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Work of the High-level Group for the Modernisation of Official Statistics

Report on the work of the High-level Group for the Modernisation of Official Statistics

Addendum

2023 Work Programme

Prepared by the Secretariat

Summary

This document provides an overview of the planned work of the High-Level Group for the Modernisation of Official Statistics (HLG-MOS) in 2023.

At the February 2023 meeting, the CES Bureau reviewed and approved the work programme. The Conference of European Statisticians is invited to approve the presented work programme.



I. Introduction

1. The High-Level Group for the Modernisation of Official Statistics (HLG-MOS)¹ provides a collaborative platform for experts in statistics organisations to develop strategies and solutions in a flexible and agile way. The strategic vision of HLG-MOS is regularly updated to adapt to the changing environment and new priorities are set accordingly. The annual work programme endeavours to reflect emerging needs, while at the same time continuing to support or further develop previous outputs.
2. HLG-MOS is a unique platform that has made several important contributions to the modernisation of official statistics such as the Generic Statistical Business Process Model (GSBPM) and the Generic Statistical Information Model (GSIM). The HLG-MOS projects in areas of big data, data integration, strategic communication and machine learning spearheaded the implementation of new technologies, methods and other capabilities in statistical organisations. Due to its success, the HLG-MOS mode of working is now being replicated in other modernisation initiatives.
3. The work of HLG-MOS is open to all who are willing to contribute to the advancement and modernisation of official statistics. Many colleagues have contributed to the output and every year, about 500 colleagues actively participate in the programme activities while thousands of colleagues benefit indirectly by collaborating with members or by participating in the expert meetings, workshops and webinars organised under the HLG-MOS work programme. As experiences and all output developed under HLG-MOS are made available for public use, the real impact is even larger.
4. Each year, all members of the Conference of European Statisticians (CES) are invited to submit project and activity proposals for consideration by HLG-MOS. Proposals should be aligned with the mission, long-term vision and short- and mid-term priority areas identified by HLG-MOS. The Blue Skies Thinking Network (BSTN) can also be requested to evaluate and strengthen ideas and proposals referred by the Executive Board of HLG-MOS. The Executive Board provides feedback and selects proposals that will be considered as HLG-MOS projects or flagged for other types of follow-ups. During the annual Workshop on the Modernisation of Official Statistics at the end of November, these proposals are presented and discussed by experts working on modernisation. Through small group discussions, project proposals are evaluated and ranked, and suggestions are made for follow-up on the proposals. The Executive Board then discusses and further refines the proposals, and assesses available capacities. The selected project/activity proposals are finally submitted for endorsement by HLG-MOS.
5. This document outlines the work programme for 2023 which was created as a result of the discussions at the 2022 Workshop on the Modernisation of Official Statistics (22-24, November, Geneva, Switzerland) and subsequent refinements by the Executive Board so that the community members can participate in the activities that are of greatest benefit to them.

II. Projects

6. The HLG-MOS projects work on emerging technologies and ideas, normally with a fixed time frame of 1-2 years. For 2023, three projects were selected by HLG-MOS: i) Cloud for Official Statistics, ii) Extension for Data Governance Framework for Interoperability, and iii) ModernStats Carpentries (phase two of the 2022 Meta Academy Project).
7. The three projects aim to improve data interoperability, facilitate the adoption of cloud services capabilities, and modernise training and capability development. These are all enablers for modernising statistical production and support new national data stewardship roles as they allow for the sharing and integration of data, tools and capabilities, and for jointly creating learning and training needed for continuous modernisation and implementation of new tools and technologies. A summary of the 2023 projects is provided below. Additional details on the three project proposals can be found in Annex 2.

¹ See Annex 1 for the structure of HLG-MOS.

