



# Granular, timely and beyond GDP: thoughts on the new statistical landscape

Central Bank of Chile  
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1. Setting the scene
2. Beneath and beyond GDP – the **contents**
3. More timely, more granular - the **tools and sources**
4. Data stewardship and the ecosystem – the **institutions**
5. Going forward – three main **ingredients**



# SETTING THE SCENE

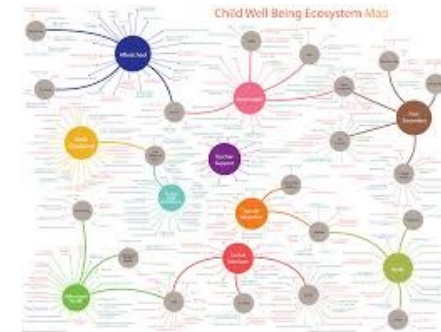


# A quickly evolving environment

**Digital transformation** – volume and ownership of data, (generative) AI

**New policy challenges** – climate change, inequality,... - that require cross-cutting policies

More **diverse views by society** on evidence and scientific knowledge





# Demand for more timely, granular and trusted data

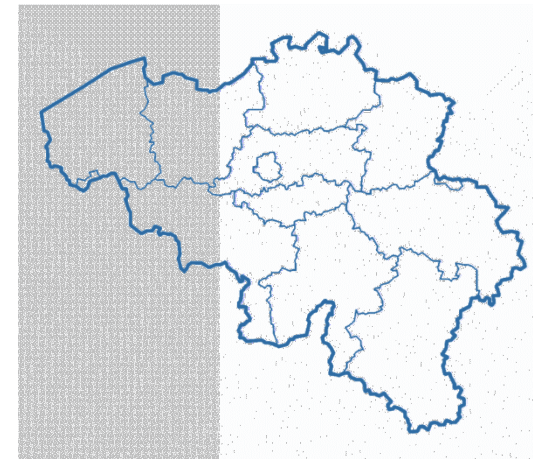
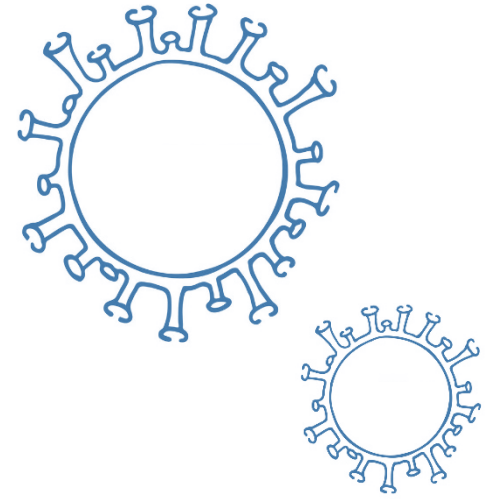
Financial crisis

Pandemic

Inflation

Climate change and the environment

Inequalities



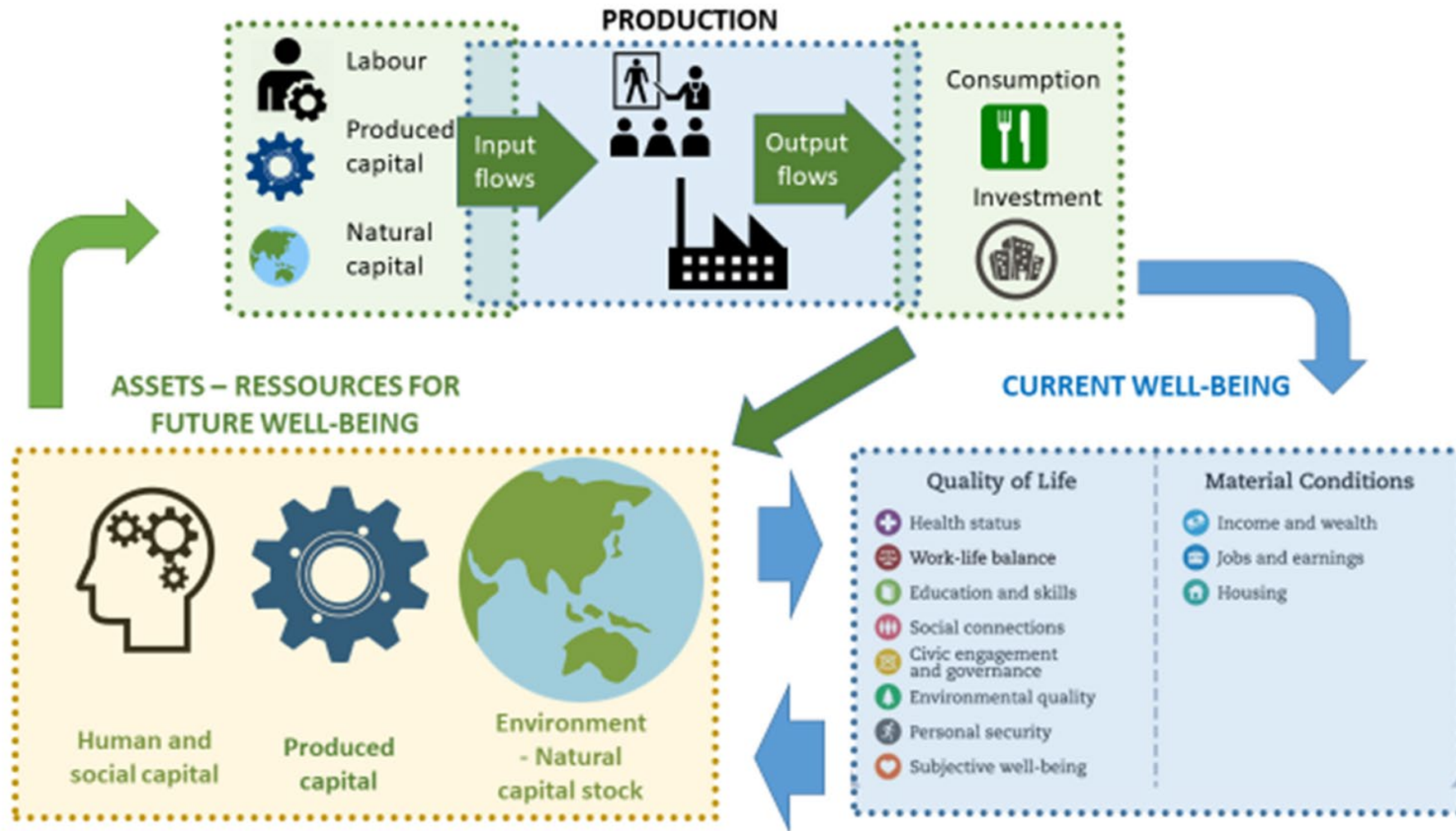
## Where does this leave official statistics?



