

10th Expert Group Meeting on SDMX

Summary Report

SUMMARY

The 10th Expert Group Meeting on Statistical Data and Metadata Exchange ([SDMX](#)) was hosted by the International Monetary Fund (IMF) virtually during **January 25-28, 2021**. The SDMX Expert meeting – which is a bi-annual event organized by the [SDMX Sponsor agencies](#)¹ – has been designed to help SDMX experts and practitioners focus on how to improve the SDMX standard.

Taking advantage of the virtual format, this Meeting was open to anyone who is interested in learning about the technical discussions around the development of SDMX. The four-day meeting attracted 580 participants from 84 countries, including representatives from international organizations, national statistics agencies, central banks, the private sector and other regional and national institutions.

The meeting offered an excellent occasion for SDMX experts in the community to discuss and influence the further development of SDMX standards and various statistical guidelines related to SDMX. The meeting was opened [with welcoming remarks](#) by Louis Marc Ducharme, Chief Statistician and Data Officer and Director of the IMF's Statistics Department, and member of the SDMX Sponsors Committee. Bruno Tissot, Head of Statistics and Research Support at the Bank of International Settlement (BIS), and also member of the SDMX Sponsors Committee, provided an overview of the [Strategic Vision of SDMX 3.0](#).

The meeting was rich in content with [35 presentations](#) covering six critical areas of the standard: (i) the new features of [SDMX 3.0](#); (ii) SDMX use cases from countries and international organizations; (iii) a comparison of alternative modeling approaches; (iv) a stocktaking of existing and potential SDMX tools; (v) referential metadata models; (iv) and the relationship of SDMX with other international standards. A panel discussion was also organized to discuss the main takeaways from the meeting. The meeting was closed by Eduardo Barredo Capelot, Director of Methodology, Dissemination and Cooperation at Eurostat, and Chair of the SDMX Sponsor Committee.

Some key takeaways of the meeting are noted below:

- **The new features of SDMX 3.0 will simplify and expand the use cases of the standard.** SDMX experts welcomed all the new features developed for the new version.

¹ The SDMX Sponsor agencies are the BIS (Bank for International Settlements), ECB (European Central Bank), EUROSTAT (Statistical Office of the European Union), IMF (International Monetary Fund), OECD (Organisation for Economic Co-operation and Development), UN (United Nations), and the World Bank.

The possibility of using SDMX for microdata and geospatial information and the improvements to handle code lists were ranked the top new features by the experts. In addition, SDMX 3.0 will make easier to exchange reference metadata, which is particularly relevant for the exchange between country authorities and other international agencies.

- **Discussions highlighted the need for increased collaboration between Sponsor agencies and other organizations using SDMX to address common technical challenges.** First, increased coordination between SDMX developers is needed to ensure interoperability of existing tools and to address current gaps in the statistical value chain. The meeting highlighted that SDMX has been successfully implemented for statistical data management, reporting and dissemination at both international and national level. However, some gaps have been identified for using SDMX in other functional areas of the production process such as data visualization. Furthermore, new modeling guidelines should be provided to streamline and create more flexible data models. The discussions around different modeling approaches highlighted the need to identify shared solutions for common challenges. For example, all agencies face similar difficulties when expanding a given code list with country-specific concepts. The SDMX Statistical Working Group will continue the discussions at the technical level with a view to organize a discussion with the users at the next SDMX Global conference in the fall. Third, organizations providing capacity building and support for the implementation of SDMX should increase coordination and address the proliferation of tools recommended for the same country.
- **Finally, the SDMX community should simplify communication around the standard to broaden its geographic reach and facilitate its adoption by new partners, including the private sector.** The panel discussion highlighted that simplifying the adoption of the standard and making it easier to consume can offer tremendous value for users of data, at a time when high-frequency and granular information is more important than ever. It was also noted that the creation of an SDMX user group – as also noted in the [SDMX Roadmap 2025](#) – could help promote better communication within the statistical community and beyond. Additional details on the discussions during the meeting can be drawn from the MentiMeter results presented in [Appendix I](#).
- **A post-event survey was conducted at the end of the four-day meeting. Most of the participants were satisfied with the content and format of the meeting**, including the virtual platform, and saw the event as a good opportunity to learn about new technical aspects of SDMX. Survey's comments confirmed some of the key themes that already emerged during the event such as the importance of showing more use cases and the opportunity of having access to training; both these matters can help public institutions and private organizations implement the SDMX standard. There were also comments that underscored the significance of simplifying SDMX, which is critical for organizations wanting to adopt and use SDMX. Overall results of the survey are summarized in [Appendix II](#).

