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High-Level Group for the Modernisation of Official Statistics (HLG-MOS) of the United Nations Economic Commission for Europe

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Abstract. The article describes the High-Level Group for the Modernisation of Official Statistics (HLG-MOS). The focus is on its structure, the innovation pipeline and the elements of its success. The HLG-MOS was created by the Conference of European Statisticians to accelerate the modernisation of official statistics. To achieve this, the HLG-MOS setup a modernisation community with projects, expert groups, and expert meetings and workshops. It has consistently been evaluated as very successful. Key to this is the strong engagement and strategic direction from the Chief Statisticians that lead the HLG-MOS combined with motivated and dedicated experts participating in the activities and continuous oversight and steering from the HLG-MOS Executive Board and effective support from the UNECE secretariat. The innovation pipeline that combines top-down strategic vision and bottom-up ideation is core to identifying and prioritising new areas of work.

Keywords: International collaboration, statistical modernisation, modernisation models

1. Introduction

With the emergence of new data sources and new technologies many national and international statistical organizations have initiated developments to restructure the statistical production process to enhance existing outputs and develop new ones. These developments have significant implications for the structure and efficiency of statistical organizations, and a major impact on strategic decisions related to budget, human resources and corporate strategy. Several existing international groups were involved in expert-level discussions on specific aspects of the modernisation of official statistics, such as methodology, information technology, software tools, and enterprise architecture, but there was no overall coordination of these activities. This is why in 2010, the Bureau of the Conference of European Statisticians (CES) decided that a forum at the level of chief statisticians was needed and established what is now the High-Level Group for the Modernisation of Official Statistics (HLG-MOS).

The HLG-MOS is a group of thirteen committed Chief Statisticians[1] actively steering the modernisation of statistical organisations. The mission is to work collaboratively to identify trends, threats, and opportunities in modernising statistical organisations. The objectives of HLG-MOS are:

- To promote common standards, models, tools and methods to support the modernisation of official statistics.
- To drive new developments in the production, organisation and products of official statistics, ensuring effective coordination and information sharing within official statistics, and with relevant external bodies.
- To advise the CES Bureau on the direction of strategic developments in the modernisation of of-

[1] Current members: Australia, Canada, Ireland, Italy, Mexico, the Netherlands, New Zealand, Poland, Republic of Korea, United Kingdom, Eurostat, OECD and UNECE.

ficial statistics and ensure that there is a maximum of convergence and coordination within the community of official statistics.

The key values are developing innovative solutions, demonstrating leadership and collaboration, discussing challenges and opportunities openly, ensuring that priorities are community driven and supporting a flexible, result oriented and agile approach.

All contributions are voluntary but there is an expectation that members contribute to their possibilities in-kind or with financial contributions to the HLG-MOS Trust Fund. This is formalized by the Statement of Intent signed by all members. The HLG-MOS reports to the CES.

2. Structure of HLG-MOS and the Statistical Modernisation Community

To advance the modernisation of official statistics, the HLG-MOS created the Statistical Modernisation Community that now is branded as ModernStats. It provides a common platform for experts to develop solutions in a flexible and agile way. The community is a semi-formal alliance, open to any organisation working in the field of official statistics. It is often described as a voluntary collaboration of the willing and able. HLG-MOS activities are voluntary and demand driven and everybody can join and participate at all levels. UNECE provides secretariat support to the HLG-MOS and all activities of the Modernisation Community.

Resources are constrained and challenges and priorities change rapidly. The HLG-MOS each year limits the number and duration of the activities undertaken by its community. Usually, there are two project, four modernisation groups and four thematic expert meetings, while several (sprint) workshops are organized by modernisation groups and seminars by projects to share their outputs. As the focus is on innovation and current priorities, the timeline to setting the annual work programme is short (Fig. 1). Topics are selected in November-December and further scoped early in the year. Through the year, depending on changing needs and resources available, further changes can be made. For example, the Covid-19 pandemic led to a refocus of several activities

The Executive Board is responsible for the strategic management of on-going HLG-MOS projects and activities. It assesses and plans new projects and activity proposals for endorsement by the HLG-MOS and seek support and resources from interested organisations. It