A. Cloud for Official Statistics

8. The adoption of cloud can directly contribute to modernising statistical production, and complements themes explored previously under HLG-MOS, such as big data, machine learning and privacy preservation. The project will set up subgroups around five main themes related to the usage of cloud services. The themes are identified as:

(a) **A common set of considerations needed for the procurement of cloud services**, assessing areas such as intellectual property, migration to another provider, vendor lock-in, exit strategy, and terms and conditions;

(b) **Understanding the behavioural nudges needed to adopt cloud**. This theme will review indigenous/minority people's perspectives on cloud, public perception, data sovereignty, challenges relate to convincing an organisation's top management to approve the use of cloud services, the impact of cloud use on the official statistics brand;

(c) **The types of cloud service models and services** which are currently available, and in which context they are suitable for organisations. Topics for consideration include infrastructure as a service, platform as a service, software as a service, hybrid cloud, public cloud, and private cloud;

(d) **The security and privacy considerations** relate to the use of cloud which may enhance or inhibit its adoption across statistical organisations;

(e) **The skillsets required for the utilisation of cloud**. Topics for review will include staff retraining needed, the challenge for public sector organisations in a competitive marketplace for cloud skills, and sharing knowledge between organisations.

9. The subgroups working on each theme will have a lead to coordinate the work and present results. The first exercise under each subgroup will be to scope and define their outputs and deliverables, according to the specifics of each particular theme. The proposed output is a set of guidelines and recommendations across multiple themes, to assist statistical organisation on their cloud adoption journey. This will allow organisations to take informed approaches in adopting cloud and thus prevent potential waste of resources or suboptimal approaches. The ultimate goal will be to accelerate opportunities to efficiently access and take advantage of new tools and capabilities available in a cloud environment.

B. Data Governance Framework for Interoperability Project

10. The purpose of this project is to develop a framework describing a set of data governance elements, recommendations and guidelines to achieve data interoperability in statistical organisations. The project started in early 2022, and it was decided at the end of 2022 that continued collaboration was needed. The framework will help strengthen the ability to exchange and use data where its meaning and context are preserved across different systems.

11. The main output of the project will be a document containing the following key sections:

(a) **Glossary of core terms and concepts** related to data governance and interoperability that will facilitate communication and collaboration in the fields;

(b) **A set of data governance elements** to enable decisions for the transformation of the statistical silos into an interoperable statistical data and metadata platform. This includes (but is not limited to): organisational elements; data and metadata management; business and legal considerations; data quality; data analysis and dissemination needs; documentation and transparency; capabilities, culture and skills; and Information Technologies (IT) aspects;

(c) **Recommendations and guidelines** on how to start improving interoperability in statistical organisations and national statistical systems; in particular how we can apply the existing standards and principles (e.g., GSBPM, GSIM, Statistical Data and Metadata

Exchange (SDMX), Data Documentation Initiative (DDI), Common Statistical Data Architecture (CSDA), the FAIR principles) to achieve interoperability.

12. The project output will provide a valuable basis for:

- (a) The transformation of statistical information silos into an interoperable and manageable platform;
- (b) The integration of traditional and emerging data sources;
- (c) The implementation of solid and useful statistical data lakes;
- (d) The building of geo-referenced time series with statistics from different domains;
- (e) The creation of a new generation of statistical services supporting advanced analysis for complex questions.

13. There are other works around data governance in the field of statistics (but not focused on interoperability) and they will be used as references. The project is aligned with the aims of HLG-MOS as it provides a structured set of data governance elements needed for statistical interoperability while making use of the existing models and standards in the ModernStats community. This work will further reinforce the utility of HLG-MOS models and standards.

C. ModernStats Carpentry Project

14. The ModernStats Carpentry Project draws from the lessons learned from the 2022 Meta Academy Project (see [project home page](#), especially [benchmarking activities](#) under the work package 1). To understand the common challenges and highlight possible common approaches, the latter project explored different training models across organisations of the project members. The main conclusion was that the most promising avenue to explore was to develop a ModernStats Carpentry. The [Carpentries](#)² is a non-profit organisation that was set up with the mission to build global capacity in essential data and computational skills for conducting efficient, open and reproducible research (this was broadened to other areas in 2018). Members of the Carpentries can organise and run their own training workshops through Carpentries platform. Support is provided by certified instructors to ensure quality training. There are fees charged for training of trainers but sharing training workshops and participation in training is free.

