



EUROPEAN CONFERENCE ON QUALITY IN OFFICIAL STATISTICS 2024 ESTORIL - PORTUGAL



Quality assurance and user centred design in dissemination



EUROPEAN CONFERENCE ON
QUALITY IN OFFICIAL STATISTICS
2024 ESTORIL - PORTUGAL

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- Quality in dissemination
- Quality assurance process
- Eurostat's user-centred design approach
- User research @ Eurostat
- Usability testing @ Eurostat



Quality in dissemination

General principles of good communication

General journalistic approach in terms of determining the message you want to pass, finding your angle, and structuring your information.

5 Cs of communication

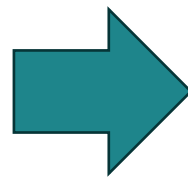
Clear	Simple language, free of any dual meaning and of too much complexity
Complete	With regard to the message you want to pass (beware of the tendency to overload)
Correct	Attention to detail and consistency!
Concise	Enough information to engage and prompt understanding, but not too much to overload and overwhelm
Compassionate	Compassionate communication involves active listening to users, and understanding of their needs and expectations



General principles: Communication is two-way

One-way

Simple dissemination of
statistics



Two-way process

Including: a sender, clear
message, (appropriate)
channel(s), receiver, and
response/feedback (though
challenging)



Dissemination of statistics as a two-way process

- ✓ Away from a producer-oriented approach to a user-oriented approach
- ✓ Consider your target audience and their needs when developing dissemination products
- ✓ Be aware on which channels you reach your target audience, and what products are suitable for which target audience
- ✓ « One size fits all » doesn't work → differentiate products for different channels
- ✓ Obtain user feedback (and act on it)



Knowledge of your users is key!



Specificities of disseminating statistics

- Importance of developing a coherent brand
- Importance of attractive visuals to catch attention and foster understanding
- Interactive tools to engage with users
- **Need for statisticians and dissemination experts to work hand in hand!**



Quality assurance mechanisms

- Quality as a systematic process
- Cover all stages of the dissemination process from conception, design to implementation
- Importance of feedback loops/quality reviews
- An update of a dissemination product is an opportunity to improve, taking into account user feedback
- Statisticians produce a lot of dissemination content → need for clear dissemination guidelines



Eurostat's user-centred design approach: What is user centered design (UCD)?

User-centered design is an approach to design products that puts users' needs at the center. It is all about **giving users what they need, not what we think they need**.

It follows an **iterative** design process that focuses on the user's needs every step of the way.

Users are
involved in the
design from
the beginning

Iterative
design
process

Organisation
goals are
aligned with
users' needs

Continuous
feedback
loops



Designing for usability

Design is not about trends, but rather principles, i.e. underlying rules that govern ‘what makes a good user experience’.

Our dissemination products are centered around the following principles:

- **learnability:** How easy is it for users to accomplish basic tasks the first time they encounter the design?
- **efficiency:** Once users have learned the design, how quickly can they perform tasks?
- **memorability:** When users return to the design after a period of not using it, how easily can they reestablish proficiency?
- **errors:** How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- **satisfaction:** How pleasant is it to use the design?



Strategy and objective

- Eurostat's communication and dissemination strategy 2021-24:
 - related strategic principles:
Promoting understanding of our data among all users
Our communication is adapted to user needs
- remaining attractive, interesting, and relevant for users
 - providing products offering a positive user experience and help them achieve their tasks
 - user-centered approach is based on 2 'connected' pillars:
user research and usability testing



putting your users at the center requires a **sound knowledge** about them



Opportunities – the 'why'?

- guidance for designing + validation of our 'internal' business choices
- gain in-depth insights into the use of our statistics, dissemination products
- avoid the creation of products no one understands, uses, or needs
- ROI (return on investment): reduce development cost and time, increase traffic and use

Methods – the 'how'?