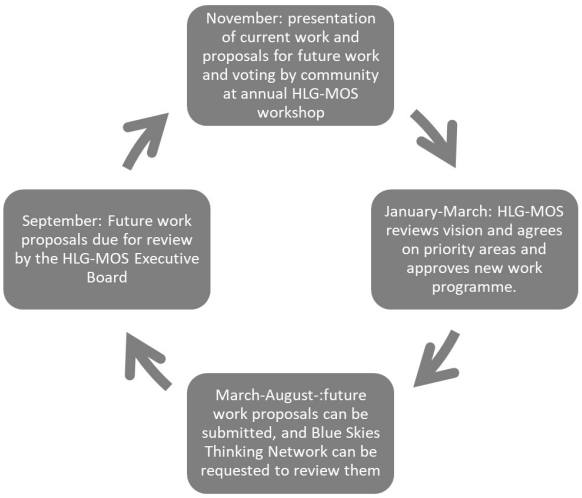

Fig. 1. HLG-MOS Annual Cycle.

has a coordinating role with respect to the Modernisation Groups and advises them on the inputs they should provide to ensure the successful completion of each annual work programme. It further coordinates requests for additional resources needed for the completion of the activities. Members of the Executive Board are also assigned as 'champion' of a workshop, group or project to assure a better alignment of all activities. All groups and projects report to the Executive Board on a monthly basis while the Executive Board regularly reports to and consults with the HLG-MOS.

Projects are usually larger and more intensive activities and have more participants (25–150) in new areas of work. They are led by project managers that are either provided in-kind or contracted by using the Trust Fund. Projects last for one year and can be extended by maximum one more year.

Modernisation groups undertake various smaller activities in their area of expertise. They have around twenty members that work in different task teams on the selected activities. Participation is at all levels from national and international organizations working on official statistics but also from academia and the private sector. The setup of the groups can change and groups can be replaced by others if their mission was achieved or if the priorities of the HLG-MOS were revised.

All work is coordinated with Eurostat and OECD and depending on the specific area of work, with other organisations that have international projects in related areas. This is usually achieved by including representatives of these organisations in the activities or by assuring cross-membership of key participants.

There are four expert meetings in the following thematic areas: data collection, data confidentiality, data

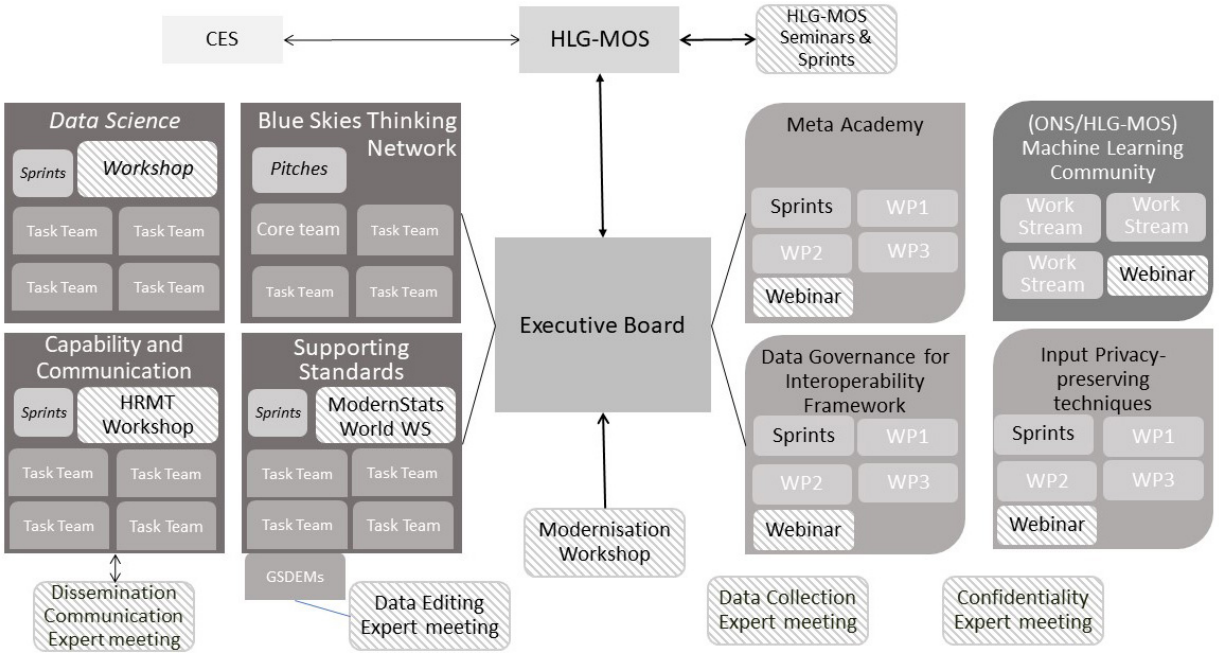

Fig. 2. Structure HLG-MOS in 2022.