The rest of the report documents the key discussion points and follow-up actions items from the six sessions.

SESSION I: WHAT IS SDMX 3.0 GOING TO BE?

Co-chairs: Rafael Schmidt and Boris Vitez (BIS)

This session provided an overview of the objectives of SDMX 3.0, its timeline, the process used for managing the project across different organizations, challenges, and lessons learned. Technical details of the new SDMX 3.0 features were presented across [eight thematic presentations](#).

Key points from the discussion:

- New SDMX 3.0 features (particularly Micro data support and new SDMX API) are very much welcomed by the SDMX user community.
- There is a demand to enhance SDMX tools to support new 3.0 features.
- There is great interest in new capabilities to handle Geospatial data.
- The simplification and ease-of-use provided by some of the new features (semantic versioning, the enhanced API, etc.) are also very welcome.
 - Throughout the presentations, participants were actively asking questions and commenting about the new features, and very few of them let some open issues to discuss after the upcoming public review.
 - [The MentiMeter poll](#) during the wrap-up session confirmed that all the new or enhanced features are necessary.

Follow-up actions:

- Suitability of SDMX Web API for dissemination.
- Further enhancements of the SDMX standard and tools with regards to Big Data technologies.
- Availability of SDMX tools in the cloud to support quicker adoption.

Main takeaways:

- SDMX 3.0 implementation is following the Vision of the [Roadmap 2025](#), providing features that make data and metadata usage easier and helps modernizing statistical processes.

SESSION II: USE CASES

Chair: Abdulla Gozalov (UNSD)

This session presented a stocktaking of different use cases from national and international agencies that currently use SDMX for data collection, international data sharing, and data dissemination.

Key points from the discussion:

- Implementation of SDMX data exchange can bring benefits to the entire National Statistical System.

- International agencies can greatly facilitate the implementation of data exchange and dissemination for countries.
- Use of pull mode reduces burden on data reporter and collector.
- Standards-first approach can help resolve numerous issues although available tools do not yet cover the entire statistical value chain.
- Dissemination platforms customized for a specific global Data Structure Definition (DSD) can greatly enhance user experience.
- SDMX-native data warehouse running in a cloud environment can be successfully adopted by a developing country.

Follow-up actions:

- Standards-based approach brings tangible benefits to statistical organizations by both governments and international agencies.
- Identify gaps in standards and tools along the statistical value chain.

Main takeaways:

- SDMX is successfully implemented for statistical data management, reporting, and dissemination at both international and national levels. Standards-based tools greatly facilitate these activities but do not yet cover the entire statistical value chain.

SESSION III: MODELING APPROACHES

Chair: Siddhesh Kaushik (World Bank)

The session focused on multi-dimensional modeling approaches developed by the SDMX community and discussed their uses, challenges, and prospects. It had [five presentations](#).

Key points from the discussion:

- SDMX structure maps and VTL to describe relationships.
- How to use DSD for dissemination (Most discussed point).
- Ability to get notified of changes to global DSD other than by visiting the SDMX registry.

Follow-up actions:

- How can SDMX 3 help with further streamlining existing data models and what are the new modelling guidelines based on SDMX 3.0.
- Guidance on dissemination of SDMX data. Can we combine dimensions/attributes to collapse it to 5 or less dimensions to make data dissemination more user-friendly?