15. The purpose of this project is to pilot a partnership with the Carpentries organisation to create the ModernStats Carpentry. The Carpentries business model addresses several of the needs identified in the Meta Academy Project in the following ways:

- (a) A common understanding of the training needs, a shared methodology or pedagogic approach to create learning content;
- (b) A forum or community for ‘academy managers’ or ‘trainers’;
- (c) A forum and method to ensure training content and delivery evolve with the industry.

16. The project will be split into two work packages:

(a) **ModernStats Carpentry curriculum** focuses on repurposing the existing Carpentries content for the selected key personas within statistical agencies as well as exploring how to put traditional official statistics courses into the Carpentries framework. Members of the project will be encouraged to take the Carpentries’ Train the Trainer course to undertake pilot training sessions and help evaluate the value of the Carpentries, and to determine how best to turn Carpentries content into an official statistics content.

(b) **ModernStats Carpentry business model** explores membership, collaboration and organisational models between HLG-MOS and the Carpentries. Topics to be covered include membership with the Carpentries, procurement, administrative overhead,

² <https://carpentries.org/>

intellectual property of content, legal aspects, etc. The goal of this work package is to determine a cost effective and sustainable business model for the HLG-MOS ModernStats Carpentry and its members to benefit from the Carpentries model and products, in the context of existing governance and structures of HLG-MOS.

17. The project has connections with the Capabilities and Communication Group, particularly the Future of Work workstream – of which a central pillar is the offering of development opportunities to staff. The ModernStats Carpentry will directly contribute to developing capacity-building opportunities for HLG-MOS modernisation groups and projects. The project can also contribute to a better connection with the academic world, and feed into a development agenda through cooperation with developing countries. This project can help agencies to adopt a service-oriented approach and an agile adaptive culture.

D. Operational procedures for projects

18. The work of the HLG-MOS projects is normally led by project managers that are either assigned by a member of HLG-MOS (in-kind) or contracted by UNECE using the HLG-MOS Trust Fund. Projects can also be led jointly by a project manager or a substantive lead. Work packages or theme groups are normally led by chairs chosen from the project members. The UNECE wiki and web conferences are used to monitor the progress of the projects. Project managers report on a monthly basis to the Executive Board which is overseeing the progress and steers the work where needed. UNECE provides additional administrative and secretariat support. Sprint-style workshops are often used to further scope and accelerate the work. The progress and outputs are presented at relevant expert meetings to share the work and receive feedback from a broader audience.

III. Modernisation Groups

19. The HLG-MOS modernisation groups were established to provide continuous support to the cross-cutting pillars that are important for modernising statistical organisations such as standards and human resources. Unlike the HLG-MOS projects, the modernisation groups operate in a longer term, but activities under each group (organised through task teams or subgroups) change every year to address the most urgent needs in the respective working area. The groups select an overall chair, and additional chairs are selected for the various task teams and subgroups. The chairs of the groups provide monthly updates to the Executive Board. Groups have monthly virtual plenary meetings. The task teams typically meet virtually at least once a month. The groups may organise sprint workshops to expedite the work. The UNECE wiki and other platforms such as GitHub are used to collaborate and coordinate the work. Secretariat support is always provided by UNECE. The main constraints for the work are the availability of the group members and the resources at UNECE. As with all activities under HLG-MOS, participation is on a voluntary basis and anybody from the official statistics community that is interested in any part of the activities is encouraged to join. Participation in the modernisation groups provides unique development and networking opportunities outside a national setting.

20. HLG-MOS has mandated the Executive Board to regularly reflect on the structure and the areas of work of the modernisation groups, and to evaluate whether the groups are aligned with the key priorities identified by HLG-MOS. No modifications are suggested to the structure for 2023.

21. The planned activities of the modernisation groups are briefly described below. More detailed descriptions of all activities can be found on the HLG-MOS website: <https://statswiki.unece.org/x/lwF-EQ>.