Beneath and beyond GDP  
- the **substance**

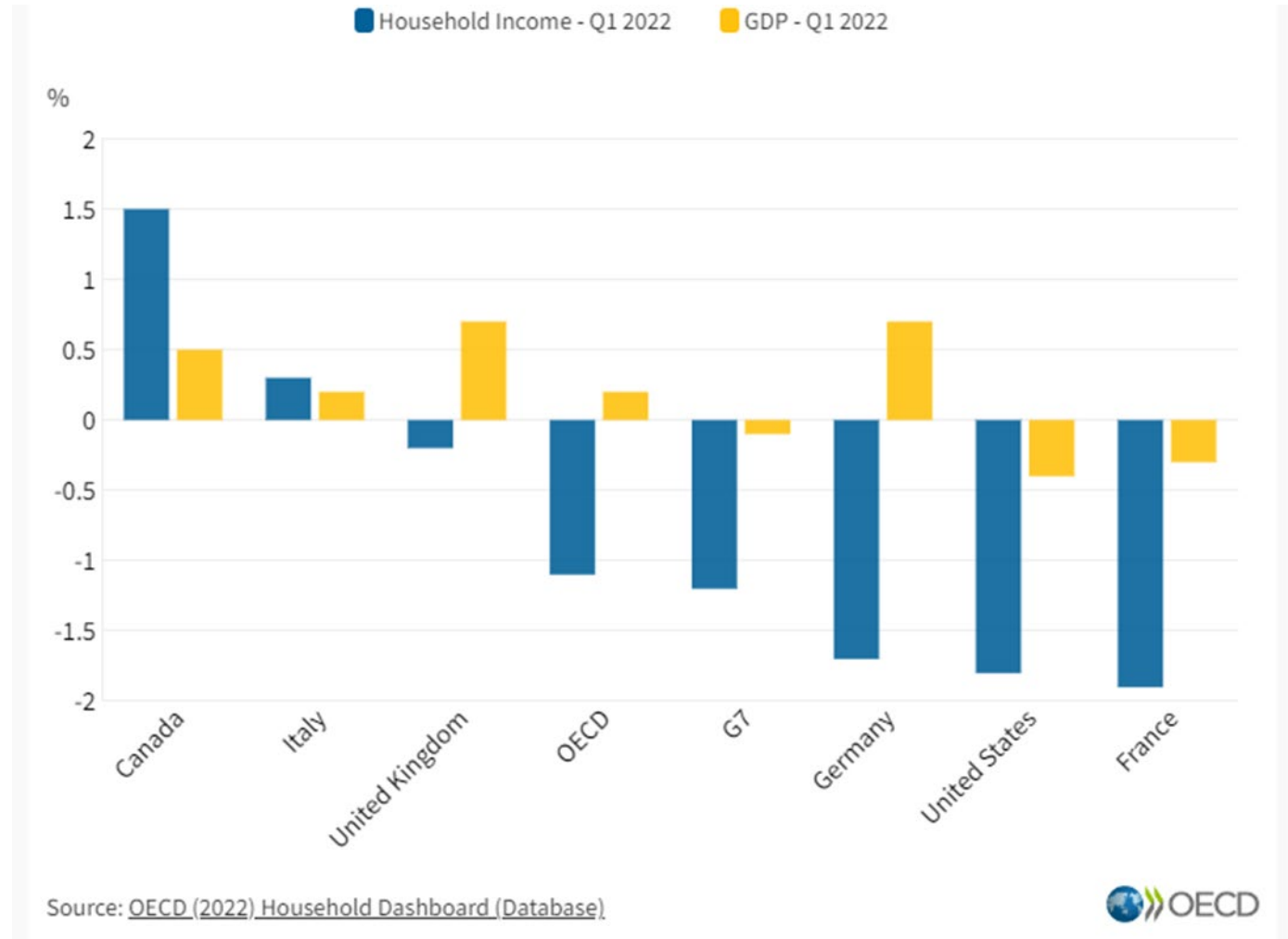


# 3 spheres to organise our thoughts





# Beneath GDP: household aggregates instead of economy-wide measures...

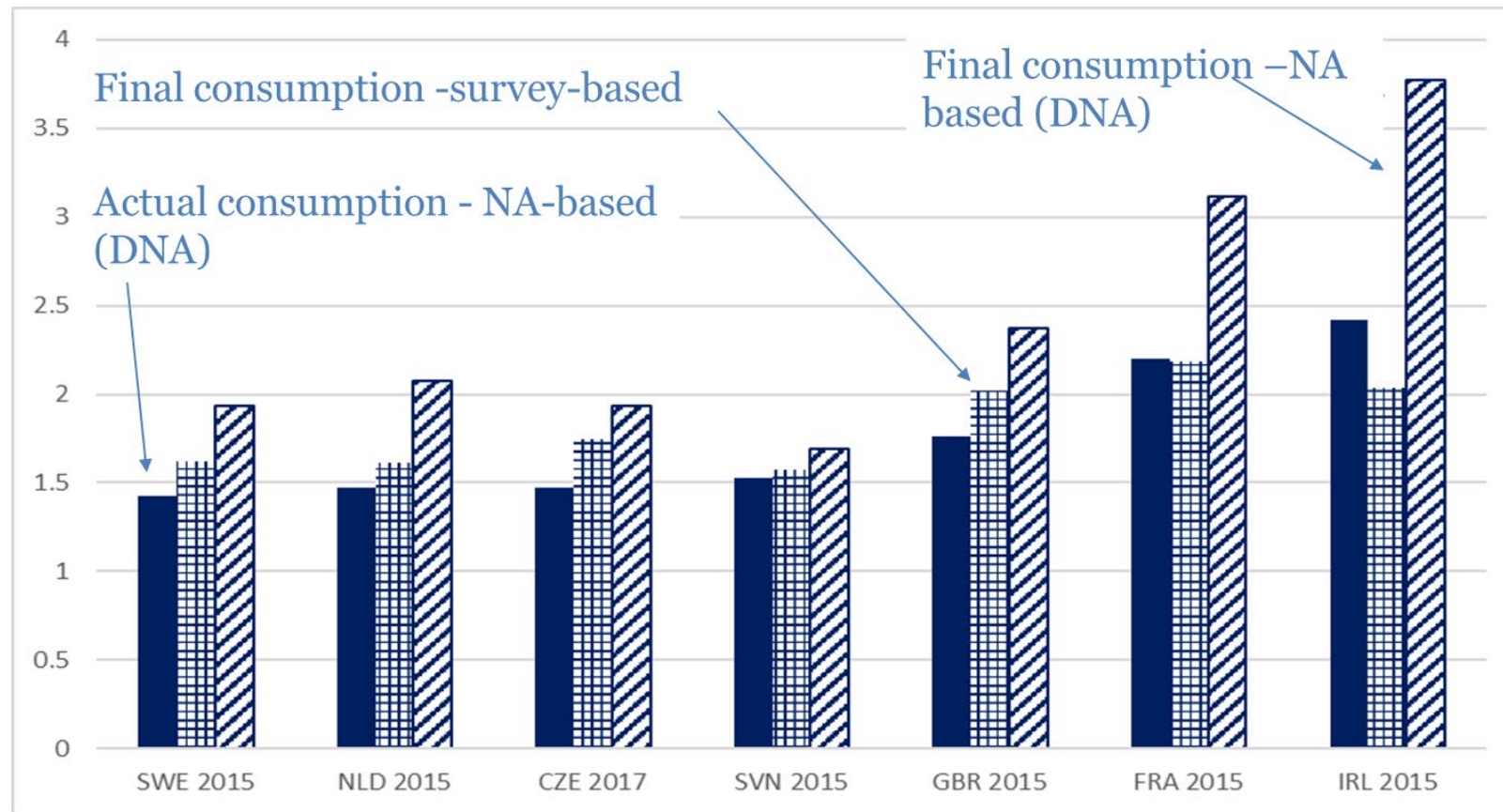