Main takeaways:

- Data modelling helps with efficient transmission of data, but SDMX community still must decipher how to disseminate complex data in a user-friendly manner. The core of any successful implementation is based on the data model. While for simple data structure

modelling is easy, for multi-dimensional data a lot of thought must be put to get the model right.

SESSION IV: TOOLS AND PLATFORMS

Chair: Marco Marini (IMF)

The session started with a [stocktaking of reusable SDMX tools](#) available for public use. The stocktaking offered a useful functional mapping, which showed how SDMX tools cover mostly collection, processing, and dissemination phases of the GSBPM. The session also presented the main functionalities of specific tools: [Fusion Registry Metadata \(BIS\)](#), [SMART and DSD Constructor \(both ILO\)](#). These tools can adapt to multiple use cases and are available free of charge. The IMF presented the benefits of an [SDMX-based automated collection platform](#) and its plans to integrate [SDMX in a Big Data architecture](#). Finally, the ECB presented how SDMX has been integrated in the new data management platform founded on multiple [Big Data technologies](#).

Key points from the discussion:

- [Through MentiMeter](#), attendees indicated (i) SDMX Converter as the most popular tool and (ii) data visualization as a functional area that needs to be covered by shared SDMX tools.
- Developers should provide more use cases and tutorials to facilitate the adoption of SDMX tools available for public use.
- It is important to define the value proposition for the private sector, which face barriers to invest in the SDMX technology.
- SDMX can be used as the master data model in a modern data management platform founded on Big Data architecture.

Follow-up actions:

- The list of SDMX tools on [sdmx.org](#) should be reformatted using a functional grouping. Developers/agencies should be asked to classify their tools.
- Invite selected private sector companies to contribute to the development of the standard, including by joining the SDXM Technical Working Group and Statistical Working Group.
- Explore funding opportunities from Sponsor agencies for open source software.
- Creation of SDMX user group and communication working group to promote better communication within the statistical community and beyond.

Main takeaways:

- More coordination between SDMX developers will be needed to ensure interoperability of existing SDMX tools and to address current gaps in the statistical data life cycle. The SDMX community should continue to seek partnerships with the private sector by emphasizing the many benefits of SDMX, including a strong governance provided by global organizations, reduced data cleaning costs, and better discoverability of data disseminated using the standard.

SESSION V: REFERENTIAL METADATA

Chair: Marta Nagy-Rothengass (Eurostat)

The session focused on the experience and challenges with the implementation of SDMX for reference metadata. The session also covered how SDMX 3.0 can help improve the exchange of reference metadata between national and international organizations, and which approach could be best suited for different use cases.

On behalf of the TWG, Edgardo Greising and Matt Nelson presented how the [SDMX model for reference metadata](#) exchange in SDMX will be improved (and simplified) in SDMX 3.0. While Eurostat presented their [implementation of SDMX for reference metadata exchange](#) within the European Statistical System. UNSD presented the work they carried out to introduce SDMX-based exchange of [reference metadata in the framework of the SDGs](#).

Key points from the discussion:

[A MentiMeter survey](#) was conducted to have a better understanding of how participants perceive the usage of SDMX for the exchange of reference metadata. The results showed the following:

- 52 % of respondents said their organization currently uses SDMX for reference metadata.
- Among those who do not currently use SDMX for reference metadata, the main reasons given were the lack of tools for reference metadata and the complexity of the SDMX information model for reference metadata.
- Among those who do currently use SDMX for reference metadata, the main challenges were the lack of tools for reference metadata, the complexity of the SDMX information model for reference metadata and the harmonization of concepts and definitions required.

Follow-up actions:

- The new possibilities that SDMX 3.0 will make available for the exchange of reference metadata will require the creation of implementation guidelines detailing the pros and cons of different approaches and their suitability in different use cases.
- A stocktaking of different reference metadata exchange initiatives at regional and global level.