- qualitative and quantitative user research
- identify **key user segments** of users of European statistics, their needs, pain points, expectations to create personas / user profiles (**user research**)
- complemented by **usability testing** and user feedback surveys of Eurostat products and tools



User research: User profiling study

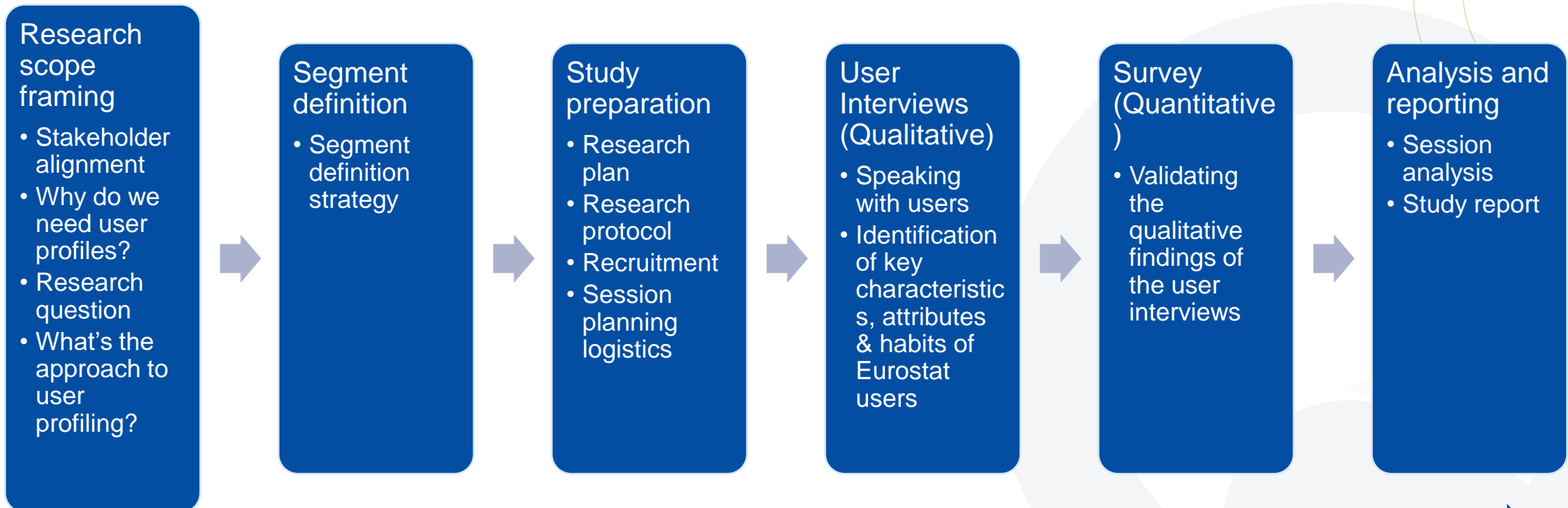
- **Objective:** The user profiling study aims at improving Eurostat products and dissemination of statistics by:
 - identifying the key user segments of European statistics by Eurostat
 - identifying key needs
 - identifying pain points
 - identifying opportunities for improving the overall user experience
 - mapping tasks, activities, and flows

The **1st phase** of the study was conducted from February 2023 to August 2023. The **2nd phase** (update and refinement of Phase 1 outcomes) started in January 2024.

This study was built upon previous profiling initiatives, like the one of the DIGICOM study.



User research: User profiling study - outline



Identifying and explaining how user profiles can be used in Eurostat context

Making user research accessible to everyone in Eurostat



User research: User profiling study - outcome

The daily user

Eurostat user profiles

Description

Daily Eurostat users have high confidence working with statistics. They consider themselves to be very familiar with Eurostat's products and services.

Daily users know very well what they are looking for, nearly all of them know if the (statistical) information is available from Eurostat, and they are well aware where this can be found. Subsequently, they perform a large variety of work-related tasks with this statistical information.

When it comes to using Eurostat information: 39% only report it to others, 35% use it for both (reporting and own work-related tasks), and 24% just for their own work purposes.