# Beneath GDP: Distributional National Accounts

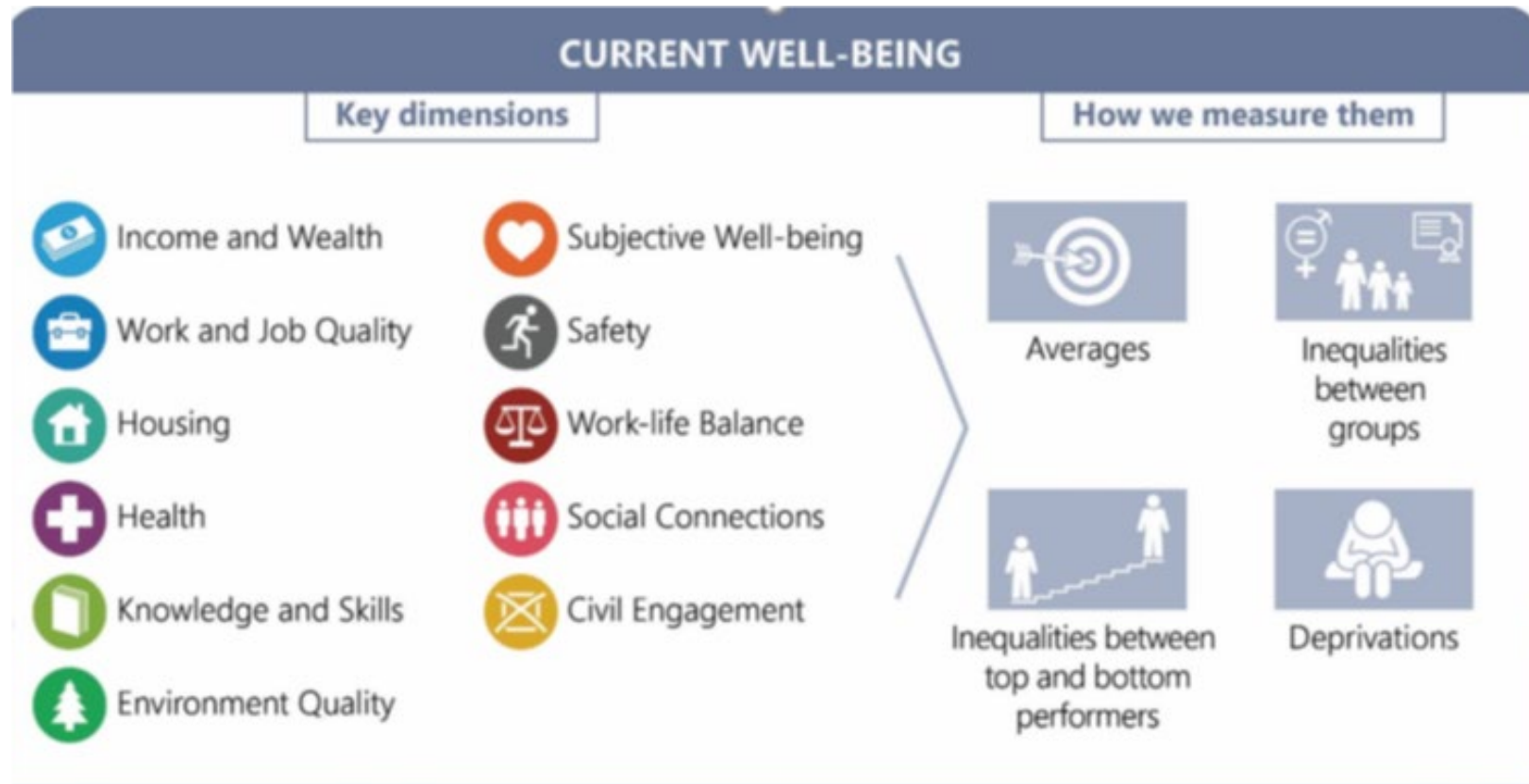
Ratio highest to lowest quintile



Source: see [OECD DNA Website](#)



# Beyond GDP: Dashboards on well-being



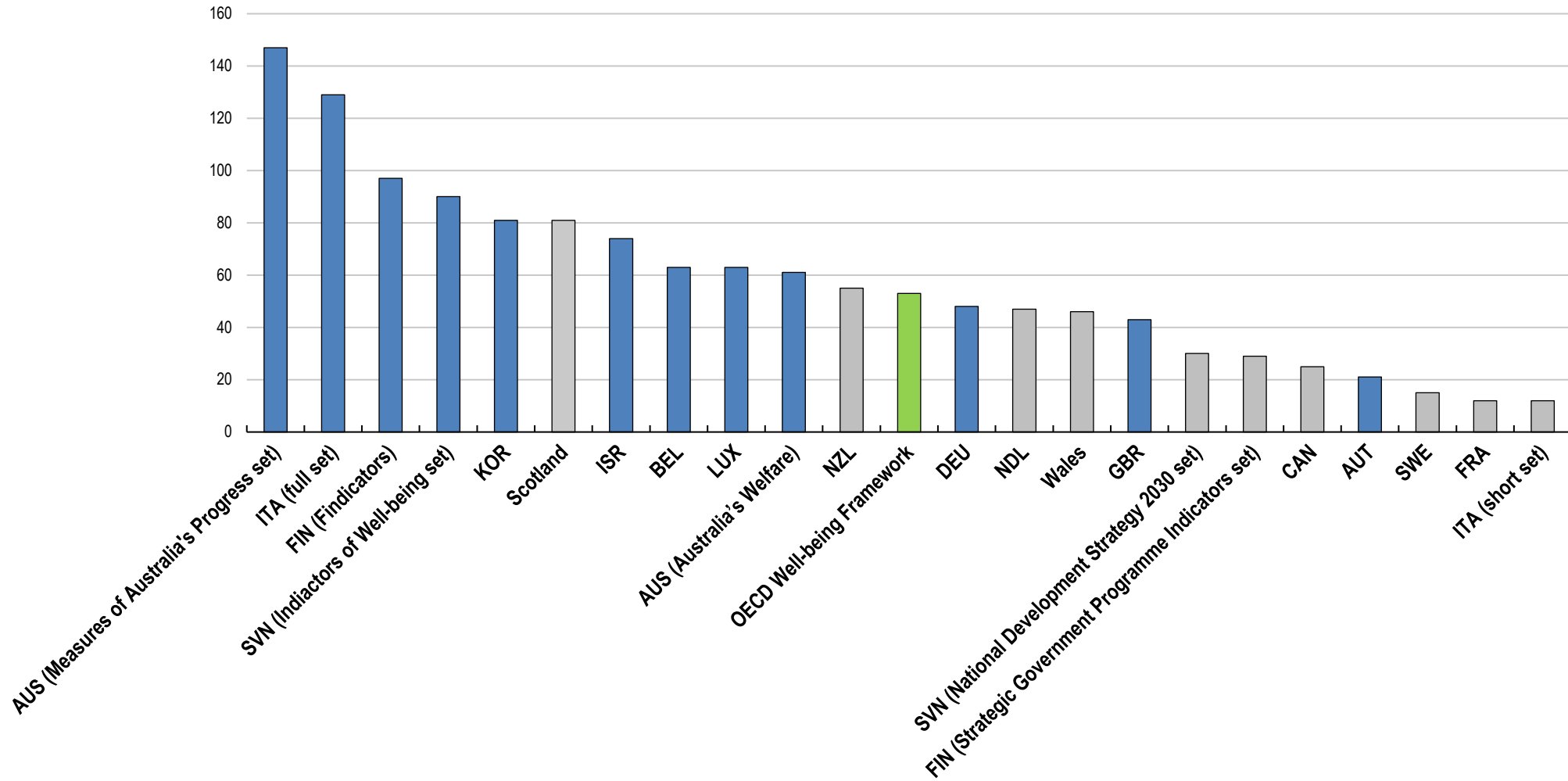
- Material well-being and quality of life dimensions
- <https://www.oecd.org/wise/how-s-life-23089679.htm>



# *Beyond GDP: many OECD countries have developed* dashboards of well-being indicators

Number of indicators

■ Well-being measurement, monitoring and reporting  
■ Well-being policy application





# ...and better measures of assets



Monetary market valuation

Possible aggregation

Physical measures,  
Monetary valuation  
where useful

No aggregation, but  
comparisons with  
NA aggregates



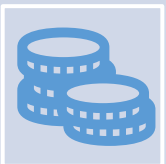
# ...including in the new SNA



**Now included:** renewable energy resources



**All biological assets are considered 'produced'**



**Greater granularity for environment-economy analysis**





# To summarise on contents



Beneath and beyond GDP



Linkages between spheres increasingly important, e.g., environment and social




Coping with effects of digitalisation and globalisation on measurement



Assets and how they change, not just income and expenditure

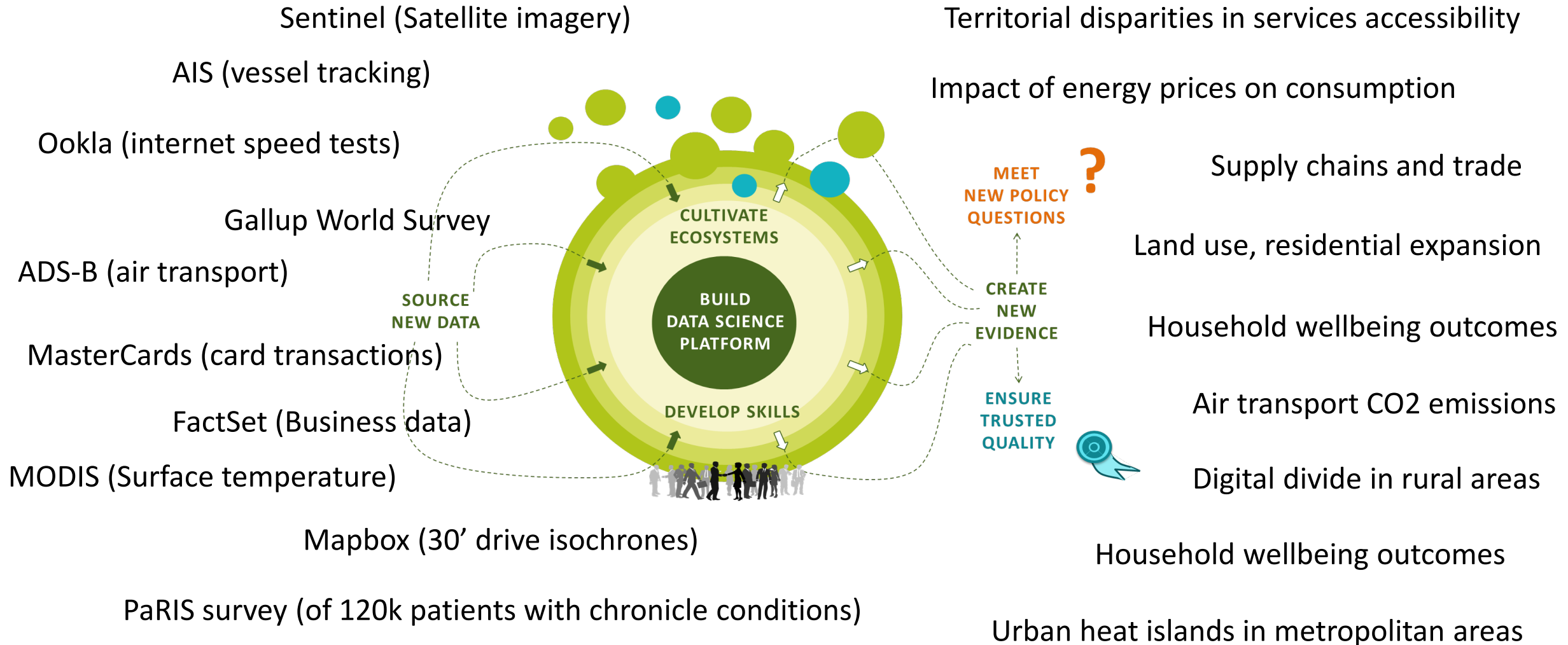


Spatial and socio-economic granularity

A satellite view of Earth at night, showing the curvature of the planet and numerous city lights glowing across the dark surface. The lights are concentrated in major urban centers and along coastlines. The background is the blackness of space with some stars visible.

More timely, more  
granular – the **tools and  
sources**

# A new data landscape

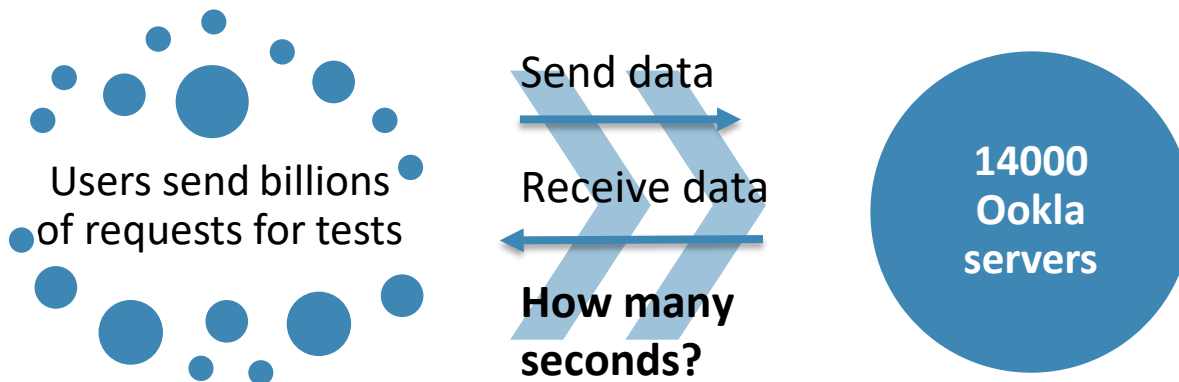






## Ex. 1: Inequalities: the rural-urban connectivity divide

- OECD partnership with Ookla
- Traditional collection and self-reporting yield **poor data on internet access and reliability**
- Users conduct speed tests automatically or deliberately on **speedtest.com by Ookla**





# Ex 1 (ctd): New timely and granular data show disparities in internet speeds

Gaps in fixed download speeds experienced by users, by degree of urbanization (2020)



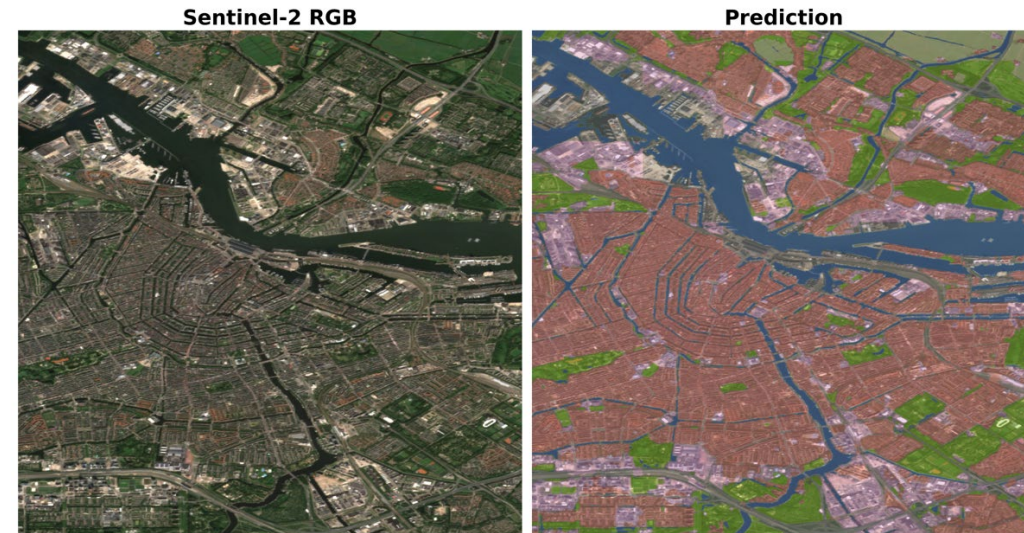


## Ex 2: Land-use in OECD cities

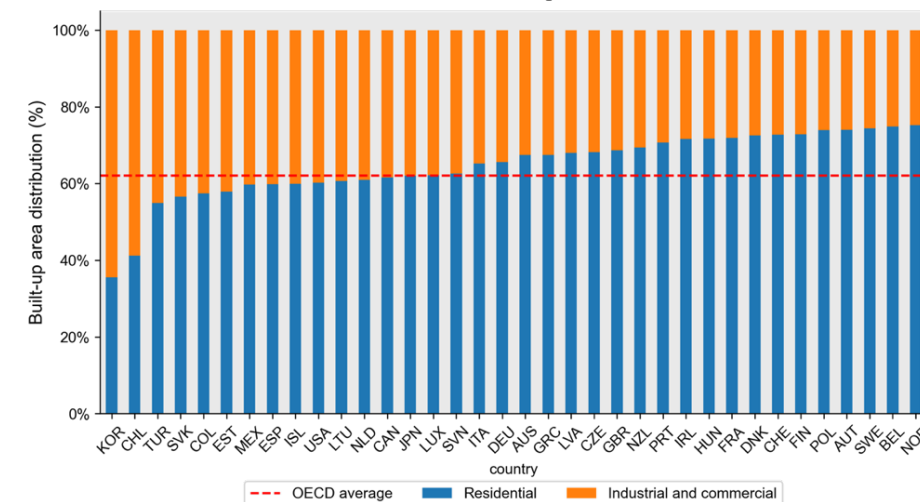


- Land and built-up area are major **environmental** and **economic** factors
- Monitoring in **near real-time land-use** in OECD functional urban areas
- Use of **Sentinel satellite imagery** data and **Deep Learning models** trained on the Copernicus urban atlas
- Applications: **Urban expansion, Land artificialisation**