Main takeaways:

- The use of SDMX to support the exchange of reference metadata is less widespread than the use of SDMX for data. This is due both to a lack of SDMX tools for reference metadata and to the underlying complexity of the SDMX Information Model. SDMX 3.0 seeks to address these shortcomings by simplifying the SDMX model for reference metadata and by introducing new ways reference metadata could be exchanged in an SDMX framework.

SESSION VI: SDMX IN A BUSINESS ARCHITECTURE

Co-chairs: David Barraclough (OECD) and Daniel Suranyi (ECB)

The session looked into usage of SDMX beyond the core purpose of data exchange as a facilitator to standardize various aspects in a business architecture.

Zoltán Vereczkei, in his capacity as the new chair of the UNECE Supporting Standards Group, gave an [overview how SDMX relates to other standards](#) such as GAMS0, GSBPM, GSIM and CSPA. Stefano Pambianco (ECB) and Vincenzo del Vecchio (Bank of Italy) then lined out how the combination of SDMX and [VTL can represent a whole data supply chain](#) with datasets and transformations, also across business areas and organizations. More concrete use cases were presented by Juan Muñoz (INEGI) and Anastassia Samsonova (OECD). Juan showed how SDMX may be used in the future to [enrich datasets with geospatial information](#). Anastassia gave a [demonstration on drilling down](#) from macro- to micro-data and back within the same SDMX data model. Finally, Daniel Suranyi (ECB) showed that SDMX has potential to [standardise various parts of a business architecture](#) across the whole data life cycle from collection to dissemination, driven by a single SDMX metadata registry.

Key points from the discussion:

- [A MentiMeter survey](#) showed that experts still see a lot of potential for enhanced usage of SDMX in various areas (e.g. dissemination, reporting, collection, metadata management).
- The major impediments towards better usage of the standard are capacity building and skills, the need for better tools to cover specific use cases, and management buy-in and prioritization.

Follow-up actions:

- Since the topic of architecture is cross-cutting, it will be important to follow developments along capacity building and tools within the SDMX Roadmap 2025.
- Use cases and white papers showing implementation of SDMX in business architectures in various organizations, as well as business architecture guidance and best practices, could be shared within the community.
- A more regular exchange of experts in the community as well as a better-defined governance framework for VTL may contribute to wider usage of the standards.

PANEL DISCUSSION ON THE FUTURE OF SDMX

Moderator: Laurence Allain (IMF, and SDMX Secretariat Chair)

Panelists: Edgardo Greising (ILO), Marina Signore (Istat), Linda Peters (ESRI)

The panel discussion reflected on the main takeaways from the meeting and discussed current challenges and opportunities for the adoption of SDMX in the broad statistical community and how to further advance the use of the standard.

The panelists shared the best use cases of SDMX in their respective environment. Data exchange, reporting and dissemination are among the best use cases for international organizations and national statistics offices, such as Istat. Private sector companies still see some challenges in investing on SDMX due to its limited use cases – broadening the scope to nontraditional data types is essential. Panelists agreed with the need to simplify the communication around the standard to make SDMX easier to consume and better understood. Similarly, panelists highlighted the importance of better coordination among agencies on capacity development.

