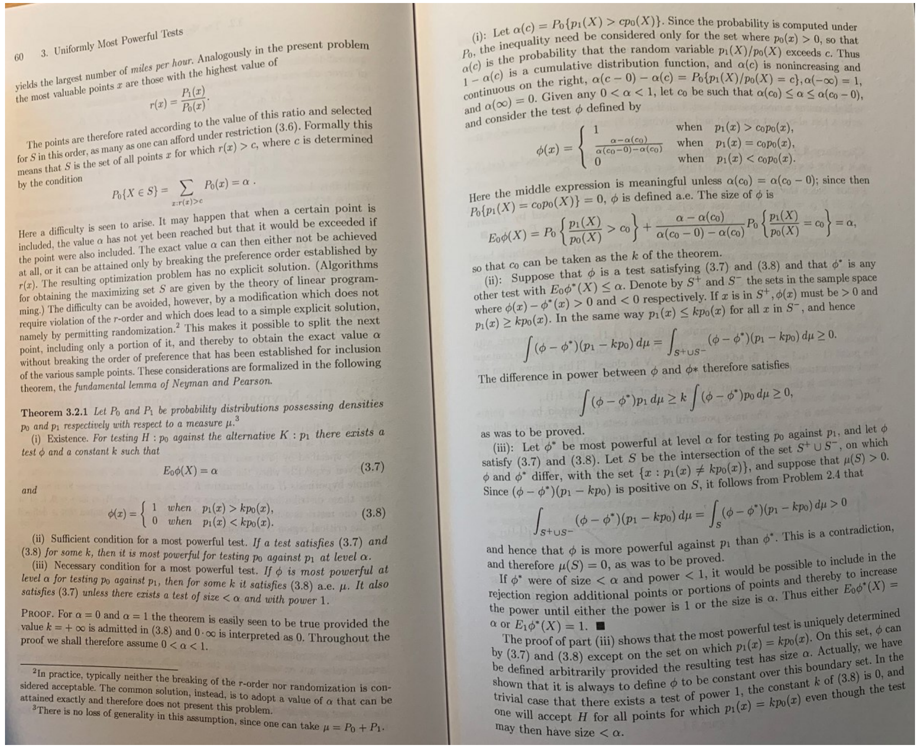
DESTATIS
Statistisches Bundesamt

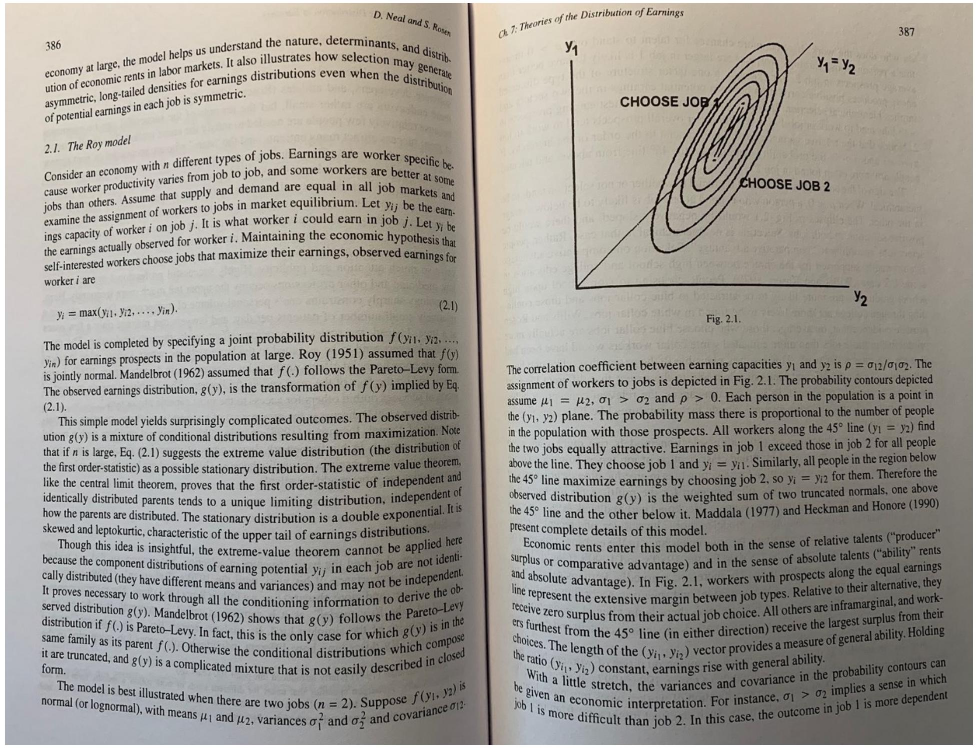
Data Science-Based Innovation in Official Statistics

