



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Statistik BFS
Office fédéral de la statistique OFS
Ufficio federale di statistica UST
Uffizi federal da statistica UST



Data Science for Public Good & SDGs

Key Initiatives at the United Nations and in Switzerland

Prof. Dr. Bertrand Loison

Vice-Director General at the Federal Statistical Office (FSO)

Head of Data Science Competence Center (DSCC)

UNIGE's Data Science Day 2021

University of Geneva – Uni Mail - September 16, 2021





Agenda

1. The Sustainable Development Goals (SDGs)

- ***What are we talking about?***

2. Measuring SDGs at the United Nations

- ***The UN's SDGs Annual Report***
- ***Data Science and the Measurement of SDGs***

3. Measuring SDGs in Switzerland

- ***Official Statistics and the Measurement of SDGs***
- ***Data Science for Public Good and Measurement of SDGs***



What is the 2030 Agenda for Sustainable Development? - #1

- The Sustainable Development Goals (SDGs) are part of the **2030 Agenda**. Adopted in September 2015 by the 193 member states of the UN.
- **17 SDGs to find shared solutions to the world's greatest challenges**, such as extreme poverty, climate change, environmental degradation and health-related crises.
- The Agenda **is the consequence** of the UN conferences on sustainable development of 1992, 2002, and 2012, and the Millennium Development Goals (MDGs).
- It applies **to all states**, and determines international guidelines and priorities for sustainable development up to 2030.





What is the 2030 Agenda for Sustainable Development? - #2



SUSTAINABLE DEVELOPMENT GOALS 17 GOALS TO TRANSFORM OUR WORLD





“Without evidence of where we stand now, we cannot confidently chart our path forward in realizing the Sustainable Development Goals (SDGs).”

António Guterres, Secretary-General of the United Nations





What is the role of official statistics?

- The UN Statistical Commission **is mandated** by the General Assembly to support the 2030 Agenda by providing quality, accessible, timely and reliable disaggregated data.
- On 6 July 2017, the United Nations General Assembly:
 - adopted a **global indicator framework to monitor the 2030 Agenda for Sustainable Development** as a voluntary and country-led endeavor.
 - stresses that all activities must be conducted in full adherence to the Fundamental Principles of Official Statistics **that guarantees transparency, neutrality, independency and comparability of data.**





Agenda

1. The Sustainable Development Goals (SDGs)

- *What are we talking about?*

2. Measuring SDGs at the United Nations

- ***The UN's SDGs Annual Report***
- *Data Science and the Measurement of SDGs*

3. Measuring SDGs in Switzerland

- *Official Statistics and the Measurement of SDGs*
- *Data Science for Public Good and Measurement of SDGs*



The Sustainable Development Annual Report - #1

- Every single National Statistical Institute (NSI) around the world is responsible **to transmit data** to the UN that reflect the measurement of the SDG's in their own country.
- NSIs around the world have to ensure that the way the SDGs are measured is in full adherence to the **Fundamental Principles of Official Statistics**.
- The UNSD (IAEG-SDGs) is responsible **to aggregate** the transmitted data and to write the UN Sustainable Development Annual Report that gives a **global overview** about the current achievement of the 17 SDGs.





The Sustainable Development Annual Report - #2

The Sustainable Development Goals Report 2021



Overview



END POVERTY IN ALL ITS FORMS EVERYWHERE

COVID-19 HAS LED TO THE
FIRST RISE IN EXTREME POVERTY
IN A GENERATION

AN ADDITIONAL **119-124 MILLION PEOPLE** WERE
PUSHED BACK INTO **EXTREME POVERTY** IN 2020



THE
GLOBAL POVERTY RATE
IS PROJECTED TO BE
7% IN 2030



MISSING THE TARGET
OF ERADICATING POVERTY



AS OF APRIL 2021,
118 COUNTRIES REPORTED
NATIONAL AND/OR LOCAL
**DISASTER RISK
REDUCTION STRATEGIES**,
UP FROM 45 IN 2015