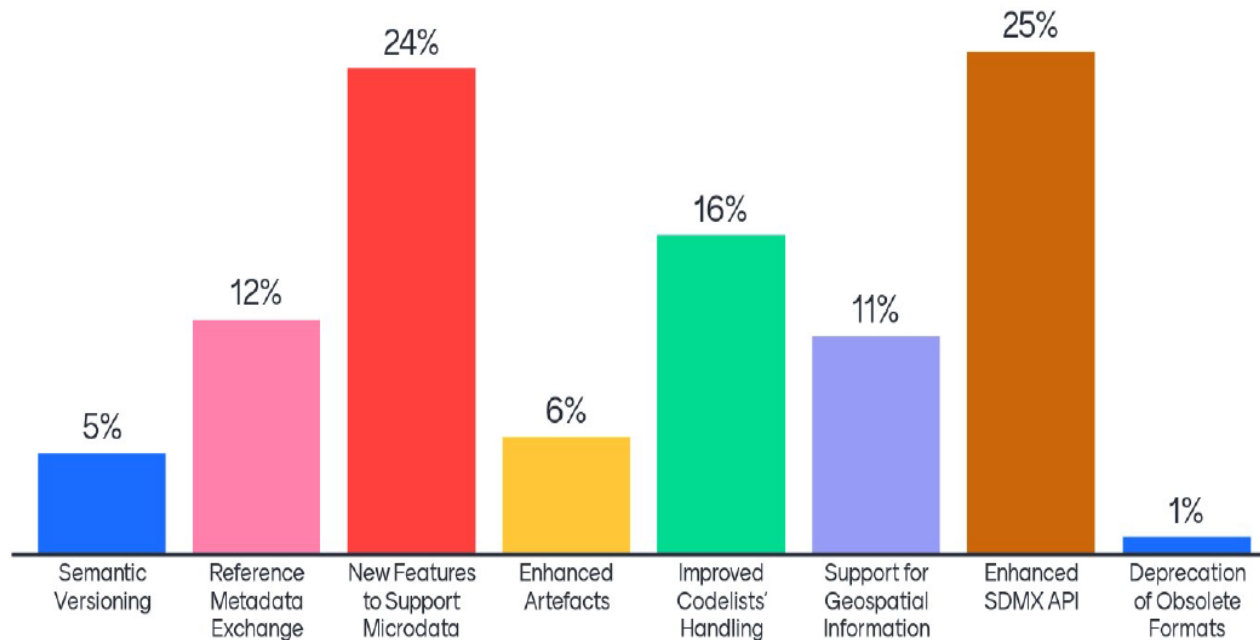
Panelists also cited the COVID-19 pandemic as an example of the need to make data available as soon as possible. National statistical agencies should react quickly to such events, and it was recognized that using SDMX for international data exchange can help improve timeliness and enhance efficiency of the statistical production process.

Lastly, the three panelists agreed that improving communication and broadening the SDMX community are the most important priorities from the [SDMX Roadmap 2025](#) to further develop the standard in the coming years.

APPENDIX I: MENTIMETER RESULTS

SESSION I: WHAT IS SDMX 3.0 GOING TO BE?

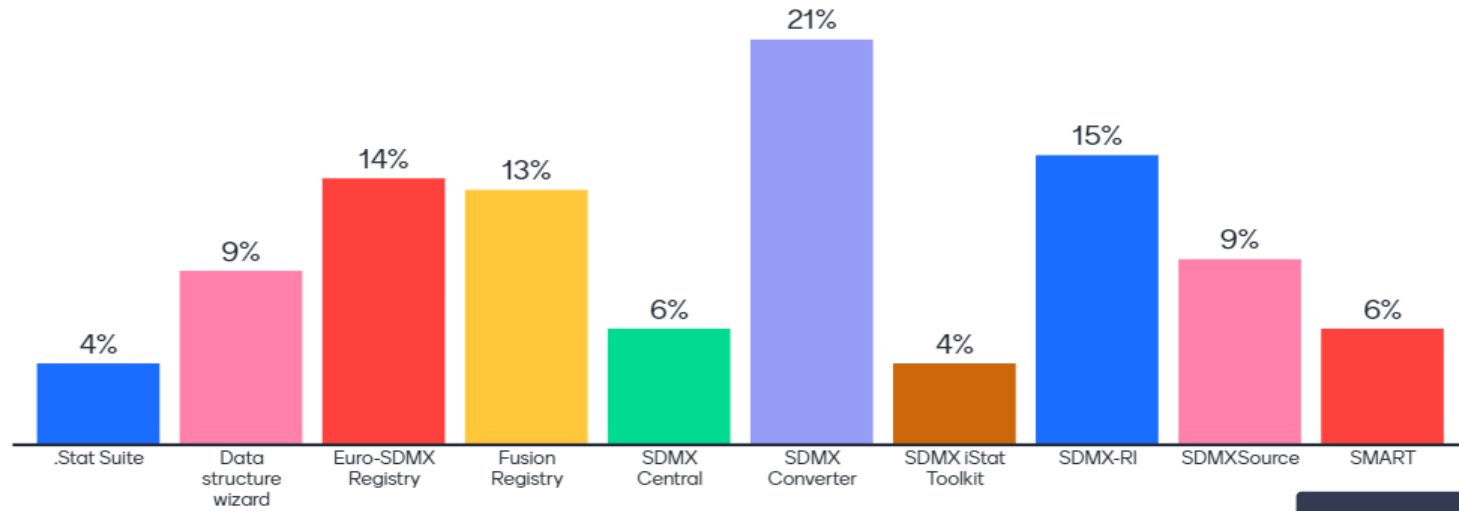
Which of the new features in SDMX 3.0 do you think adds more value?