German Data Science Days 2022

Official Statistics

Is not about …





Lehmann/Romano, Testing Statistical Hypotheses; Atkinson/Bourguignon, Handbook of Income Distribution Vol. 1

Official Statistics

Is about …

Die Statistik für Bundeszwecke (Bundesstatistik) hat im föderativ gegliederten Gesamtsystem der amtlichen Statistik die Aufgabe, **laufend Daten über Massenerscheinungen zu erheben, zu sammeln, aufzubereiten, darzustellen und zu analysieren. Für sie gelten die Grundsätze der Neutralität, Objektivität und fachlichen Unabhängigkeit. Sie gewinnt die Daten unter Verwendung wissenschaftlicher Erkenntnisse und unter Einsatz der jeweils sachgerechten Methoden und Informationstechniken.** Durch die Ergebnisse der Bundesstatistik werden gesellschaftliche, wirtschaftliche und ökologische Zusammenhänge für Bund, Länder einschließlich Gemeinden und Gemeindeverbände, Gesellschaft, Wirtschaft, Wissenschaft und Forschung aufgeschlüsselt. Die Bundesstatistik ist **Voraussetzung für eine am Sozialstaatsprinzip ausgerichtete Politik**. […]

In the federally structured overall system of official statistics, statistics for federal purposes (federal statistics) have the task of **continuously collecting, collating, processing, presenting and analysing data on mass phenomena. It is governed by the principles of neutrality, objectivity and professional independence. It collects data using scientific knowledge and appropriate methods and information technology**. The results of federal statistics provide a breakdown of social, economic and ecological relationships for the Federation, the Länder including municipalities and municipal associations, society, the economy, science and research. Federal statistics are a **prerequisite for a policy oriented towards the welfare state principle**. […]

§ 1 BStatG and an unauthorised translation

Official Statistics

We uphold the trustworthiness and enhance the usefulness of our results.

The office continues to develop in its roles as

- a reliable statistics producer,
- digital data manager and centre of data excellence and
- digital, customer-focused information service provider.

The Federal Statistical Office is the guarantor of independent, quality-assured information and part of a sustainable data infrastructure in Germany.

Official Statistics

Destatis in numbers

- Europe in figures
- Countries & regions
- Government
- Labour
- Economy
- Economic sectors & enterprises
- Society & environment