GOVERNMENTS WORLDWIDE HAVE PUT IN PLACE
1,600 SHORT-TERM SOCIAL PROTECTION MEASURES
IN RESPONSE TO COVID-19

BUT **4 BILLION PEOPLE** ARE STILL NOT COVERED BY SOCIAL PROTECTION

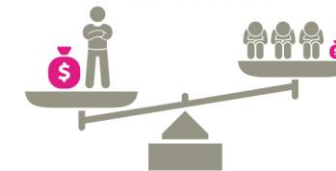
The Sustainable Development Goals Report 2021

8



REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

THE PANDEMIC
IS LIKELY TO REVERSE PROGRESS
MADE IN REDUCING INCOME INEQUALITY
SINCE THE FINANCIAL CRISIS



COVID-19
ESTIMATED TO INCREASE THE AVERAGE GINI
FOR EMERGING MARKET AND DEVELOPING COUNTRIES
BY **6%**

THE GINI INDEX MEASURES INCOME INEQUALITY AND RANGES FROM 0 TO 100,
WHERE 0 INDICATES THAT INCOME IS SHARED EQUALLY AMONG ALL PEOPLE, AND
100 INDICATES THAT ONE PERSON ACCOUNTS FOR ALL INCOME.

THE PROPORTION OF THE GLOBAL
POPULATION WHO ARE **REFUGEES**
HAS **MORE THAN DOUBLED** SINCE 2010

FOR EVERY 100,000 PERSONS,
311 ARE REFUGEES (2020)

REMITTANCE COSTS
ARE AT AN ALL-TIME LOW AT **6.5%** (2020)



FURTHER PROGRESS IS NEEDED
TO REACH THE **3% TARGET**



IN 2020, **4,186 DEATHS AND DISAPPEARANCES**
WERE RECORDED ON MIGRATORY ROUTES WORLDWIDE

17

Overview





Agenda

1. The Sustainable Development Goals (SDGs)

- *What are we talking about?*

2. Measuring SDGs at the United Nations

- *The UN's SDGs Annual Report*
- ***Data Science and the Measurement of SDGs***

3. Measuring SDGs in Switzerland

- *Official Statistics and the Measurement of SDGs*
- *Data Science for Public Good and Measurement of SDGs*



UNGWG on Big Data & Data Science for Official Statistics - #1

UN Committee of Experts on Big Data and data science for official statistics



<https://unstats.un.org/bigdata/index.cshtml>

- Created in March 2014 by the UN Statistical Commission
- Mandated to give direction to the use of Big Data and Data Science for Official Statistics
- Inter-governmental body with 31 countries and 16 international organizations
- Collaboration of more than 300 experts from all stakeholder communities





UNGWG on Big Data & Data Science for Official Statistics - #2

Current Task Teams

- AIS Data
- Big Data and the SDGs
- Earth Observation Data
- Measuring Rural Access
- Mobile Phone Data
- Privacy-Preserving Techniques
- Training, Competencies and Capacity Development





UNGWG on Big Data & Data Science for Official Statistics - #3



Using AIS
(Shipping
Data) to
provide faster
**economic
indicators**



Producing
**consumer
price indices**
using Scanner
data and
webscraping



Producing **crop
statistics** from
Earth
Observations
and data
pipelines



Producing
**tourism,
migration,
population** and
transport
statistics using
mobile phone
data



Developing
techniques to
**preserve the
privacy** of
sensitive data





UN Global Platform - #1

- The Global Platform has been built as **a cloud-service ecosystem** to support international collaboration in the development of Official Statistics using new data sources and innovative methods and **to help countries measure the Sustainable Development Goals (SDGs)** to deliver the 2030 Sustainable Development Agenda.
- The United Nations Global Platform was established as a **collaborative environment to work together as a global statistical community** and to learn together sharing knowledge, data and methods for all countries in the world.





UN Global Platform - #2

UN Global Platform's Main Purposes

- Trusted Data
- Trusted Methods
- Trusted Partners
- Trusted Learning

Trust is achieved through collaboration, peer review and approval of all work undertaken on the platform.