A. Applying Data Science and Modern Methods Group

22. The Applying Data Science and Modern Methods Group, chaired by Statistics New Zealand, aims to go beyond conceptual frameworks for data science and modern methods, and identify concrete opportunities to further modernise the business processes in statistical

organisations. The group conducted a market landscape analysis in 2022 to take stock of existing work in the field of data science and modern methods. Eight potential topics were identified under data collection and integration, data editing, data confidentiality, data dissemination, etc. Three topics were prioritised, and task teams were set up to consider the following substantive topics:

(a) **Understanding and selecting models:** There is a large and rapidly developing collection of modern methods and different machine learning models, but this information is scattered in silos with little overarching guidance. This task team aims to consolidate knowledge from statistical organisations into guidance that enables users to have a comprehensive understanding of how different methods and models fit different types of problems, data and purposes, thereby facilitating the selection of the most suitable solutions.

(b) **Accelerating the implementation of ML-based solutions in data editing:** Machine learning (ML) has shown potential in increasing efficiency and complementing traditional methods. However, there are challenges in moving the ML-based solutions to production such as cultural resistance and lack of skills. The purpose of this task team is to develop generic guidance on key organisational issues when implementing ML-based solutions in data editing to accelerate the implementation process.

(c) **International framework on responsible artificial intelligence for official statistics:** With the wide-scale utilisation and adoption of artificial intelligence (AI) and ML, core principles such as ethics, privacy, fairness and legality are more important today than ever before. The task team is working on the development of an international framework on responsible AI for official statistics that will help set up a common standard for responsible design, development and deployment of AI/ML-based solutions in NSOs, ensuring these new methods are acceptable from an ethical, methodological and human perspective. Deliverables of the task team include document describing core guiding principles of responsible AI/ML, self-assessment tool that can be used during AI/ML project development, description of peer-review process.

23. The group will collaborate closely with the relevant activities of the Expert Meeting on Statistical Data Editing, the Blue Skies Thinking Network, the UN Committee of Experts on Big Data and Data Science for Official Statistics (UN-CEBD) and other related international activities. The group will also follow up on how to best leverage the work conducted by the ONS/UNECE Machine Learning Community.

B. Blue Skies Thinking Network

24. The Blue Skies Thinking Network, chaired by Mr. Barteld Braaksma of Statistics Netherlands, is the ideas factory of the ModernStats community. It consists of a core group of around twelve members from various NSOs and international organisations. The core group aims at having in-depth as well as broad knowledge of innovation-related topics in the official statistics community. Throughout the year, BSTN identifies new potential topics by actively engaging with the statistical community for new ideas and evaluating them based on HLG-MOS vision and priorities under the guidance of the Executive Board.

25. The network can also set up temporary activities to follow up on promising topics or project proposals that were not selected. In 2023, the Network will elaborate further on these topics (other topics might be added throughout the year):

(a) **Open-source adoption:** A series of monthly workshops will be held on pressing topics faced by NSOs in the transition from proprietary to open-source technology. For each workshop, the activity organiser will invite speakers from NSOs who can address each workshop topic. Examples of proposed topics are establishing and implementing a strategy for open source adoption, foundational pieces to make the transition, infrastructure, change management, upskilling/hiring to fill gaps, future-proofing and other topics that might arise during the activity.

(b) **Digital twins:** The purpose is to investigate what is happening under the broad umbrella of the 'digital twins' concept, where and how the official statistics community could contribute and if international standardisation of relevant new notions could be useful. Three

activities are planned: i) stocktaking of existing initiatives, ii) defining use cases for statistical data and methods, and iii) standards and architecture for statistical digital twins.

(c) **Non-probabilistic surveys:** The purpose is to investigate the feasibility of using a non-probability survey to generate sufficiently reliable population estimates. If successful, this approach could provide a way to augment existing probability-based sample surveys and expand the range of statistics an NSO can provide. A comparison use case will be undertaken by CSO Ireland to see how the results of the non-probability survey compare to the benchmark output. A report will be prepared on this analysis, as well as a description of the processes used.