389 sets of statistics

of which

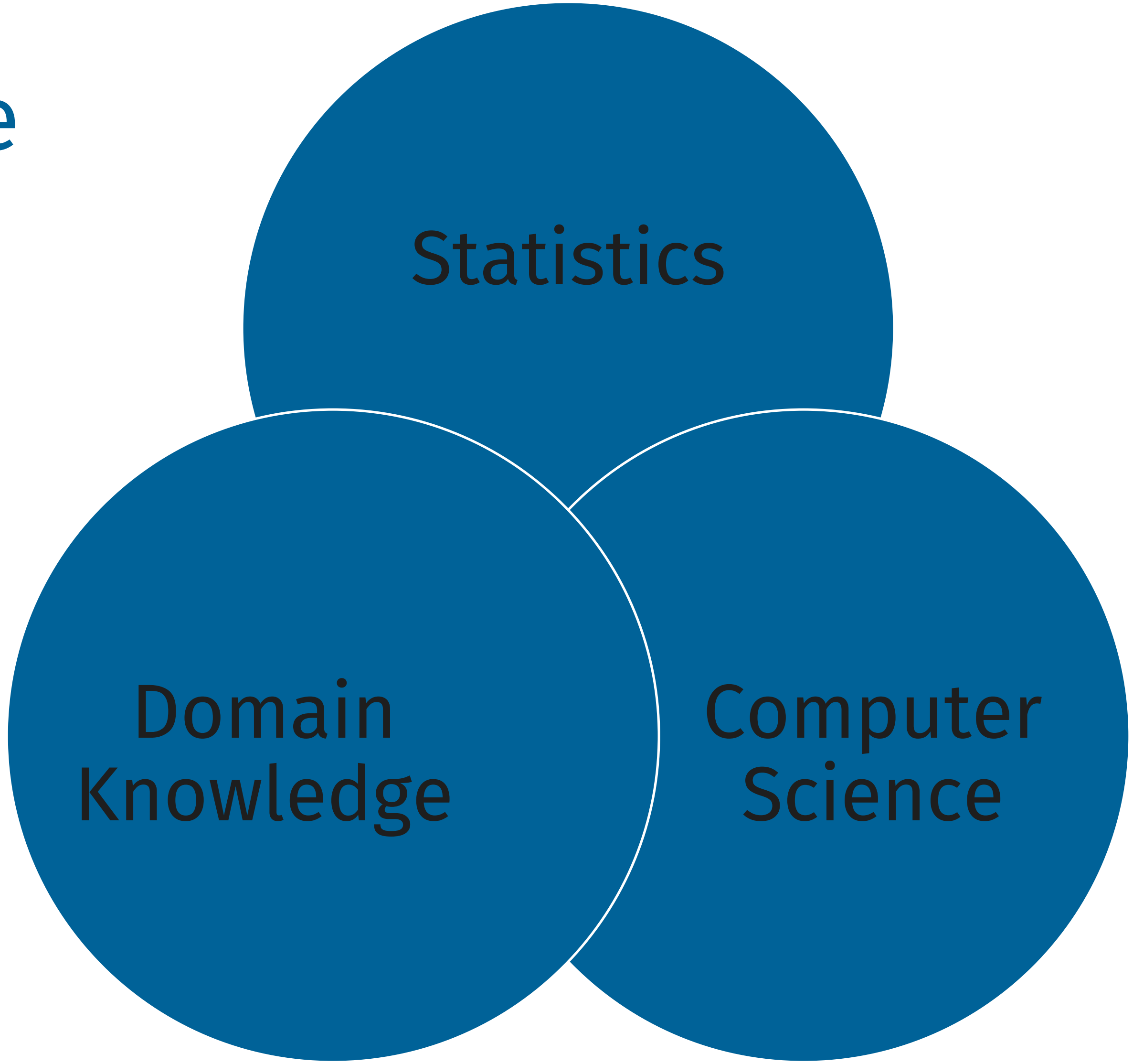
surveys	calculations	registers
323	60	6

Official Statistics

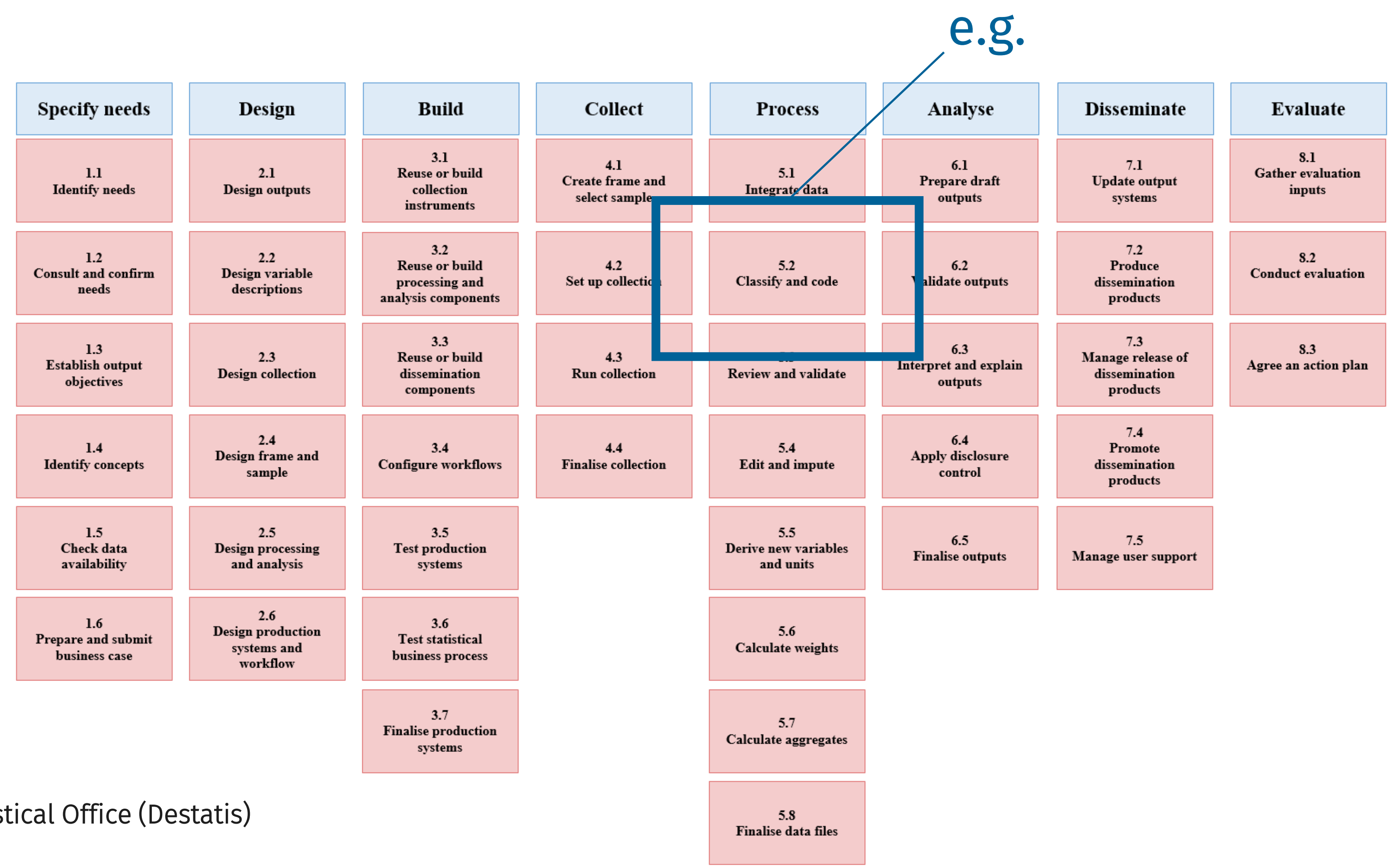
How we work (Generic Statistical Business Process Model)

Specify needs	Design	Build	Collect	Process	Analyse	Disseminate	Evaluate
1.1 Identify needs	2.1 Design outputs	3.1 Reuse or build collection instruments	4.1 Create frame and select sample	5.1 Integrate data	6.1 Prepare draft outputs	7.1 Update output systems	8.1 Gather evaluation inputs
1.2 Consult and confirm needs	2.2 Design variable descriptions	3.2 Reuse or build processing and analysis components	4.2 Set up collection	5.2 Classify and code	6.2 Validate outputs	7.2 Produce dissemination products	8.2 Conduct evaluation
1.3 Establish output objectives	2.3 Design collection	3.3 Reuse or build dissemination components	4.3 Run collection	5.3 Review and validate	6.3 Interpret and explain outputs	7.3 Manage release of dissemination products	8.3 Agree an action plan
1.4 Identify concepts	2.4 Design frame and sample	3.4 Configure workflows	4.4 Finalise collection	5.4 Edit and impute	6.4 Apply disclosure control	7.4 Promote dissemination products	
1.5 Check data availability	2.5 Design processing and analysis	3.5 Test production systems		5.5 Derive new variables and units	6.5 Finalise outputs	7.5 Manage user support	
1.6 Prepare and submit business case	2.6 Design production systems and workflow	3.6 Test statistical business process		5.6 Calculate weights			
		3.7 Finalise production systems		5.7 Calculate aggregates			
				5.8 Finalise data files			

Data Science



Data Science and Official Statistics



Data Science-Based Innovation

Less effort in the collection of prices

GTIN	GTIN_description	UNIT	QUANTITY		ECOICOP
'8856900000051'	'AROMAX GEWUERZMISCHUNG'	'G'	95	→	'0119203100'
'8714100806234'	'NATUERLICH LECKER FIX SPAGHETTI CARBONARA 47g'	'G'	47	→	'0119103300'
'4102140000882'	'LANDFUERST MALZ 0,5l MW'	'L'	0,5	→	'0213300100'

Data Science-Based Innovation

Observing mobility

Pressemitteilung Nr. 284 vom 7. Juli 2022

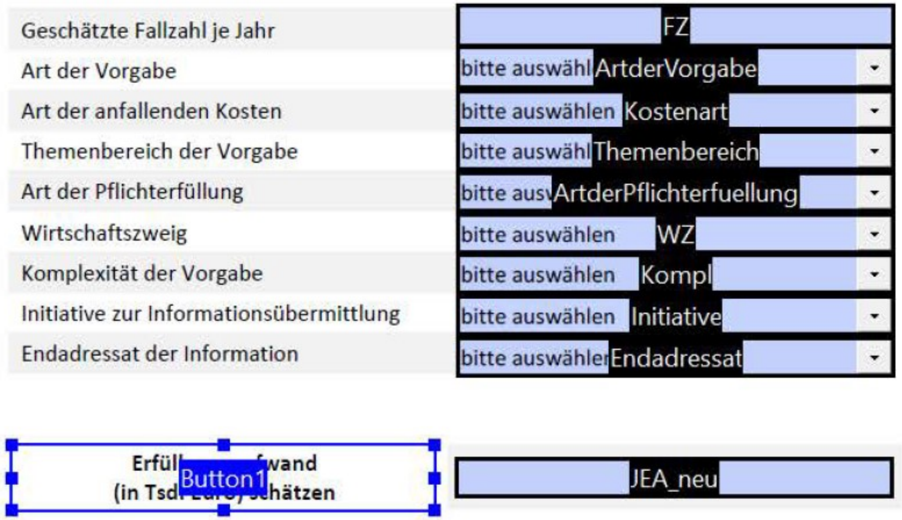
- **Deutlich mehr Bahnreisen zwischen 30 und 300 Kilometern im Juni 2022 als im Juni 2019**
- **Moderater Rückgang im Straßenverkehr bei Reisen über 300 Kilometern**
- **Mehr Bahnreisen und weniger Mobilität im Straßenverkehr insbesondere an Wochenenden**