### Model predictions on Amsterdam



### Distribution in built-up land use, 2021



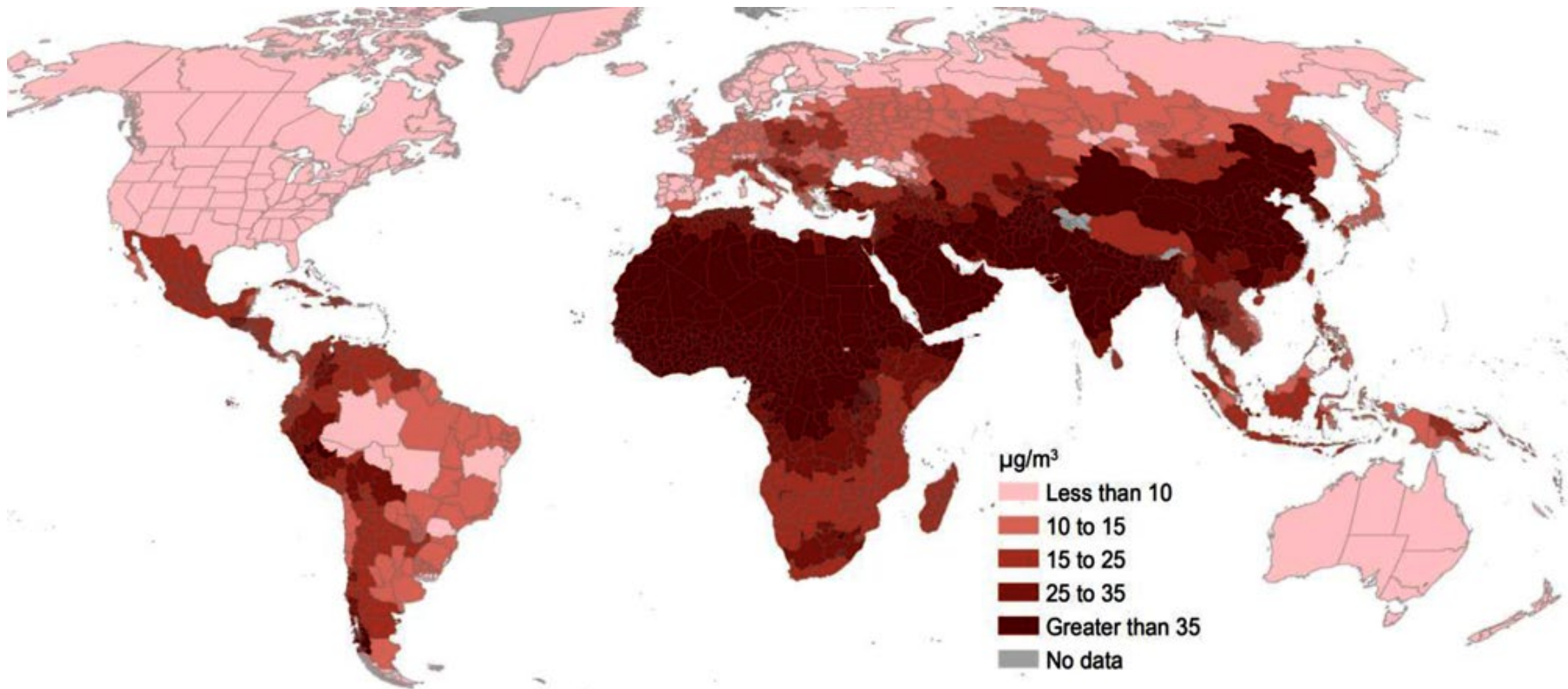


## Ex. 3: Climate change: Population exposure to pollution

- Combining **new satellite data** on air pollution (PM2.5) concentration with **traditional census, survey or other spatial data** on population distribution
- Large differences within some large countries (e.g. China, India, and Brazil), but not all (e.g. Mexico and the United States)
- There have been **improvements in most OECD countries** and a **deterioration in many fast-growing Asian economies**



# Ex 3 (ctd): Population exposure to outdoor PM2.5, 2019





# Quality assurance: the gateway to trust in statistics

- **New sources** raise new quality issues
- Granularity entails challenges for **privacy**
- Quality is multi-dimensional (**intrinsic data quality, timeliness, accessibility, reproducibility, security**)
- Quality frameworks may have to be revisited





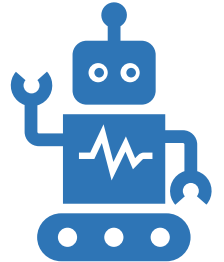
# A word on (generative) AI and statistics

## Many opportunities

- Replacing human-intensive statistical activities (classification, imputation, NLP, user support,...)
- Opening new methods: AI instead of econometrics for house prices, nowcasting
- Accessing data ecosystems, findability of official and other sources
- Official Statistics' to retain, regain and revive if needed its role as an enabler of societal progress; counter-balancing mis-information

## Challenges

- Requires massive investments and innovations in statistical systems and efforts
- New types of quality assurance
- Change management in operations





Data stewardship  
and the ecosystem  
– **the institutions**





## Data stewardship – what is meant?

- ***Data governance***: defines decision-making and authority for data related matters in society – broad policy
- ***Data stewardship***: implementation of policies, standards and principles of data governance in the area of data for evidence



**Statistics Canada:**  
« *Whole of government approach to creating, protecting, using, managing and sharing data as a strategic asset enabling informed decisions that lead to better outcomes and services for Canadians* »

# Data stewardship: What official statistics have on offer

- Strong **legal basis**
  - History of **data ethics**, professional independence
  - **Data quality** frameworks
  - Long history of **data protection**
  - **Modern methods** for data management, integration, metadata, visualisation
  - Established **classifications and standards**
  - Guardians of **basic statistical infrastructure**
- 
- **Trade-off between generation of evidence with new data and protection of privacy becomes less severe**





**Going forward on  
the data  
ecosystem— three  
main ingredients**

A compass with a black face and silver casing is positioned in the center of the image. The compass face shows cardinal directions (N, E, S, W) and degree markings. The background is a blurred financial document with columns of numbers and some text. A large blue diagonal shape covers the bottom-left portion of the image, containing the text '1. Strong legal and ethical basis'.

# 1. Strong legal and ethical basis



# Social acceptance and trust require...

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- **Statistics Law** and its implementation
- **Data protection laws** and their implementation
- **Ethical standards** that are credibly implemented
- Ongoing **dialogue** with society's stakeholders



The background of the slide is a grid of glass bottles, likely water bottles, arranged in a regular pattern. The bottles are illuminated from above, creating a strong blue and cyan glow. A diagonal blue band cuts across the image from the top-left towards the bottom-right, serving as a background for the text.