SESSION IV: TOOLS AND PLATFORMS

- Which of the SDMX tools listed do you use? (multiple choices)


Mentimeter

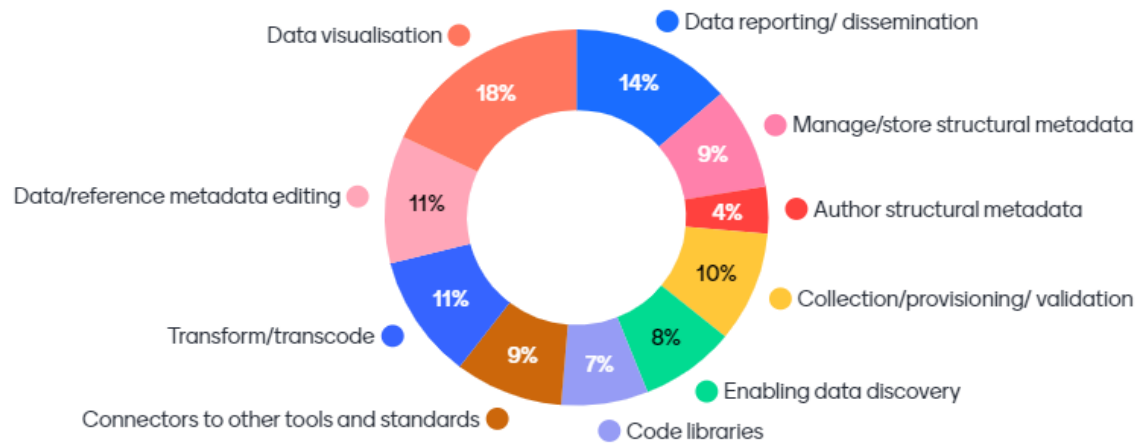



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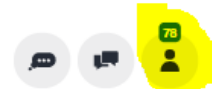


SESSION IV: TOOLS AND PLATFORMS

- Which functionality area needs to be covered more by shared SDMX tools? (multiple choices) 