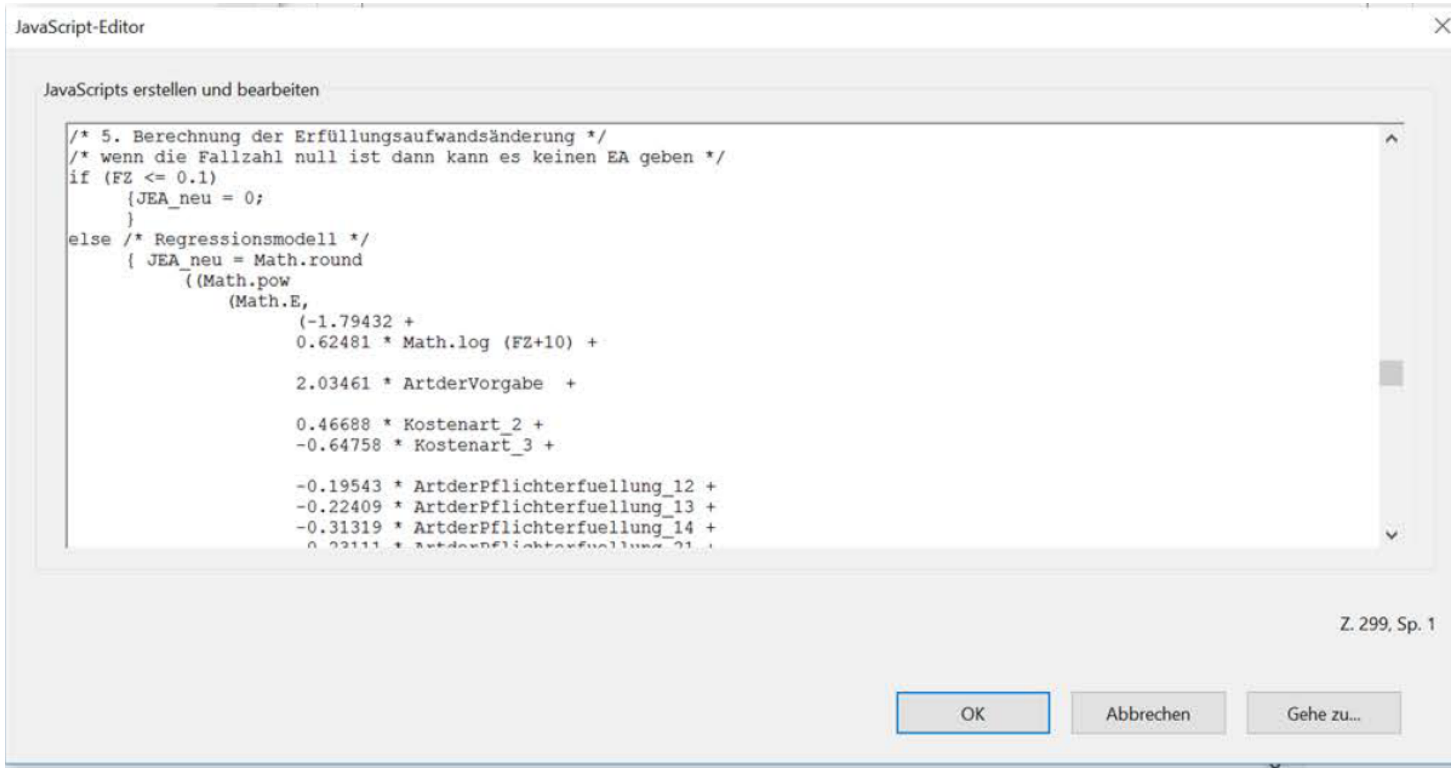
WIESBADEN – Im ersten Monat nach Einführung des bundesweiten 9-Euro-Tickets hat sich das Reiseaufkommen im Schienenverkehr deutlich erhöht. Dies geht aus einer Sonderauswertung von Mobilfunkdaten des Statistischen Bundesamtes (Destatis) hervor. Im Juni 2022 lagen die bundesweiten Bewegungen im Schienenverkehr im Schnitt 42 % höher als im Juni 2019. Im Mai 2022 hatten sie noch um 3 % höher als im

https://www.destatis.de/DE/Presse/Pressemitteilungen/2022/07/PD22_284_12.html

Data Science-Based Innovation

Estimation of compliance costs





https://www.destatis.de/DE/Methoden/WISTA-Wirtschaft-und-Statistik/2022/03/vereinfachtes-verfahren-erfuellungsaufwand-032022.pdf

Data Science-Based Innovation … and Quality

Quality aspects of machine learning

In order to bring together the already built-up empirical knowledge from the practice of official statistics with the findings of science, and thus to promote and intensify the exchange between researchers from the field of machine learning and official statisticians working on applications of modern machine learning methods, Statistics Network Bavaria intends to organize a scientific workshop **from 6th to 8th September 2022 in Munich**. The workshop will be organized for Statistics Network Bavaria by the Bavarian State Statistical Office, the Institute of Statistics of the Ludwig-Maximilians-University Munich and the ifo Institute Munich with the cooperation of the Federal Statistical Office of Germany.

CESifo Bayerisches Landesamt für Statistik LMU Ludwig-Maximilians-Universität München DESTATIS Statistisches Bundesamt

https://www.statistiknetzwerk.bayern.de/service/aktuelles/maschinellen-lernens/

DESTATIS
Statistisches Bundesamt

Contact

Statistisches Bundesamt
65180 Wiesbaden
Germany

www.destatis.de

www.destatis.de/kontakt

Contact Person
Florian Dumpert
florian.dumpert@destatis.de
Phone +49 611 75-3887