Knowledge score (4.2 / 5)

Know which statistical area or specific data they need



Know that Eurostat has the information they are looking for

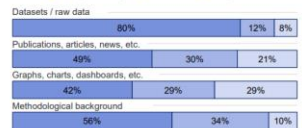


Know where to find the information from Eurostat



Type of data used

always / usually sometimes rarely / never



Ease of understanding statistics

9 / 10 find understanding statistics easy / relatively easy

Key tasks

- Most frequent tasks
- download statistical information (74%)
 - write reports (72%)
 - present data to others (66%)
 - perform (further) statistical analysis (60%)
 - interpret the data (60%)
 - explain data to others (55%)
 - create data visualisations (59%)
 - customise data extractions (57%)

Less frequent tasks

- use data for decision making (46%)
- use data from different sources (46%)
- clean or re-structure the downloaded data (44%)
- work with statistical analysis packages, such as Power BI (34%)
- copy and paste texts (33%)

Products used

- data browser / data extraction tool
- thematic website sections
- publications
- Euro indicator releases
- news articles
- Statistics Explained articles
- search engine
- metadata

Professional groups

- Media
- Financial markets
- EU institutions & services

The monthly user

Eurostat user profiles

Description

Monthly users are relatively confident working with statistics. They consider themselves somewhat familiar with Eurostat's products and services.

Most monthly users know what (statistical) information they are looking for, but not all of them know if the information is available from Eurostat or where to find it. When they find the information, they perform various tasks with it.

When it comes to using Eurostat information: 33% only report it to others, 37% use it for both (reporting and own task), and 30% just for their own work purposes.

Knowledge score (3.7 / 5)

Know which statistical area or specific data they need



Know that Eurostat has the information they are looking for

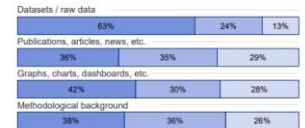


Know where to find the information from Eurostat



Type of data used

always / usually sometimes rarely / never



- Media
- Financial markets
- EU institutions & services

Ease of understanding statistics

7 / 10 find understanding statistics easy / relatively easy

Key tasks

- Most frequent tasks
- download statistical information (66%)
 - write reports (68%)
 - present data to others (62%)
 - explain data to others (54%)
 - interpret the data (57%)
 - create data visualisations (56%)
 - perform (further) statistical analysis (54%)

Less frequent tasks

- customise data extractions (47%)
- use data for decision making (41%)
- use data from different sources (40%)
- clean or re-structure the downloaded data (37%)

Products used

- data browser / data extraction tool
- thematic website sections
- publications
- search engine
- data visualisation tools

Professional groups

- Other institutions
- Businesses
- Education sector

The weekly user

Eurostat user profiles

Description

Weekly users are confident working with statistics. They consider themselves to be very familiar with Eurostat's products and services.

Weekly users know well what they are looking for, they usually know if the (statistical) information is available from Eurostat, and where this can be found. In the case they don't know, they are able to guess where it could be found and, through trial and error, usually succeed in finding it. Subsequently, they perform a large variety of work-related tasks with this statistical information.

When it comes to using Eurostat information: 33% only report it to others, 38% use it for both (reporting and own task), and 28% just for their own work purposes.

Knowledge score (3.8 / 5)

Know which statistical area or specific data they need



Know that Eurostat has the information they are looking for

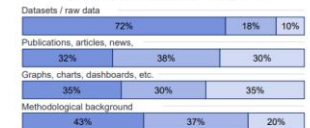


Know where to find the information from Eurostat



Type of data used

always / usually sometimes rarely / never



Ease of understanding statistics

8 / 10 find understanding statistics easy / relatively easy

Key tasks

- Most frequent tasks
- download statistical information (76%)
 - write reports (72%)
 - present data to others (68%)
 - explain data to others (68%)
 - interpret the data (65%)
 - create data visualisations (64%)
 - perform (further) statistical analysis (63%)
 - customise data extractions (57%)
 - use data from different sources (52%)
 - clean or re-structure the downloaded data (50%)

Less frequent tasks

- use data for decision making (44%)
- work with statistical analysis packages, such as Power BI (33%)

Products used

- data browser / data extraction tool
- thematic website sections
- publications
- search engine
- metadata

Professional groups

- Media
- EU institutions & services
- Policymakers

The occasional user

Eurostat user profiles

Description

Users who visit Eurostat less than once per month are considered 'occasional' users. Occasional users are fairly confident working with statistics. They consider themselves to be somewhat familiar with Eurostat's products and services.

Not all know what information they are looking for, and even fewer know if Eurostat has this information or where to find it. As a result, some of them do explore the Eurostat website (both in terms of information and information presentation). When they find (statistical) information, they perform a limited number of tasks with it.

When it comes to using Eurostat information: 29% only report it to others, 27% use it for both (reporting and own task), and 44% just for their own work purposes.

Knowledge score (3.3 / 5)

Know which statistical area or specific data they need



Know that Eurostat has the information they are looking for

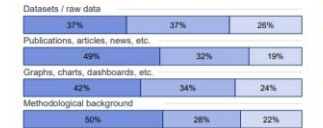


Know where to find the information from Eurostat



Type of data used

always / usually sometimes rarely / never



Ease of understanding statistics

7 / 10 find understanding statistics easy / relatively easy

Key tasks

- Most frequent tasks
- download statistical information (54%)
 - write reports (57%)
 - present data to others (50%)

Less frequent tasks

- explain data to others (41%)
- interpret the data (41%)
- create data visualisations (36%)
- perform (further) statistical analysis (34%)
- use data for decision making (28%)

Products used

- publications
- search engine
- news articles
- data browser / data extraction tool
- Statistics Explained articles

Professional groups

- Education sector
- Businesses
- Public administration



User research: Reflections and on-going steps

- There are **various interesting ways to profile** Eurostat users, based on variables such as attributes, tasks, products used, statistical literacy, professions.
- Profiling approach is based on **various statistical analyses** to uncover relations between user variables and to decide / choose the best profiling approach
- User research has a **moving target**: Users' needs, behaviors, and ways to approach Eurostat statistics are not static, but they evolve + new developments (e.g. AI) arise
- Eurostat's user research always needs to **evolve** as well to capture and understand the actual reality of users



Usability testing – Opportunities

- To ensure that a product is usable for our users and helps them succeed in achieving their tasks
- User do not think like we think
- Users do not have good insight into the reasons for their behaviour
- User performance involves a human, a context and an activity

“Testing with 5 participants in a usability test reveals 85% of usability problems that affect 31% of the population” (Nielsen, 1993)