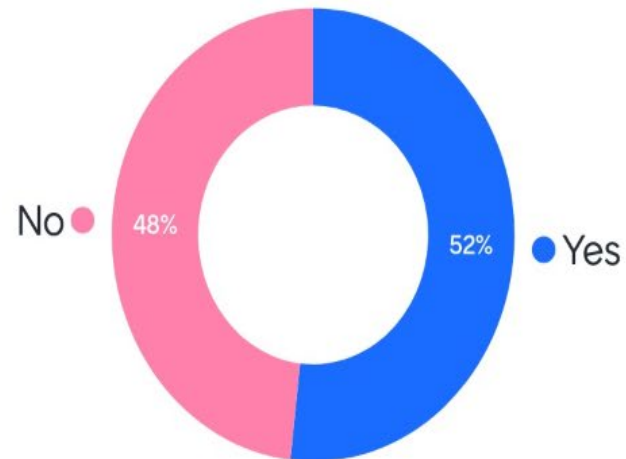


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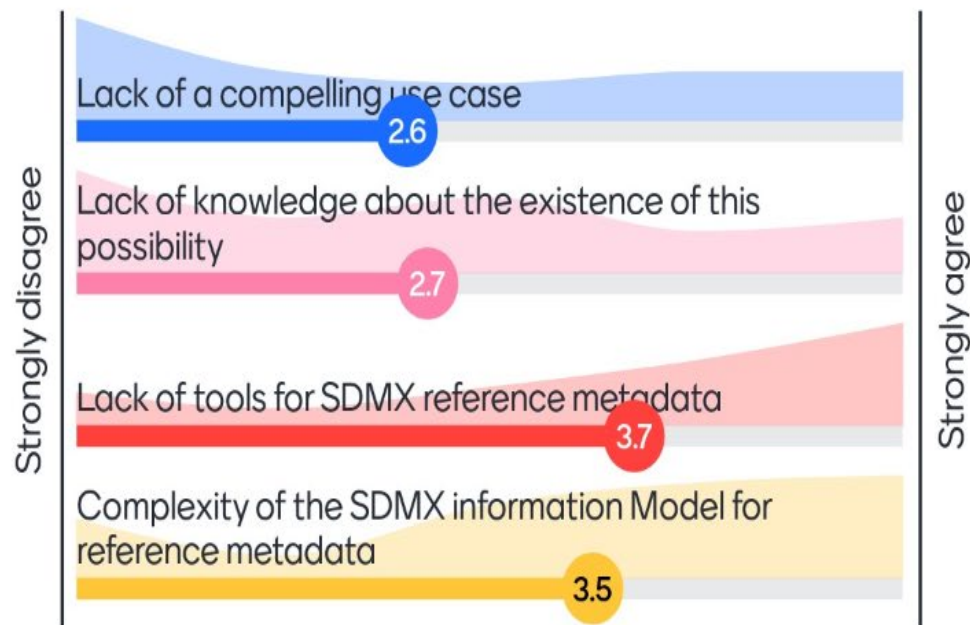


Does your organisation currently use SDMX for the exchange or dissemination of reference metadata?

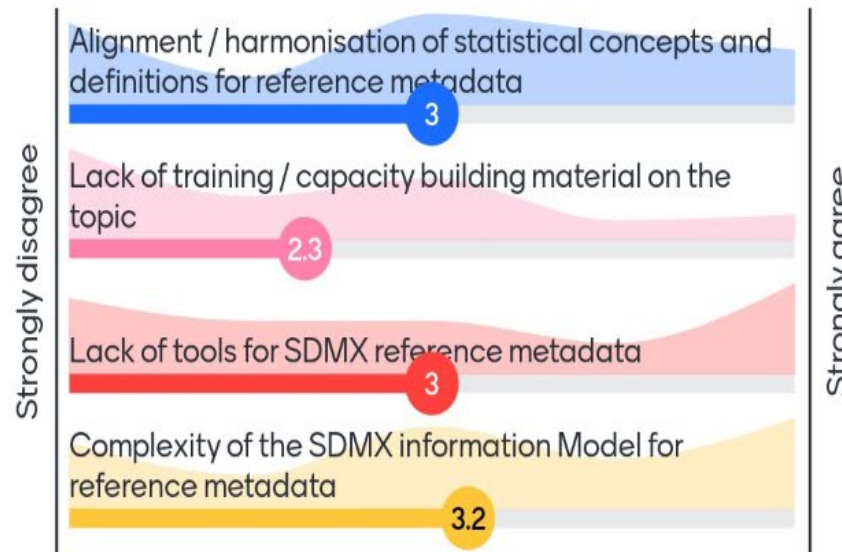
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If your organisation does not use SDMX for the exchange or dissemination of reference metadata, what are the reasons?