26. HLG-MOS members will continue to bring the Network to the attention of their national innovation groups and actively stimulate generation of ideas for proposals to be submitted to the Network. BSTN will collaborate with the other modernisation groups to further identify and evaluate new topics. Additionally, it will coordinate with the new group on Applying Data Science and Modern Methods on overlapping and joint activities. Depending on the interest of members and expertise needed, subgroups might be set up around specific topics for a quick scan or a more detailed analysis.

C. Capability and Communication Group

27. The Capability and Communication Group focuses on the organisational changes and the communication challenges necessary to support modernisation in statistical organisations. The group is jointly chaired by CSO Ireland and Statistics Poland.

28. The COVID-19 pandemic accelerated changes in working arrangements and expectations of staff. This has put a lot of strain on the human resources and communication departments of NSOs. The group has been adjusting its work programme to assist statistical offices to cope with the changing working arrangements and the need for more extensive internal and external communication. The group will work in three streams setting up task teams for various activities:

(a) **The job of the future:** New generations of employees look differently at life, work and their job. It is and will become harder for NSOs to attract new staff and retain them by simply offering a job and a salary. At the same time, the nature of the work of NSOs is changing. Statistics need to be created faster, be timelier and answer questions of immediate concern. Cross-departmental and multi-disciplinary/multi-generational teams are often needed to achieve this. The workstream will have three task teams. Based on available time and resources and the expertise of team members, the workstream will select from the topics below what they will work on:

- **Recruitment and onboarding:** The task team will work on guidelines on (i) recruitment of younger staff, (ii) engaging all generations to the onboarding/induction programme, and (iii) stay interviews. This will be accompanied by a maturity/development model for corporate branding.
- **Work and job of the future:** The task team aims to provide guidance and policies on (i) what is defined as equality, diversity and inclusion, and how to obtain them, (ii) the maturity/development model on flexible work practices, and (iii) the management and leadership style to manage performance and productivity. Finally, the task team will look into developing a framework for internal communication in flexible working environments.
- **Reaching youth:** The following topics will be considered by this task team: (i) communication strategy to reach youth, (ii) measuring and stimulating data usage and statistical literacy, (iii) creating universal guidelines for new protocols on how to target youth as data source, and (iv) creating universal guidelines on how to deal with related legislation such as parental consent.
- **Data analytics:** The task team will explore reporting tools such as Power BI to collate data from a range of sources such as attrition data, absence, recruitment time to hire,

and percentage of diversity declarations. Using this report as part of the performance cycle allows individuals/teams to analyse areas of focus in their organisation/section.

(b) **Ethics:** The workstream on ethics will build on activities that were undertaken in 2021 and 2022. Activities for 2023 are largely based on the expectations expressed by the NSOs in the surveys conducted in previous years. The main planned outputs are: (i) a common vocabulary for ethics management, data ethics, leadership, and performances, (ii) an organisational framework grounded on ethics principles, (iii) concrete suggestions to support NSOs in real-work situations, (iv) a collaborative platform and meeting to share information, experiences and ethics management practices, and (v) an overview of ethics considerations in activities and (sub) processes in GAMS0 and GSBPM.

(c) **Strategic Communication Framework follow-up:** After finalising the document on the *Role of brand management, marketing and crisis communication for statistical organisations* in 2022, the workstream will continue to work on identifying experiences and approaches of NSOs in using digital products and web portals (including social media) to address the disinformation and misinformation challenges; trust building; reaching and promoting engagement with young people and other target audiences.

29. The group will collaborate with the Supporting Standards Group while incorporating ethics in GAMS0 and GSBPM.

D. Supporting Standards Group

30. The Supporting Standards Group, chaired by Statistics Hungary, provides support for the implementation of the “ModernStats” models (such as GAMS0, GSBPM and GSIM) through a range of activities which include development, enhancement, integration, promotion and maintenance of the models. As HLG-MOS is the custodian of these models that have a global reach, continued support is essential. For 2023, the Supporting Standards Group has prioritised the following activities:

(a) **GSBPM and GAMS0 revision:** The purpose of the revision is to ensure the models remain relevant and continue serving as the reference framework for statistical organisations. As these models are closely related (GSBPM is actually part of GAMS0), they will be revised together by one task team. Experiences from other relevant task teams will be considered and user consultations will be conducted. The final draft will be submitted for the CES consultation for a final round of revision.