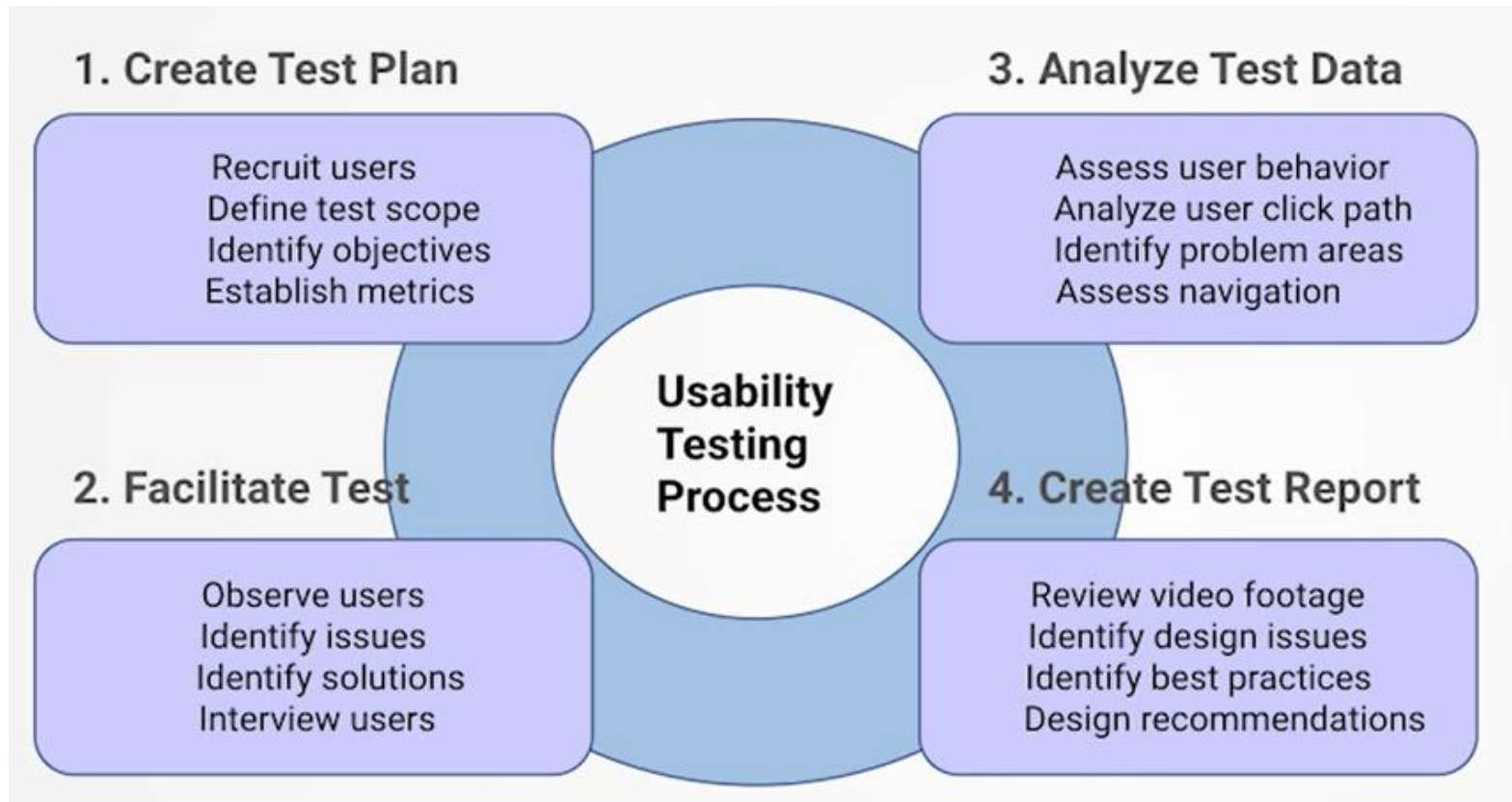
Usability testing – Methods

We ask participants to complete tasks and observe by means of

- Exploratory study
- Summative study
- Validation study
- Comparison test



Usability testing – the process



We inform the team about our findings and provide recommendations to help them make informed decisions

Remember, testing does not guaranty success or even prove that a product will be usable



Usability testing – Studies performed 2022 - today

- Eurostat website revamp (multiple rounds)
- Key figures publications
- Statistics Explained revamp (multiple rounds, different types of tests)
- Eurostatistics (dashboard, visualisation tool, publication)
- Data browser (multiple rounds, different types of tests)
- Interactive publications (2 rounds, different types of tests)
- Dashboards
- New metadata layout (ongoing)



Example: Data Browser before and after

The screenshot shows the old Eurostat Data Browser interface. It is highly cluttered with many buttons, dropdowns, and tabs. The main content area is dominated by a large data table with many columns and rows, making it difficult to navigate and read. The interface is dense with information, leading to a high cognitive load for the user.

- Cluttered
- Not a clear mental model
- Too many available functionalities at once
- High cognitive load
- Confusing

- Less clutter, clear space
- Reduced functionalities in main view
- Design considering differences: entry level vs advanced users