## 2. Common standards and inter-operability

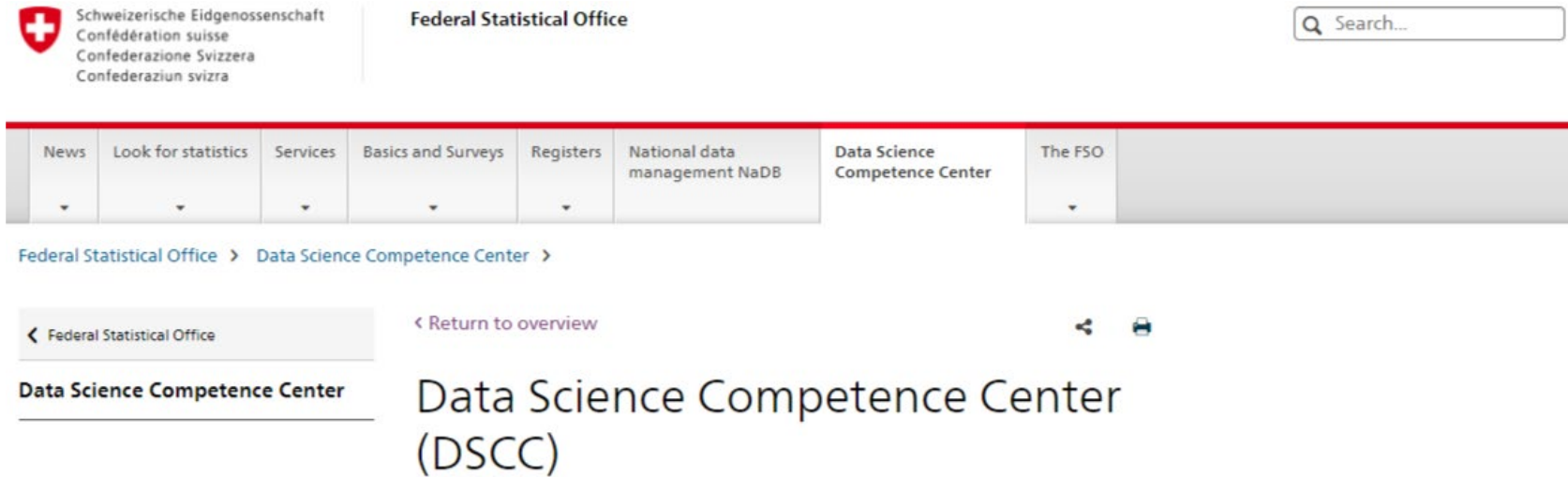


# Common standards and inter-operability among administrations

- **Classifications**
- Metadata standards
- Structured access to **administrative micro-data**
- Common **data quality frameworks**
- **Inter-operability** framework



# Access to administrative micro-data: example Switzerland



The screenshot shows the website of the Swiss Federal Statistical Office (FSO). The header includes the FSO logo and name in four languages: German (Schweizerische Eidgenossenschaft), French (Confédération suisse), Italian (Confederazione Svizzera), and Romansh (Confederaziun svizra). A search bar is located in the top right. A navigation menu below the header lists various services: News, Look for statistics, Services, Basics and Surveys, Registers, National data management NaDB, Data Science Competence Center (highlighted), and The FSO. Below the menu, the breadcrumb trail reads 'Federal Statistical Office > Data Science Competence Center >'. The main content area features a back button to the FSO, a 'Return to overview' link, and the title 'Data Science Competence Center (DSCC)'. There are also social media icons for Twitter and Facebook.

- **Services:**

- Developing quality standards, guidelines on data protection
- Consulting on innovative data science methods
- Methodological support and coaching in implementation
- Execution of data science requests
- Application-oriented training



<http://www.experimental.bfs.admin.ch/>



A night cityscape with digital data lines overlaid on the buildings. The image shows a city skyline at night, with numerous skyscrapers illuminated. Overlaid on the city are many vertical lines of varying heights and colors (blue, purple, pink, white) that end in small glowing circles, resembling data points or network connections. The lines are more densely packed in the foreground and become sparser towards the background. The sky is a deep blue, and the city lights create a warm glow. A large blue diagonal shape is on the left side of the image, containing the text.

**3. Co-investment: we are all facing the same challenges**

# Example: HLG-MOS

High-Level Group for the Modernisation of Official Statistics

Created by Steven Vale, last modified by Tæke Gjaltema on 20 Oct, 2021



<https://statswiki.unece.org/display/hlgbas>

Group of committed Chief Statisticians to steer the modernisation of statistical organisations:

CAN, AUS, IRL, ITA, MEX, NLD, NZL, POL, KOR, UK, Eurostat, OECD

- ***Supporting standards***
- ***Capabilities and communications***, e.g., change management
- ***Blue Sky Thinking Network***, e.g., synthetic data sets guidance and experience
- ***Tools***: e.g., Group for Machine Learning applications for official statistics



# SIS-CC

Statistical Information System  
Collaboration Community



Pacific  
Community  
Communauté  
du Pacifique



International  
Labour  
Organization

**Stats** NZ  
Tataurangi Aotearoa

unicef   
for every child



**INE**  
Instituto Nacional de  
Estadísticas • Chile



المركز الاتحادي  
للتنافسية والإحصاء  
FEDERAL COMPETITIVENESS  
AND STATISTICS CENTRE



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

**eurostat** 

**PARIS**  
**21** Partnership in statistics  
for development  
in the 21<sup>st</sup> century



United Nations  
Statistics Division

 UK Data Service

**STATEC**  
Luxembourg

 **Istat**  
Istituto Nazionale  
di Statistica

 **OECD**

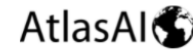
3 Partners

15 Members

# Example: Development Data Partnership



- **Objective:** facilitate the use of third-party data in research and international development
- **Means:**
  - Legal foundations: template data license agreements
  - Responsible and ethical data use
  - Multi-disciplinary teams
  - Centralised and secured IT architecture and processes
  - Web-based Data Partnership Management portal
  - Access to derived data products and algorithms





# To conclude



**A whole new world of data for evidence**



**Enormous demand for trusted and granular evidence**



**Many opportunities but also challenges**



**Needed:**

Strong legal and institutional basis for data governance

common standards and interoperability

Co-investment



**NSOs, official statistics and IOs have an important role to play**



**Thank you!**