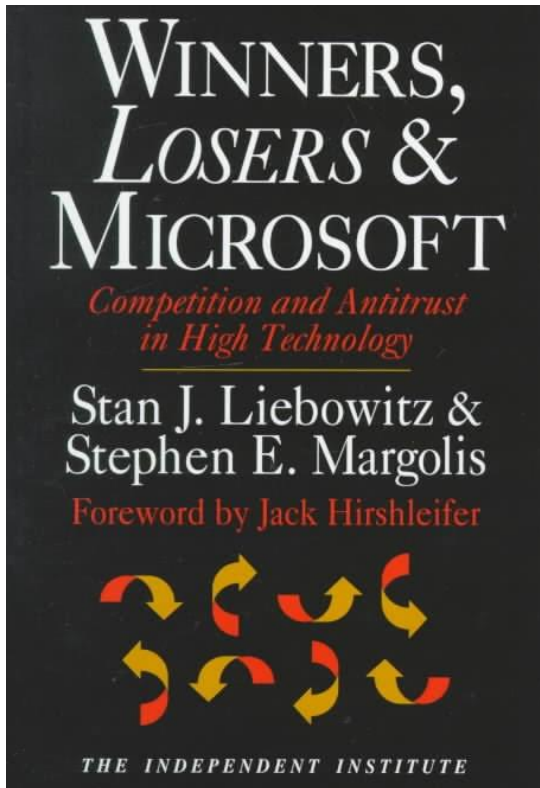
New technologies \Rightarrow transformation of the capital structure

- (1) Investment as a time consuming process ($\Delta K = S$)
- (2) Market premium for downward compatibility



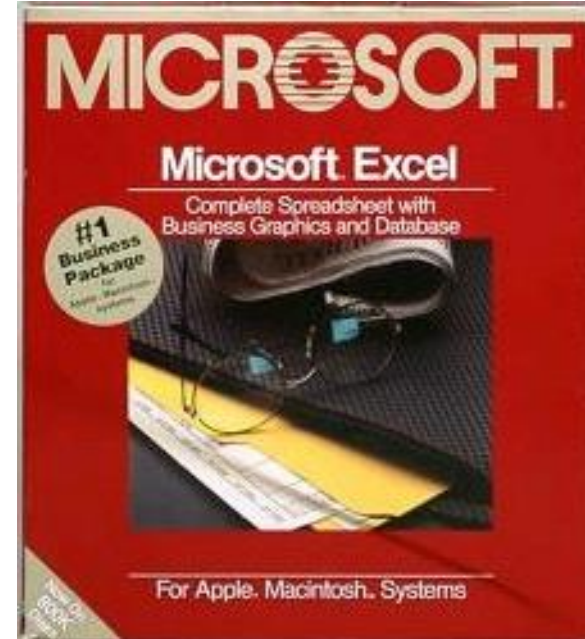
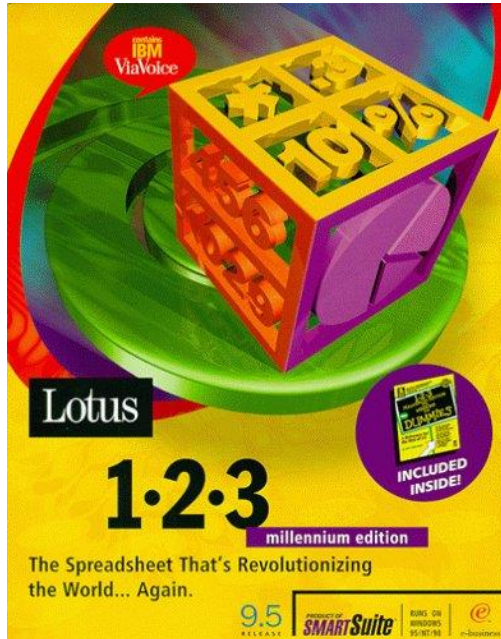
Permanent readjustments, not tabula rasa

Example: Microsoft



- Willingness to pay matters
- Economic success
 - » Cutting-edge technologies?
 - » Best price-performance bundles!

Network effects vs. performance



Mass unemployment?
Mass impoverishment?

- Case 1:
Ricardo does not apply.

- Economic isolation

⇒ **Almost no change for RoW**



hypothetical scenario only

- Case 2:
Ricardo applies.

- Economic exchange

⇒ **Income spill-overs via inter-industrial terms-of-trade**

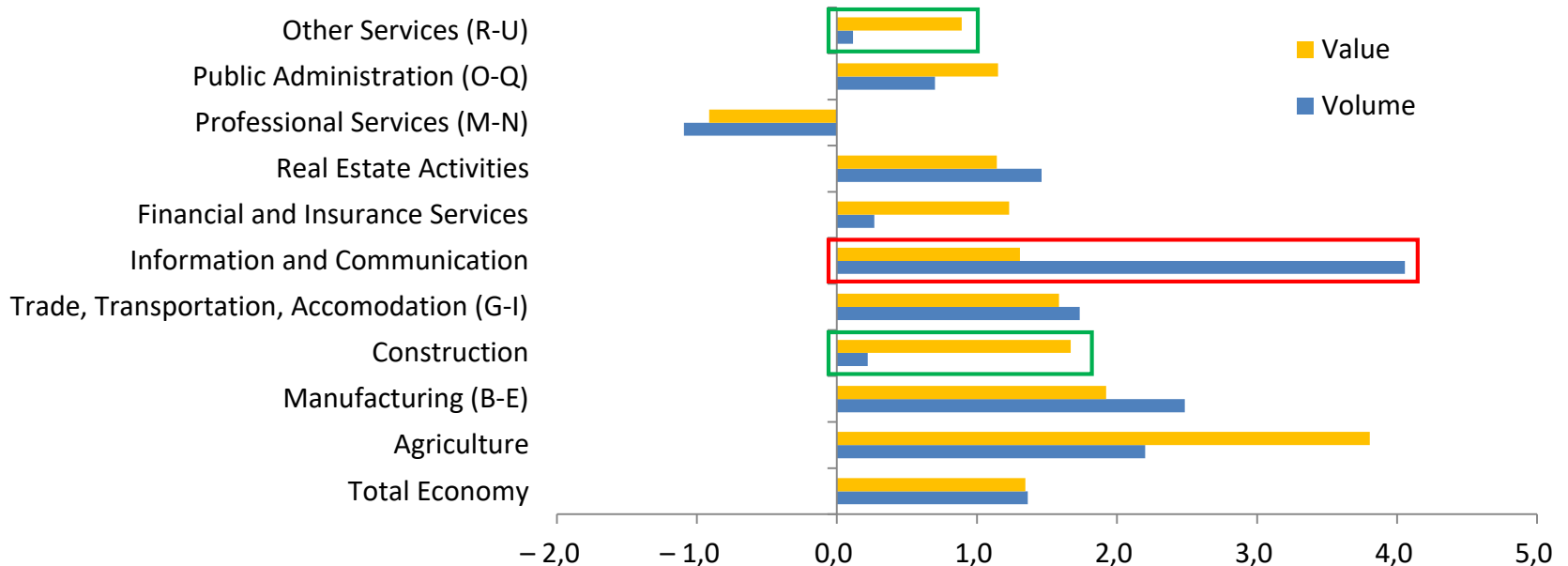
Example: Men's haircuts



- 20 minutes per haircut (no progress over 200 years)
 - Zero productivity gains in volume terms ...
 - ... but substantial growth of barbers' real incomes
- ⇒ **Gains in value productivity due to growing opportunity cost of non-barbers**

Value productivity vs. volume productivity

Labor productivity (value-added per hours worked), Germany



Average annual change (1992 to 2018).

Price adjusted (Volume: generic deflator, Value: private consumption deflator).

Source: Statistisches Bundesamt, Fachserie 18, Reihe 1.2; IfW calculations.

Mass production corresponds to mass consumption.

General investment motive

Economizing on scarce resources.

Digital markets: Overwhelming speed of change?

Competition among humans,
not humans vs. superhumans.

New Economy debate is ... 20+ years old

Network effects, winner-takes-all, ...
Is this time (really) different?

Consumer tastes in 10, 20, 30 ... years?

Beware of vested interests!

Schedule: Monday, 15 April 2019

- 13:00 to 13:45 **Welcoming addresses and introduction**
Arno Bäcker, President of the Regional Office, Deutsche Bundesbank, Hamburg
Gabriel Felbermayr, President, Kiel Institute for the World Economy
Stefan Kooths, Head of Forecasting Center, Kiel Institute for the World Economy
- 13:45 to 14:30 **Keynote: Robots, jobs and the income distribution**
Jens Südekum, Institute for Competition Economics, University Düsseldorf
- 14:30 to 15:15 **Keynote: Digitalisation – monetary policy aspects**
Jens Ulbrich, Director General, Directorate General Economics, Deutsche Bundesbank
- Coffee break
- 16:00 to 16:30 **Global economic outlook**
Klaus-Jürgen Gern, Forecasting Center, Kiel Institute for the World Economy
- 16:30 to 17:15 **Digitization in China: A new source of productivity amid rapid population ageing?**
Lauren A. Johnston, Senior Economist, Mercator Institute for China Studies, Berlin
- 17:15 to 18:00 **Stumbling but not falling – The US economy tested by a late cycle slowdown**
Adolfo Laurenti, Chief Economist VISA, London
- 18:00 to 19:45 Dinner buffet

Schedule: Monday, 15 April 2019

- 09:00 to 09:30 **Euro area: Economic outlook**
Ulrich Stolzenburg, Forecasting Center, Kiel Institute for the World Economy
- 09:30 to 10:15 **United Kingdom: Economic outlook**
Amit Kara, Head of Macroeconomic Forecasting, National Institute of Economic and Social Research, London
- 10:15 to 11:00 **Economic convergence in the Visegrad countries – what the future holds?**
Barnabás Virág, Executive Directorate of Monetary Policy and Economic Analysis, Central Bank of Hungary
- Coffee break
- 11:30 to 12:15 **France: Bracing for the “Gilets Jaunes”**
Charles-Henri Colombier, Director of Macroeconomic Analysis, Rexecode, Paris
- 12:15 to 13:00 **Germany: Economic outlook**
Nils Jannsen, Forecasting Center, Kiel Institute for the World Economy
- 13:00 to 14:00 Lunch buffet

Enjoy the 99th KKG



Prof. Dr. Stefan Kooths

Head of Forecasting Center

T +49 431 8814-579

F +49 431 8814-525

M stefan.kooths@ifw-kiel.de

  @kielinstitute

www.ifw-kiel.de