editing, and dissemination and communication. They are organized by expert committees with members from national and regional statistical organizations as well as representatives from academia. The expert meetings have three main goals:

- Share innovative (best) practices and experiences
- Identify common future areas of work
- Provide a platform to foster collaboration

Figure 2 shows the structure of the HLG-MOS in 2022. In 2022, exceptionally, three projects were selected while the 2019–2020 Machine Learning project continued as a community supported by the Office for National Statistics of the United Kingdom. The purpose of the Meta-Academy for the Modernisation of Official Statistics is to remove barriers to co-creation of training and reuse of content at an international level, which will ultimately unleash the creation and use, at scale, of open digital assets to boost the National Statistical Office (NSO) upskilling necessary for modernization. The main goal of the Statistical Data Governance Framework project is to produce a document describing a reference framework containing the main elements needed to implement a governance program focused on achieving data interoperability. The Input Privacy-preserving Techniques projects aims to explore and broaden the applicability of input privacy preservation techniques for official statistics.

The four groups focus on specific areas. The Supporting Standards Group has as goal to develop, enhance, integrate, promote, support and facilitate implementation of the range of standards needed for statistical modernisation. The Capability and Communication Group focuses on the organisational changes and the communication challenges necessary to support modernization in statistical organizations. The Applying Data Science and Modern Methods started in 2022 and will consider and make proposals on how to develop, implement, promote, support, and facilitate the implementation of data science and modern methods initiatives needed for statistical modernization of business processes. The Blue Skies Thinking Network is the "ideas factory" for the statistical modernisation community and identified and proposes new areas of work and evaluates topics submitted by others. The Executive Board will decide about follow-up of new ideas and opportunities that were identified by the Blue Skies Thinking Network.

Participation to the groups and projects is open to any staff working within the national statistical system. Other government agencies, academia, or private sector are also welcome to join if they want to contribute to the improvement of official statistics.

3. HLG-MOS innovation pipeline

The HLG-MOS needs a steady stream of new ideas

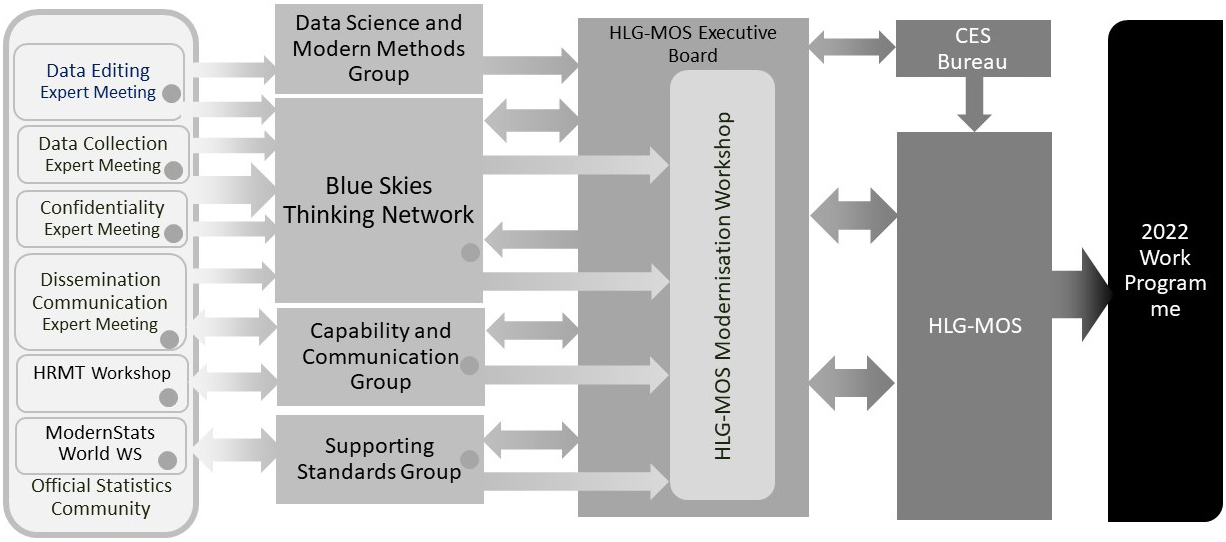

Fig. 3. HLG-MOS innovation pipeline.

for activities that can further modernize the production and management of official statistics. They need to alignment with the mission, vision and priority areas identified by the HLG-MOS. To achieve this, over time the innovation pipeline has been developed and fine-tuned. Figure 3 shows the current innovation pipeline of the HLG-MOS.

All HLG-MOS expert meetings have activities to identify and prioritize future areas of work. These are evaluated by the Blue Skies Thinking Network (BSTN). Likewise, the modernisation groups can have their workshops not only to share their work but also to discuss future activities in their areas. As the ideation group of the HLG-MOS, the BSTN has a special role. They provide an environment scan on selected topics and answer four key questions: what is the topic, what is the value for official statistics, what is already being done, what are the opportunities for further collaboration. Besides ideas coming from or identified by the group members themselves, they can evaluate upon request other ideas and help to prepare activity and project proposals. Colleagues working in official statistics are invited to pitch their ideas to the BSTN. This can be initial ideas as well as worked out plans. The members of the other modernisation groups can also propose new topics to work on in the next year.

The Executive Board has a central role in the process. Anybody can submit a proposal to the Executive Board They can again request the BSTN to evaluate the proposals and answer the four key questions (see above). The Executive Board evaluate all finalized proposals against the HLG-MOS mission, vision, and priority topics. At the annual HLG-MOS Workshop on the Modernisation of Official Statistics held in November, all project and activity proposals that were initially approved by the Executive Board are presented. All participants from the ModernStats community are invited to attend this workshop. Beside presenting their achievements in the current work programme, they evaluate all proposals for the work programme for the next year. Based on these recommendations, the Executive Board drafts the new work programme and submits it to the HLG-MOS by the end of the year. The HLG-MOS meets early in the next year to discuss the proposed work programme and endorses activities and project proposals. It can change the proposals or approve but request further scoping to be done. Next, the chair of the HLG-MOS invites all CES members to participate and contribute to the activities they are interested in.

The HLG-MOS also evaluates their mission, vision and especially the priority areas (one of) in their annual meetings and feeds this back to the modernisation community. The Executive Board will ensure that new ideas are again aligned with this. To stay aligned with the priorities identified by the HLG-MOS, groups and expert meetings can terminate or be reshaped. For example, communication was added in 2020 to the Developing Organisational Capability group that was subsequently renamed into the Capability and Communication group. The Executive Board again plays a role in identifying issues in the structure and can propose groups to be terminated and new ones to start. For example in 2022 based on changing priorities and lack of progress they proposed to terminate the Sharing Tools Group and

move some of its activities to the Supporting Standards Group and to create a new group on Applying Data Science and Modern Methods group.

4. Elements that led to success

The HLG-MOS has consistently been evaluated as very successful. Products developed by it have become global standards or have led to found follow-up activities at other organizations. The reasons for its success have been discussed frequently by its members and others involved. Key elements that were identified in this are the following (random order):

- Strong support and engagement from the highest authority (Chief Statistician) encourages staff to participate.
- Motivated and dedicated participants that often spend much time outside regular office hours.
- Innovation pipeline with top level strategic vision and support combined with bottom-up ideation and a central role for the BSTN and Executive Board and that is continuously revised.
- Continuous oversight and actively steering by the Executive Board that searches for additional resources if lacking.
- Strong chairs of modernisation groups and task teams as well as good project managers to lead the work and to discuss issues and challenges with the Executive Board.
- Active participation by regional organisations such as Eurostat and OECD and effective coordination of similar activities.
- Strong and effective secretariat support that ensures that groups meet regularly and that they can focus on content. It allows for best practices in collaborating remotely and common solutions to be shared as well as to identify issues/challenges.
- Effective collaboration modes and means. Frequent meetings (monthly or more frequent), and the use of online platforms to collaborate and share information (wikis, slack, GitHub sli.do, Webex/Teams) and if necessary, sprint workshops to conceptualize or advance the work.
- Short time-line new work programme and continuous evaluation. By deciding shortly before the preceding year and continuous adjustment if realities change, output remains relevant.
- Limited duration of activities. The aim is more a minimal viable product rather than perfection. This prevents scarce resources being locked up and benefits not outweighing the investment.

These points are very much aligned with the main principles of the HLG-MOS: openness, flexibility, participation, pragmatism. Important is to note that each of the elements is only effective in combination with the others. If one element is missing, the overall effectiveness will drop strongly. Depending on the activity and over time, the relative importance might change but it is better to be seen as multiplicative rather than additive factors for success.

There are also various challenges. Although there are many participants, the core base is relatively small and often the same persons are involved in various activities in the HLG-MOS or at other international work. Finding suitable meeting times with participants from all time-zones (New Zealand to Mexico) is complicated and the limited possibilities to meet in person. The continuity and follow-up is not always guaranteed and lack of effective communication and promotion makes that some output does not reach it potential usage. Finally, to some extent, its own success is a threat: other organisations come with similar programmes (and often better funding), leading to less resources being available.

5. Achievements

The three main elements of its achievements are:

- Concrete Output (models, guidelines etc)
- Capability Development (jointly obtaining new knowledge and experience with new technologies)
- Creation of a Community and Collaboration

Equally important to concrete output that was produced and that is available for anybody else to use, are the experience and capabilities that were gained by the participating organisations. The community that is created between participants of projects and groups, has led to many bilateral and other collaborations and the continued exchange of expertise beyond the duration of the project or activity is an important benefit. For example, in 2021, in total, Modernisation Groups, Task Teams, Steering Committees and Projects had over 250 members from over 100 different organisations and a multi-fold of non-member participants that contributed or benefited from the work. Meetings and workshops were attended by over a thousand colleagues.

With the support of national organisations, some activities have been able to continue and expanding further its impact, for example, the Machine Learning project continued as a community with continuous support from the UK Office for National Statistics and the

Synthetic Data project continued supported by the US National Institute of Standards and Technology.

It is impossible to describe all achievements even if briefly. Find here an overview of a selection of achievements made under the HLG-MOS.

Modernisation Models that were developed and updated under the HLG-MOS:

- Generic Statistical Business Process Model (GSBPM)[2]
- Generic Statistical Information Model (GSIM)
- Common Statistical Production Architecture (CSPA)
- Generic Activity Model for Statistical Organizations (GAMSO)
- Generic Statistical Data Editing Model (GSDEM)
- Common Statistical Data Architecture (CSDA)

Various extensions, refinements and tools were developed to support the implementation of these models, for example: a geospatial view of GSBPM (GeoGSBPM) was developed as well as a document detailing the information flow within GSBPM using GSIM (Linking GSBPM and GSIM) or the CSPA Logical Information Model to bridge the gap between CSPA and GSIM. Other examples are work on Linked Open Metadata, the Core Ontology for Official Statistics, and the Statistical Metadata Glossary that provides an overview of all main terms used in the modernisation models as well as a Modernisation Maturity Model and Roadmap for help organisations to implement them. For each model further training material, case studies and other resources are available from their public wiki sites.

Among the other areas of work that were initiated under the HLG-MOS:

- Big Data for Official Statistics
- Machine Learning for Official Statistics
- Data Integration Guidelines
- Common Metadata Framework
- Strategic Communication Framework
- Guidelines for Mangers
- Guidelines on Risk Management
- Synthetic Data for Official statistics

Many products were delivered in these activities and obtaining capabilities and collaborations beyond the project and activities were equally important achievements.

Other products that were developed and further details on all outputs can be accessed through the public HLG-MOS Wiki pages (https://statswiki.unece.org/display/hlgbas or Google 'HLG-MOS UNECE wiki').

[2]GSBPM was developed by the Steering Committee of the Work Session on Statistical Metadata (METIS). Under the HLG-MOS, significant updates were made and is now the custodian of the model. The first ideas for setting up the HLG-MOS came from METIS (and MSIS, the work session on Management of Statistical Information Systems)