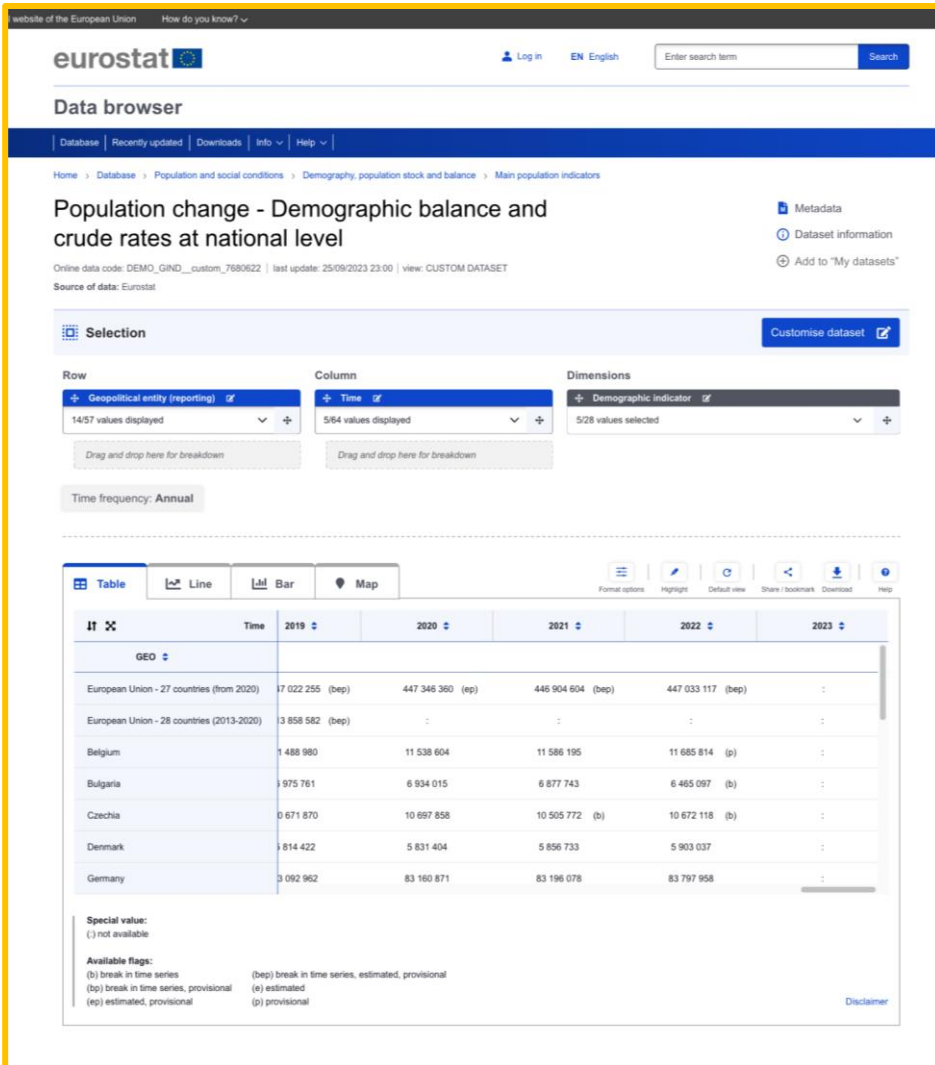
The screenshot shows the new Eurostat Data Browser interface. It is much cleaner and more modern, with a clear mental model. The layout is simplified, focusing on the main data table and providing clear navigation options. The design considers the needs of both entry-level and advanced users, offering a more intuitive and less cluttered experience.

IT	Time	2019	2020	2021	2022	2023
GEO						
European Union - 27 countries (from 2020)		17 022 256 (bep)	447 346 360 (ep)	448 904 604 (bep)	447 033 117 (bep)	
European Union - 28 countries (2013-2020)		3 858 582 (bep)				
Belgium		1 488 980	11 538 004	11 586 195	11 665 814 (p)	
Bulgaria		6 975 761	6 534 015	6 877 743	6 465 097 (b)	
Czechia		0 671 870	10 697 858	10 505 772 (b)	10 672 118 (b)	
Denmark		1 814 422	5 831 404	5 856 733	5 903 037	
Germany		3 062 962	83 150 871	83 196 078	83 787 958	



Mock-up

- Reduced number of functionalities in the main view
- Reduced cognitive load
- Clear central stage
- Design considering the differences between entry level and advanced users
- New mental model for data download
- New design for advanced data formatting options



The screenshot displays the Eurostat Data browser interface. The main title is "Population change - Demographic balance and crude rates at national level". The interface includes a search bar, navigation tabs, and a selection panel. The data is presented in a table format with columns for Time (2019, 2020, 2021, 2022, 2023) and rows for various geographical entities (GEO). The table shows values in billions of people (bep) for each year, with some values marked as estimated (e) or provisional (p). A legend at the bottom explains the special values and available flags.

	2019	2020	2021	2022	2023
European Union - 27 countries (from 2020)	17 022 255 (bep)	447 346 360 (ep)	446 904 604 (bep)	447 033 117 (bep)	:
European Union - 28 countries (2013-2020)	3 858 582 (bep)	:	:	:	:
Belgium	1 488 980	11 538 604	11 586 195	11 685 814 (p)	:
Bulgaria	975 761	6 934 015	6 877 743	6 465 097 (b)	:
Czechia	0 671 870	10 697 858	10 505 772 (b)	10 672 118 (b)	:
Denmark	814 422	5 831 404	5 856 733	5 903 037	:
Germany	3 062 962	83 160 871	83 196 078	83 797 958	:

Special value:
(.) not available

Available flags:
(b) break in time series (ep) break in time series, estimated, provisional
(ep) break in time series, provisional (e) estimated (p) provisional



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Thank you

For any questions, please contact:
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