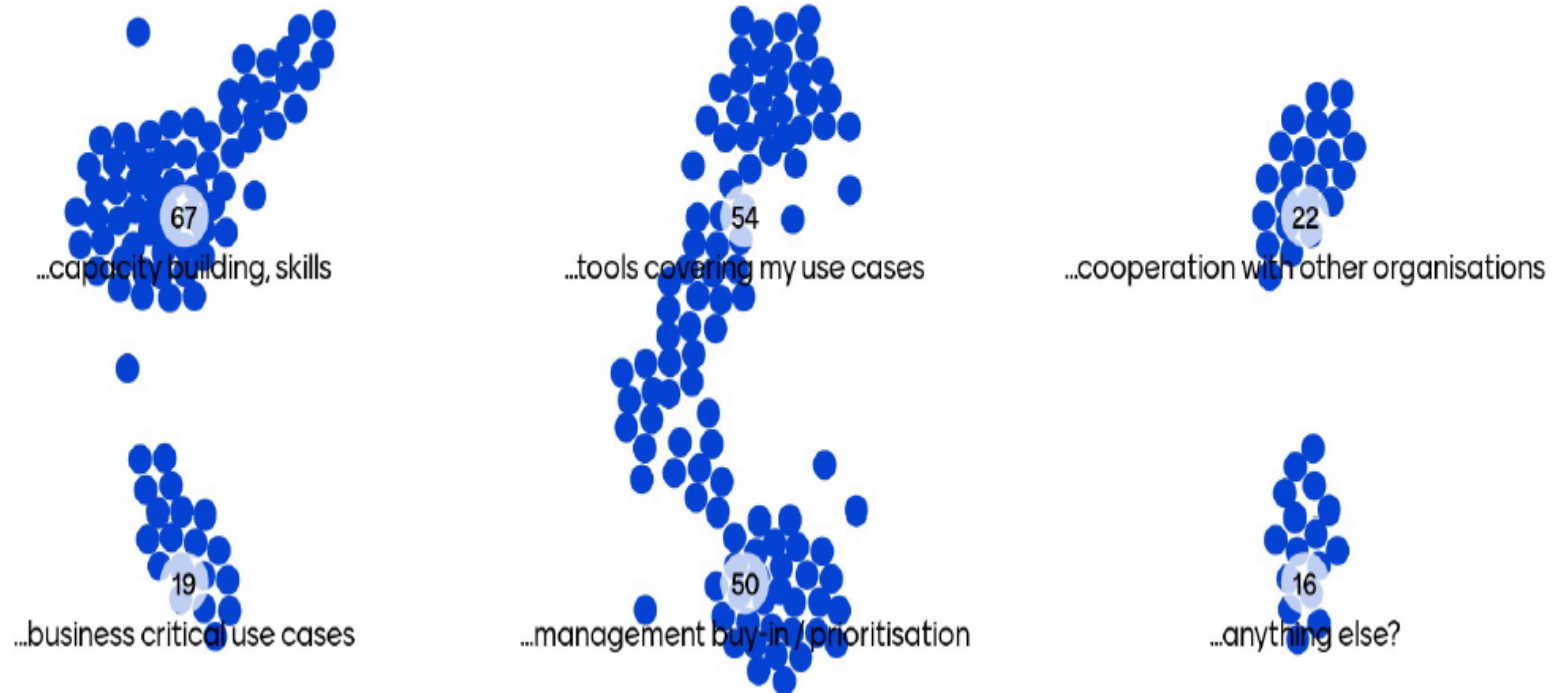


If your organisation uses SDMX for the exchange/dissemination of reference metadata, what is the main challenge you encountered in the implementation?



What is preventing you most from going towards a full scale SDMX-based business architecture? (choose max 3)

Lack of...



APPENDIX II: POST-EVENT SURVEY RESULTS

Please indicate your level of agreement or disagreement with the following statements:

