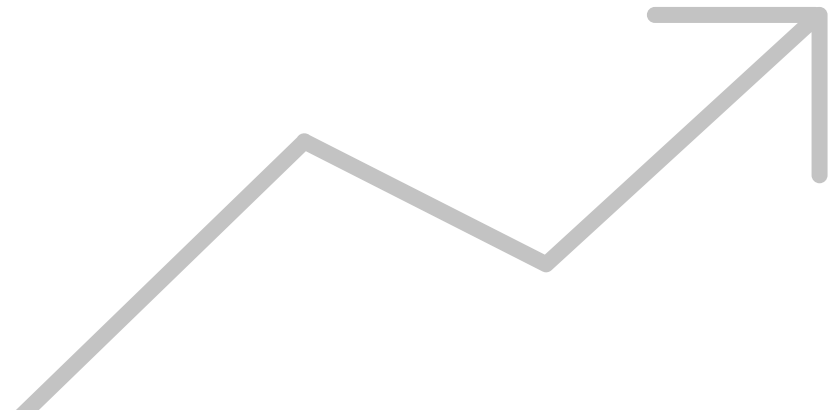


Recording of Data in the German National Accounts

Meeting of the Group of Experts on National Accounts

23-25 April 2024

Benedikt Kuckelkorn



Introduction

Leaders | Regulating the internet giants

The world's most valuable resource is no longer oil, but data

The data economy demands a new approach to antitrust rules



Source: The Economist

Rapidly expanding volumes of data
expenditures spent on recording data
→ Need for NA to explicitly reflect investments in data
→ Recording data as an asset part of SNA 2025 revision. Recommendations by DITT in Guidance Note DZ.06

First feasibility study by Destatis 2023

Follow-up project currently ongoing

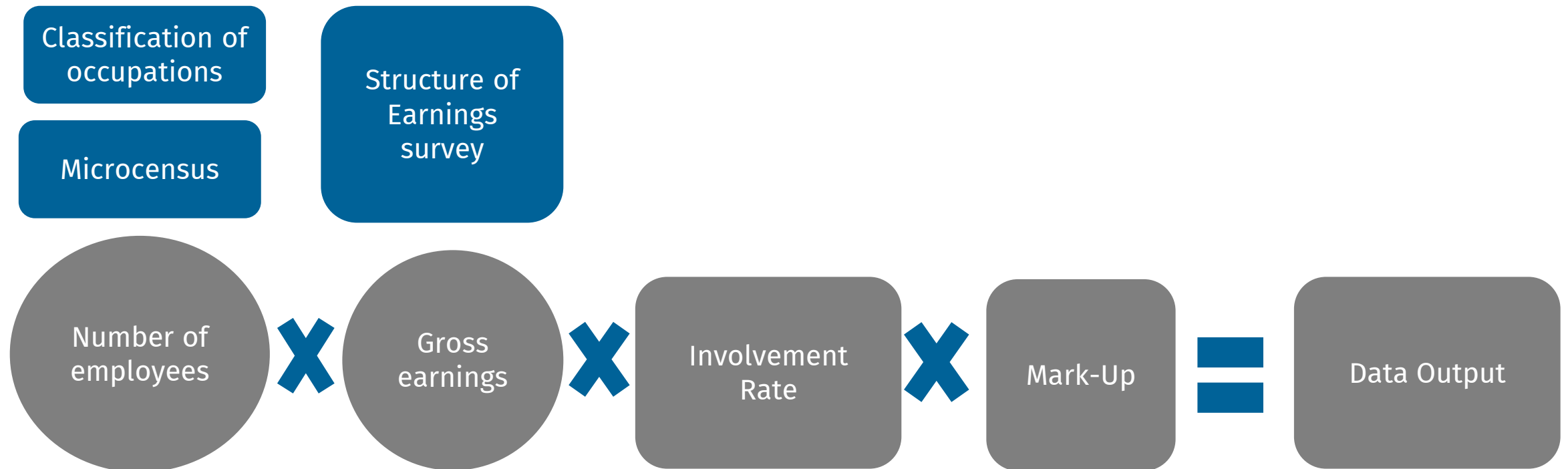
Data as an asset in GN DZ.06

Data is “*information content that is **produced** by **accessing** and **observing phenomena**; and **recording, organizing and storing information elements** from these phenomena in a **digital format**, which provide an economic benefit when used in productive activities.*”

- Separate asset category “*Data and Databases*”
- Only data that provides an economic benefit when used in the productive activities should be included
- Own account production
 - is considered as capital formation
 - Should be valued at sum of cost

Estimation of GFCF in data

Production on own-account



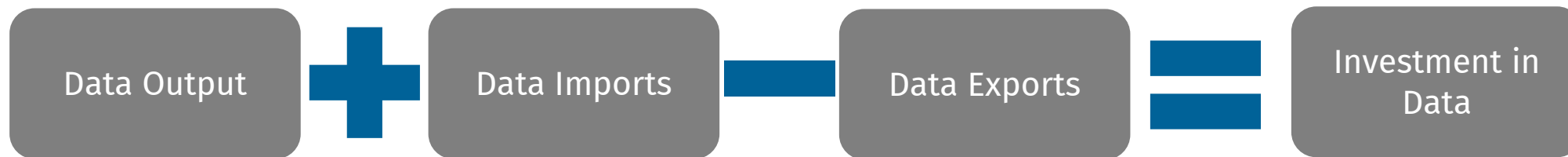
Estimation of GFCF in data

Purchased data

No data sources available

→ Necessary assumption: data assets are purchased on exclusive agreements

→ Allows estimation of total data assets in the economy as:



Absent better information, exports and imports of IT services as approximation

Depreciation and Capital Stocks of Data Assets

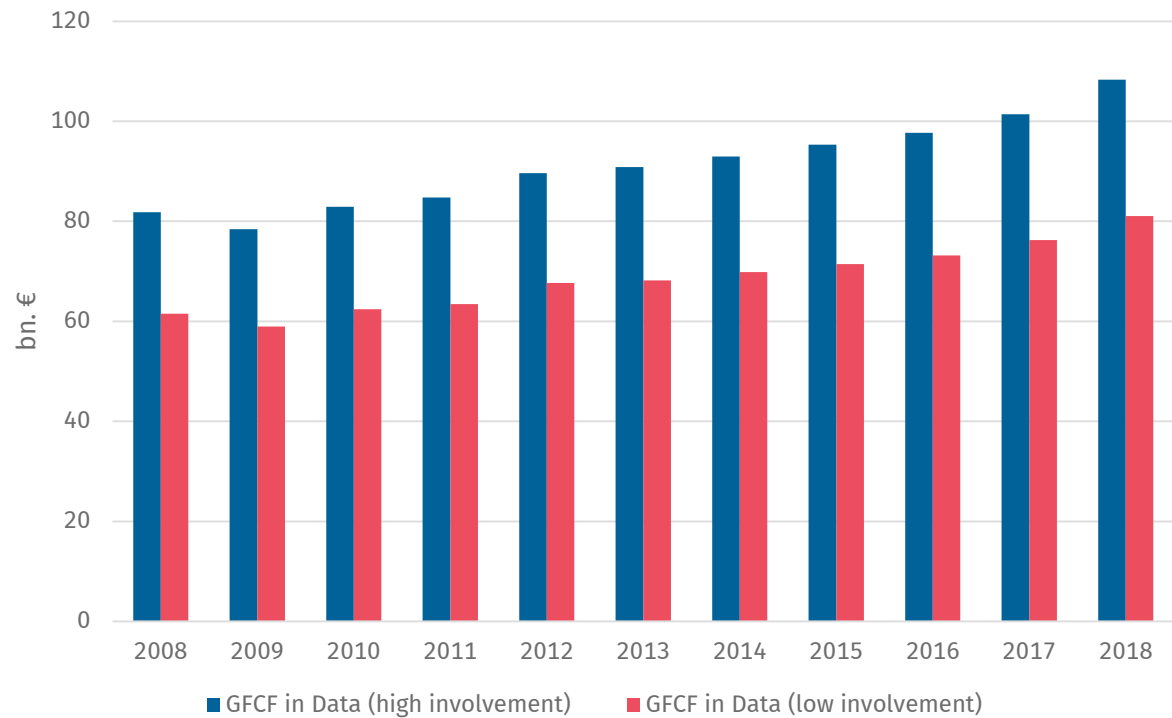
Calculated using Perpetual Inventory Method

Requirement: Retirement and depreciation profiles and average service lives (ASL)