The UN Global Platform is open to Universities as well as the Private Sector

<https://marketplace.officialstatistics.org/>





BigDataUN Global Working Group Marketplace Alpha

Notebook

Collaboratives

Datasets

Methods

Learnings

Services

Partners



Search our data

The United Nations Statistics Division is committed to the advancement of the global statistical system.



Search Trusted Data, Projects, Learning, Applications, Services & Partners

Feedback

Discover by type



Collaboratives



Datasets



Methods



Learnings

Statistical Area

Earth Observation

The Earth Observation service provides a solution to the increasing need to distill the underlying data from the visual and hyperspectral imagery generated by these technologies into actionable information.



COVID-19

COVID-19 Response

Ongoing research and innovation projects in official statistics from the UN Global Platform to develop new methods, analytics and indicators in response to the global COVID-19 pandemic.



Platform

Datasets

The platform allows users to access trusted data and trusted methods for sharing and collaboration whilst ensuring data privacy





Agenda

1. The Sustainable Development Goals (SDGs)

- *What are we talking about?*

2. Measuring SDGs at the United Nations

- *The UN's SDGs Annual Report*
- *Data Science and the Measurement of SDGs*

3. Measuring SDGs in Switzerland

- ***Official Statistics and the Measurement of SDGs***
- *Data Science for Public Good and Measurement of SDGs*



The MONET 2030 indicator system - #1

- The **MONET 2030 indicator system** gives an overview of sustainable development in Switzerland, providing **a picture of the progress made towards the 17 sustainable development goals (SDGs)** of the United Nations 2030 Agenda as well as in relation to the Federal Council's sustainable development strategy 2030 and to certain topics specific to Switzerland.
- <https://www.bfs.admin.ch/bfs/en/home/statistics/sustainable-development/monet-2030.html>



MONET 2030 key indicators - #2



Poverty rate



Nitrate in groundwater



Housing costs



Fruit and vegetables consumption



Renewable energies



Total municipal waste generation



Years of potential life lost



Labour productivity



Greenhouse gas emissions



Reading skills of 15-year-olds



Material intensity



Nitrogen load exported



Wage gap between women and men



Distribution of equivalised disposable income (S80/S20)



Soil sealing



Populations of breeding birds



Violent offences

Official Development Assistance

Duty-free imports from developing countries

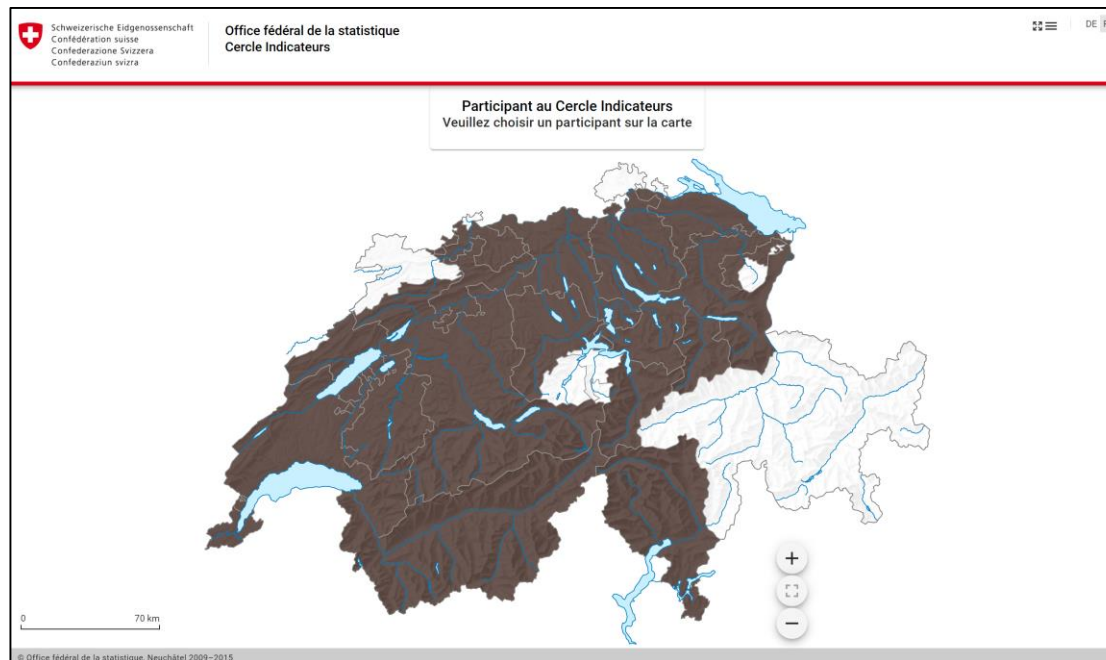


Cercle Indicateurs - Indicators of sustainable development for cities and cantons - #1

