



Data Science
Competence Center DSCC

Data Science Competence Center (DSCC)

Summary



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Eidgenössisches Departement des Innern EDI
Département fédéral de l'intérieur DFI
Dipartimento federale dell'interno DFI
Federal Department of Home Affairs FDHA
Bundesamt für Statistik BFS
Office fédéral de la statistique OFS
Ufficio federale di statistica UST
Federal Statistical Office FSO



The Data Science Competence Center (DSCC) is affiliated to the Federal Statistical Office (FSO). The DSCC is a service provider within the federal administration and as such, provides data science and artificial intelligence (AI) services and expertise to the entire Swiss public sector and administration (Confederation, cantons and communes). The competence center builds on the existing synergies of an interconnected network of academic partners, in close collaboration with the public research and development sector, to provide state-of-the-art data science expertise.

Vision and Mission

We use data science and develop skills for the public good in the whole of Switzerland. We work at the crossroads between data science and artificial intelligence. We build skills and apply the appropriate methods, techniques and practices to obtain a new understanding and to improve decision-making for the public good.

Data science in brief

Data science is the science of learning from data (or making sense of data), with the aim of gaining insights from data in order to facilitate data-driven decision-making. Data science covers the entire process of problem formulation, data collection, data selection, data preparation, data analysis, evaluation, interpretation, communication and provision of the findings. At the heart of data science is thus a problem-solving process and a process of continuous improvement that aims to solve complex, unstructured and data-rich problems through the rigorous application of innovative data science methods (e.g. methods from machine learning and the field of artificial intelligence), techniques and practices.

Our core values

Our core values are information security, data and information protection, data security, data governance, non-discrimination, explainability, traceability, transparency, reproducibility, neutrality, objectivity and ethical handling of data and results and public confidence in the implementation of all the data science services. For example, the results of the individual projects (as far as permitted by data protection laws and other provisions) are documented in a transparent manner and made available.

The Data Science Competence Center (DSCC) thus strives to generate value in a sustainable way.

Data science and AI services

As a part of its mission as a public service provider, the Data Science Competence Center (DSCC) develops quality standards and guidelines for data protection compliance and basic infrastructures (sandboxes) for data science and AI applications in the public sector. It does so in close collaboration with its academic and institutional partners.

In addition to these basic services, the DSCC offers services and expertise as detailed below:

1. Consulting

Consulting related to strategical, tactical and operational application of (for the federal administration) innovative data science methods and procedures (e.g. potential analysis of methods from advanced statistics, machine learning and the field of AI).

2. Methodological support

Methodological support (coaching – training on the job) for relevant application-oriented projects within the public administration or outsourced to third parties. Implementation of the results in existing administrative processes with the aim of improving and/or optimizing them and/or enriching them with new insights.

3. Project execution

Complete realisation, from problem formulation (business understanding) to Minimal Viable Product (MVP), of relevant data science projects. Depending on the scope of the project, the DSCC can call on its institutional and academic partners to extend its data science expertise.

4. Training

Application-oriented training sessions (training – training off the job) on data science methods, techniques and practices and the necessary (IT) technologies and tools.

The DSCC team

We see data science as a team sport.

The Data Science Competence Center (DSCC) is an international team of scientists with an excellent academic background in various areas of data science, such as data engineering, computer science, software development, business analytics, mathematics, statistics and decision-making.

Methodological skills

- Causal analysis (causal inference).
- Evidence-based policy making.
- Machine Learning and Computer Vision.
- Minimal Viable Product (MVP) development.
- Privacy-preserving Data Science.
- Statistical design, analysis and modeling.
- Tailoring algorithms to fit specific needs.

Technical skills

- Building tools for data collection and preparation.
- Building tools for data visualisation and publication.
- R and Python programming.

We have a long proven experience in providing services to the public sector and the federal and cantonal offices.

We actively participate in United Nations, United Nations Economic Commission for Europe and Eurostat research project initiatives.



Data Science Competence Center (DSCC)

Selected projects from the DSCC portfolio

Improving the quality of traffic statistics

A project for the Federal Roads Office (FEDRO)

Project description

The project aims to automate the detection of measurement errors from sensors on national roads and reconstruct missing data. A toolkit in R is being developed to support employees at the Federal Roads Office (FEDRO) in data-based decision-making.

Some key data

Start date – end date	01.01.2022 – ongoing
Services	Project implementation
Topics	Plausibility check, search and imputation of missing data
Machine learning components	Supervised learning: generalised additive models

StatBot.swiss

An Open Government Data project

Project description

With the StatBot.swiss project, a chatbot has been developed following the question-answer principle. The chatbot interacts with the federal administration's open government data in Switzerland.

Some key data

Start date – end date	01.12.2022 – 31.12.2023
Services	Consultancy, methodological support
Topics	Text recognition
Machine learning components	Supervised learning

For more information about the DSCC projects,
visit www.dsc.ch/en/portfolio



Community of practice (CoP):

Data Science and AI for Public Good

The Data Science Competence Center (DSCC) aims to act as a facilitator for «bottom up» conversations centered on practical data science problems. Topics of interests for the Data Science and AI for Public Good CoP include (but are not restricted to):

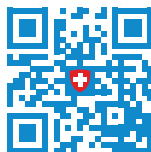
- Best practices (explainability, reproducibility, etc).
- New data science methods and knowledge exchange.
- Pooling of data science resources and tools.

As part of the national Competence Network for Artificial Intelligence (CNAI), the DSCC also facilitates exchanges between the Data Science and AI for Public Good CoP and CNAI's CoPs. Furthermore, it aims to foster exchanges with similar communities in other countries.

Data Science

Learning from data (making sense of data)!

For more information, visit www.dsccl.ch/en



Published by:	Federal Statistical Office (FSO)
Information:	Bertrand Loison, FSO, tel. +41 58 463 67 70
Editor:	Bertrand Loison, FSO
Series:	Swiss Statistics
Topic:	00 Statistical Basis and Overviews
Original text:	German
Translation:	FSO language services
Layout:	Publishing and Diffusion PUB, FSO
Online:	www.statistics.admin.ch ; www.dsccl.ch
Print:	www.statistics.admin.ch Federal Statistical Office, CH-2010 Neuchâtel, order@bfs.admin.ch , tel. +41 58 463 60 60 Printed in Switzerland
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FSO number :	2089-2300