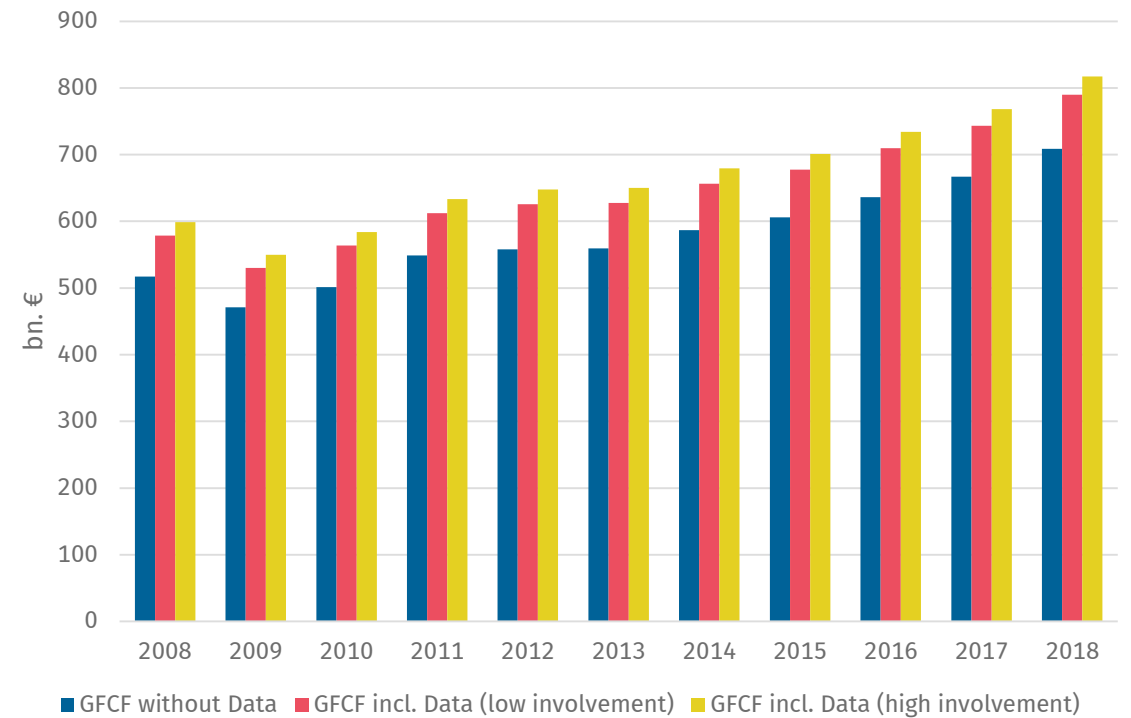
- Test of multiple specifications:
 - Straight-line depreciation in combination with a bell-shaped retirement function
Density function of the gamma distribution
 - Geometric depreciation method
 - ASL of 2, 5, 10 years

Results

GFCF in Data

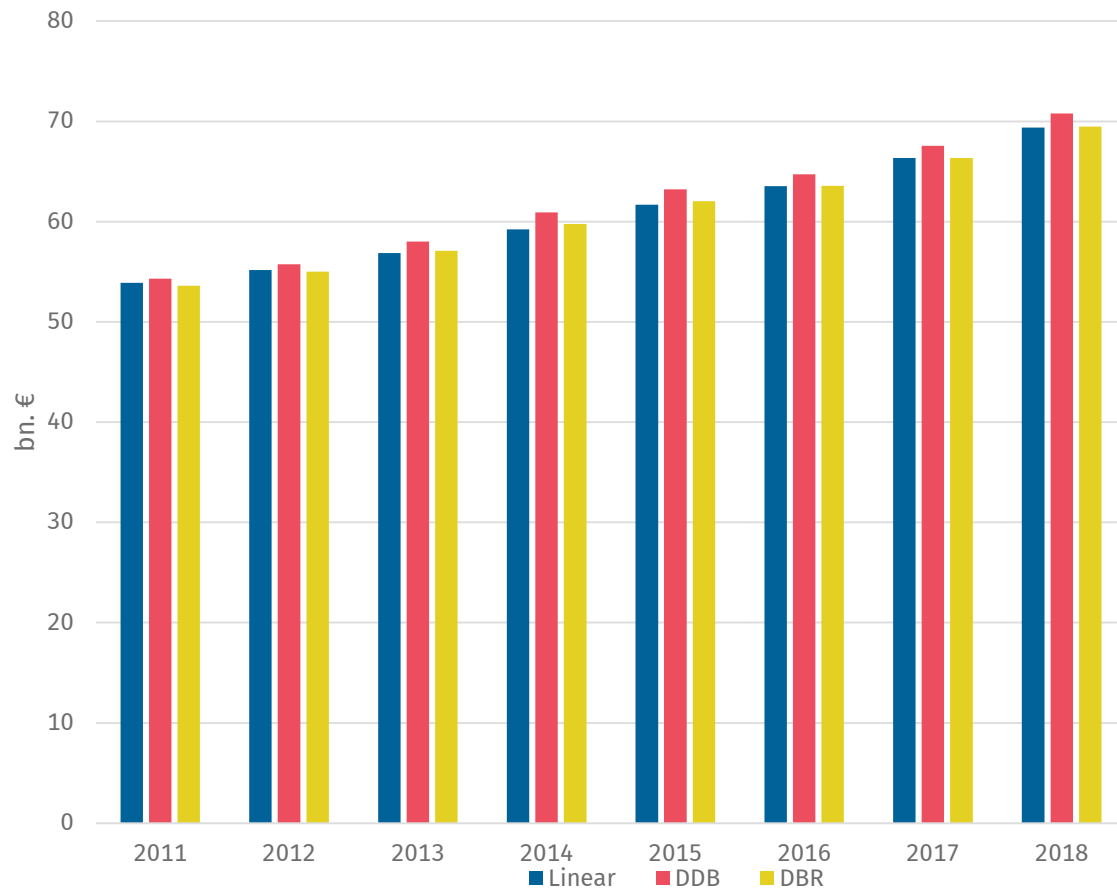


GFCF with and without Data

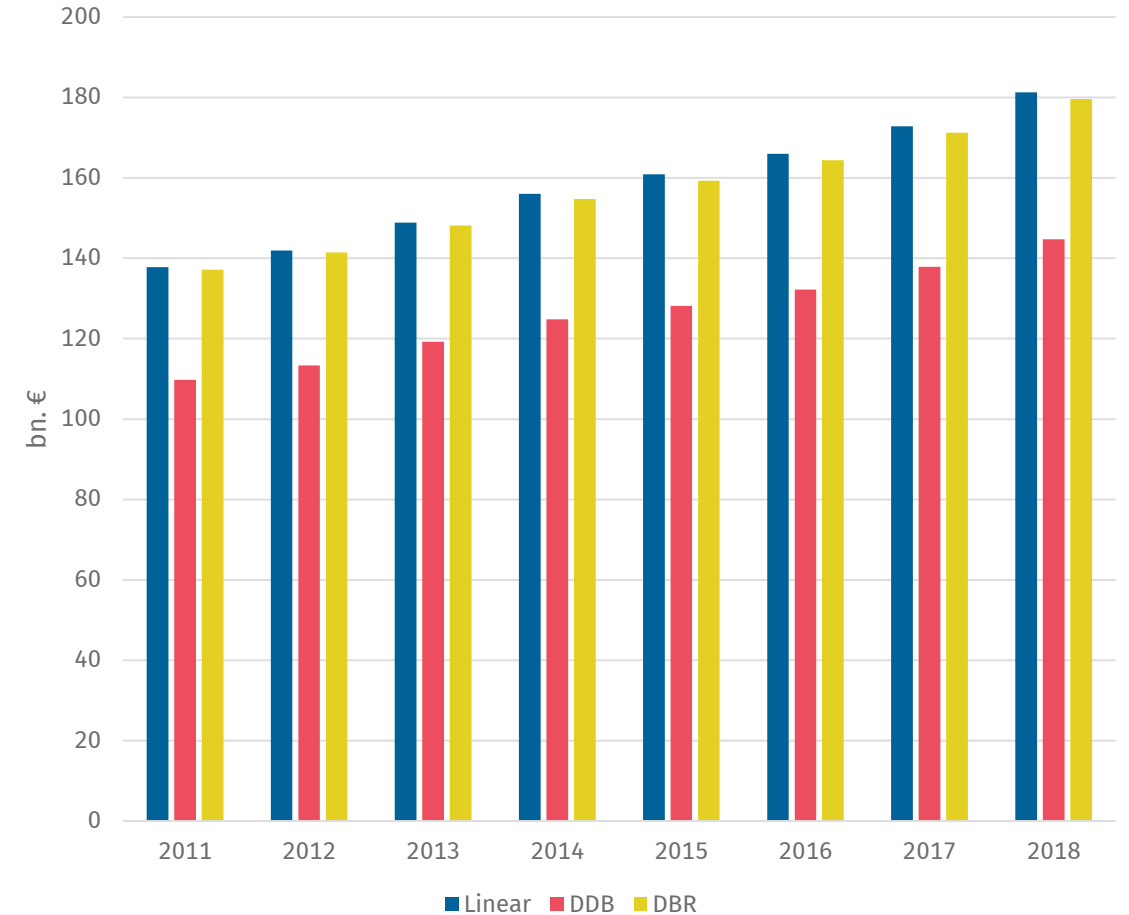


Results

Consumption of Fixed Capital, ASL = 5

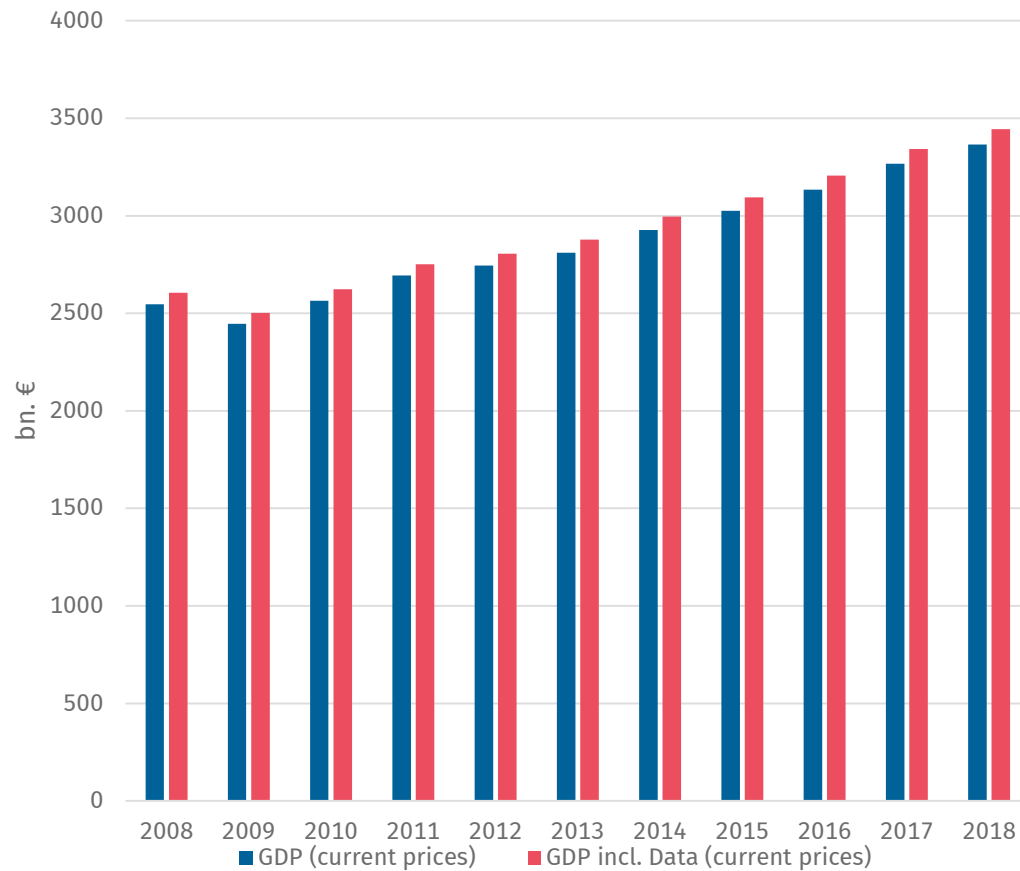


Net Capital Stock, ASL = 5

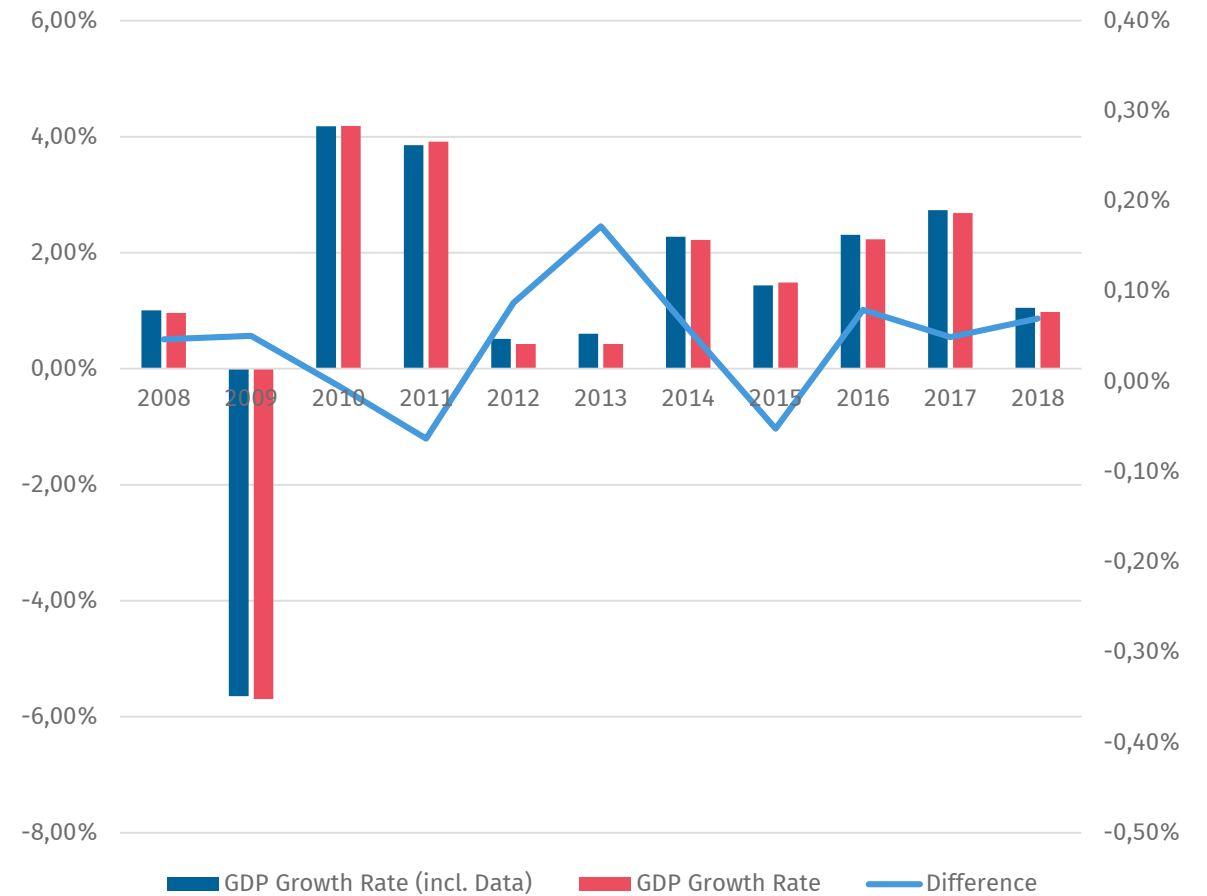


Results

Impact of Data on GDP in Current Prices



Impact of Data on GDP Growth



Way forward at Destatis

- Alternative estimation of involvement rates using ESCO skills-occupation matrix
- Identify relevant skills and competencies for data producing jobs
- Automatically assign involvement rate based on number of relevant skills and number of required skills
- Still work in progress

occupation_group	managing information	accessing and analysing digital data	managing, gathering and storing digital data
customer service representativ	0	0,041666667	0,020833333
medical records clerk	0,078431373	0	0,078431373
data warehouse designer	0,104166667	0	0,1875
data protection officer	0,042553191	0	0,021276596
specialist nurse	0,016528926	0,016528926	0,016528926
fire service vehicle operator	0	0	0,025
geological engineer	0	0	0,083333333
computer vision engineer	0,065217391	0	0,239130435
embedded systems security en	0	0	0,085106383
meteorologist	0,033707865	0	0,011235955

Way forward at Destatis

- ❖ Evaluation of possibilities to survey expenditures on data
- ❖ Further development of appropriate price indices
- ❖ How to record copies
- ❖ Treatment of data purchases in data-intensive industries

Conclusion

- ❖ Especially involvement rates drive magnitude of results without any statistical basis
- ❖ High degree of freedom and potentially high impact of recording data assets can damage international comparability of NA results
- Without harmonization efforts inclusion of data assets could hurt the role of GDP/GNI in policy discussion
- ❖ Concerns on validity of measurement method, economic importance of data inherently driven by advances in soft- and hardware. Measurement approach based on labour input seems counterintuitive.

Open Questions

- ❖ How can an estimation model based on labour input measure the dynamics of an asset mainly driven by automatisatisation?
- ❖ How to measure quarterly investment in data without distorting quarterly NA results?
- ❖ How can we correctly assign economic ownership of data assets in internationally active MNE groups?
- ❖ Are there alternatives to the sum of cost approach feasible for NA purposes?

Thank you for your attention!

Statistisches Bundesamt
65180 Wiesbaden
Germany

Contact Person
Benedikt Kuckelkorn
benedikt.kuckelkorn@destatis.de
Phone +49 611 75-3852

www.destatis.de

www.destatis.de/kontakt