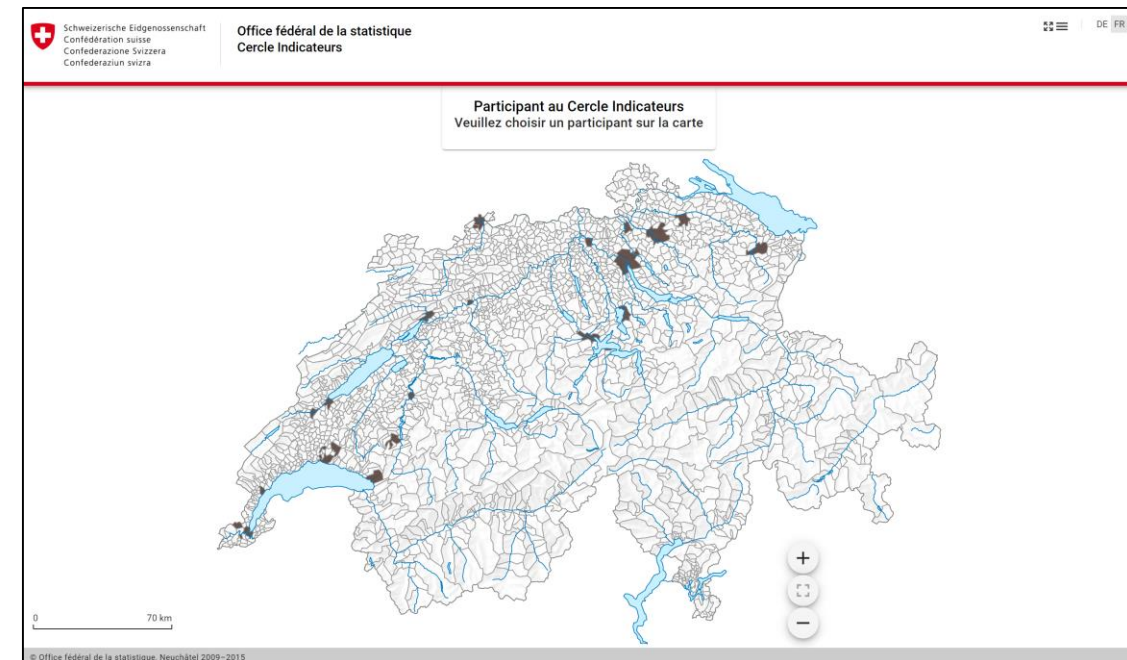
- Le Cercle Indicateurs est une plateforme destinée au développement et à la mise en oeuvre d'indicateurs de développement durable pour les cantons et les villes.
- L'OFS présente les résultats des relevés 2005, 2007, 2009, 2011, 2013, 2015, 2017 et 2019 des cantons et des relevés 2005, 2009, 2013 et 2017 des villes.
- <https://www.bfs.admin.ch/bfs/fr/home/statistiques/developpement-durable/cercle-indicateurs.html>



Cercle Indicateurs - Indicators of sustainable development for cities and cantons - #2



Niveau cantonal



Niveau des villes



Cercle Indicateurs - Indicators of sustainable development for cities and cantons - #3





Agenda

1. The Sustainable Development Goals (SDGs)

- *What are we talking about?*

2. Measuring SDGs at the United Nations

- *The UN's SDGs Annual Report*
- *Data Science and the Measurement of SDGs*

3. Measuring SDGs in Switzerland

- *Official Statistics and the Measurement of SDGs*
- ***Data Science for Public Good and Measurement of SDGs***



Federal Administration's Data Science Competence Center (DSCC)

Vision

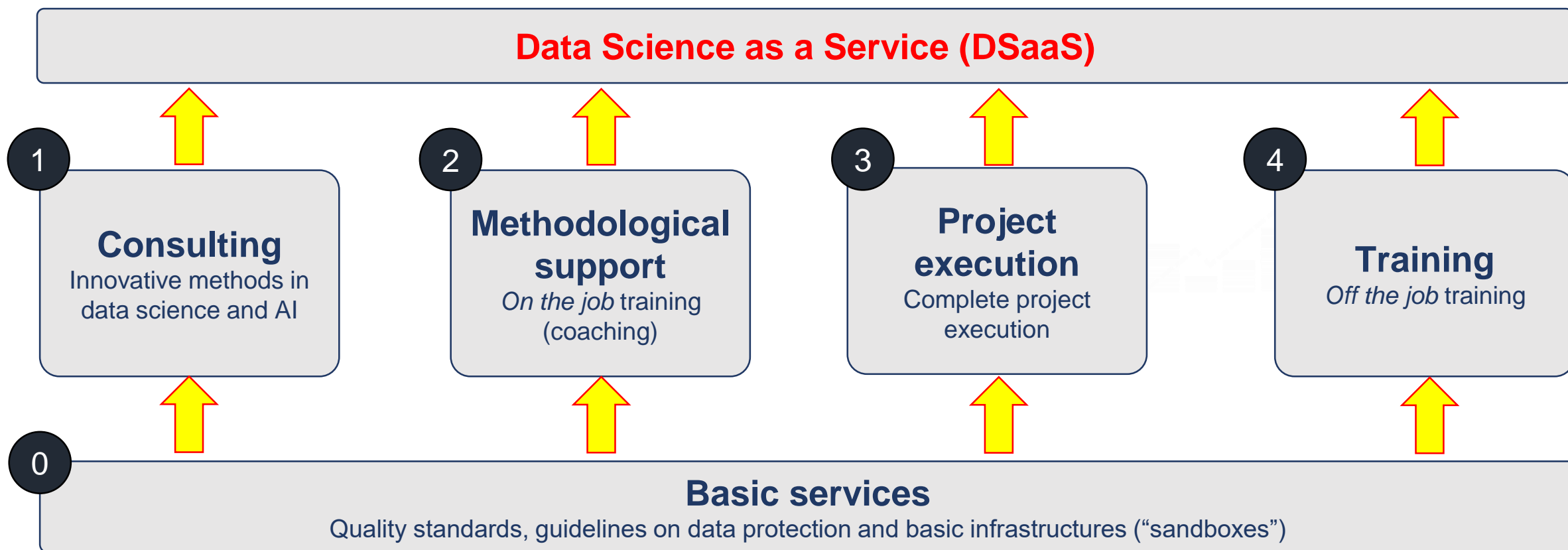
“We use data science and develop skills for the **public good** in the whole of Switzerland.”

Mission

“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.”



A center of excellence in DSaaS for the Federal Administration





What is the DSSC's Unique Selling Proposition (USP) ?

“Support for government use of AI correlates moderately with trust in government. **Trust in institutions is essential** if governments are to gain the support needed to roll out AI capabilities.”

Source: Boston Consulting Group (BCG), The Citizen's Perspective on the Use of AI in Government



DSSC's Core values



In the implementation of all data science services, utmost importance is attached to the core values of information security, data protection, data security, data governance, non-discrimination, explainability, transparency, reproducibility, neutrality, objectivity, ethical handling of data and results, and public confidence.



Promoting community and knowledge building

Academic partners

Partnerships with the Swiss Data Science Center (EPFL/ETHZ) & Universities:

1. Data science expertise
2. Platforms as a Service for collaborative data science

DSCC at the FSO

1. Data Science as a Service for the entire Federal Administration
2. Building connections with similar international initiatives

Federal Offices

1. Data science questions and requests for collaborations from Federal Offices, Cantons, Communes, ...
2. Compliant IT platforms to deliver Data Science as a Service