(b) **GSIM revision:** An initially planned soft update grew into a full revision in 2022. The revision will be finalised in the first quarter of 2023 after which a public review and release will follow in the second and third quarter.

(c) **Core Ontology for Official Statistics version 2:** The Core Ontology for Official Statistics (COOS) activity, launched in 2021, serves as an integration model for the core set of ModernStats standards, backed by elements of well-known external standard vocabularies. It has delivered key outputs in that respect: an ontology specification, a governance document, a URI policy and OWL ontology. A public review is being finalised and the feedback will be integrated in the further developments of COOS. This includes consistency of product/dataset relationships, inclusion of statistical support programme, modelling of links between GSIM and GSBPM, more use cases, application profile, adaptation to the evolution of external standards, and further communication and promotion of COOS.

(d) **SDMX-DDI-GSBPM:** The activity started in the second half of 2022 and aimed at providing descriptions of how SDMX and DDI could be used in carrying out tasks in GSBPM sub-processes. The work on GSBPM-GSIM linking from 2022 is found particularly useful for this task team as it provides bridge connecting GSBPM and SDMX/DDI. By reviewing SDMX and DDI using a common framework of GSBPM, the activity also provides an opportunity to explore ways to improve interoperability between SDMX and DDI. The task team will continue to cover all phases of GSBPM. The work is done in close collaboration with the SDMX and DDI communities.

31. The group will also continue discussions on how to support the integrated use of the models. It will try to strengthen the involvement of users and experts through a series of webinars - “ModernStats Community of Practice”. Where possible, the visibility of the ModernStats models will be improved, for example by organising sessions and presentations at the ISI 2023 conference. The work is coordinated with other relevant international groups and with other HLG-MOS activities.

IV. Expert meetings and workshops

32. As in the past, expert meetings will be organised under the auspices of HLG-MOS in several substantive areas. By the decision of the HLG-MOS Executive Board, all expert meetings and workshops will have a 24-month cycle for in-person meetings. In the alternate year, online meetings can be organised. These can have a more specific focus on emerging issues and on related HLG-MOS projects and activities.

33. The focus of the meetings and workshops is always on innovative developments and modernisation. The topics and sessions are aligned with the HLG-MOS mission, vision and priority topics. Where relevant, the meetings are used to receive input on HLG-MOS activities, and to share the work of HLG-MOS. A key output of these events is the identification of areas for future work and collaboration among organisations. The target audience for the expert meetings includes senior and middle-level managers. For 2023, the following meetings are being planned:

- (a) Machine Learning for Official Statistics Workshop (5-7 June, Geneva, Switzerland);
- (b) Expert Meeting on Statistical Data Collection (12-14 June, online);
- (c) Expert Meeting on Statistical Data Confidentiality (26-28 September, Wiesbaden, Germany);
- (d) Expert Meeting on Statistical Data Dissemination and Communication (11-13 October, Lisbon, Portugal);
- (e) HLG-MOS Workshop on the Modernisation of Official Statistics (20-22 November, Geneva, Switzerland).

34. The meetings are organised by dedicated steering committees. HLG-MOS and the Executive Board can also request to set up short, focused ad-hoc online workshops on emerging areas, similar to the COVID-19 response workshops organised in 2020.

V. Monitoring progress and coordination

35. The work of the modernisation groups and projects is reported on a monthly basis to the HLG-MOS Executive Board. The Executive Board discusses the updates and evaluates the progress together with the chairs of the groups and the project managers in their monthly meetings. If needed, the work programme is adjusted. The modernisation updates are made available to the wider public every two months at the [ModernStats wiki](#).

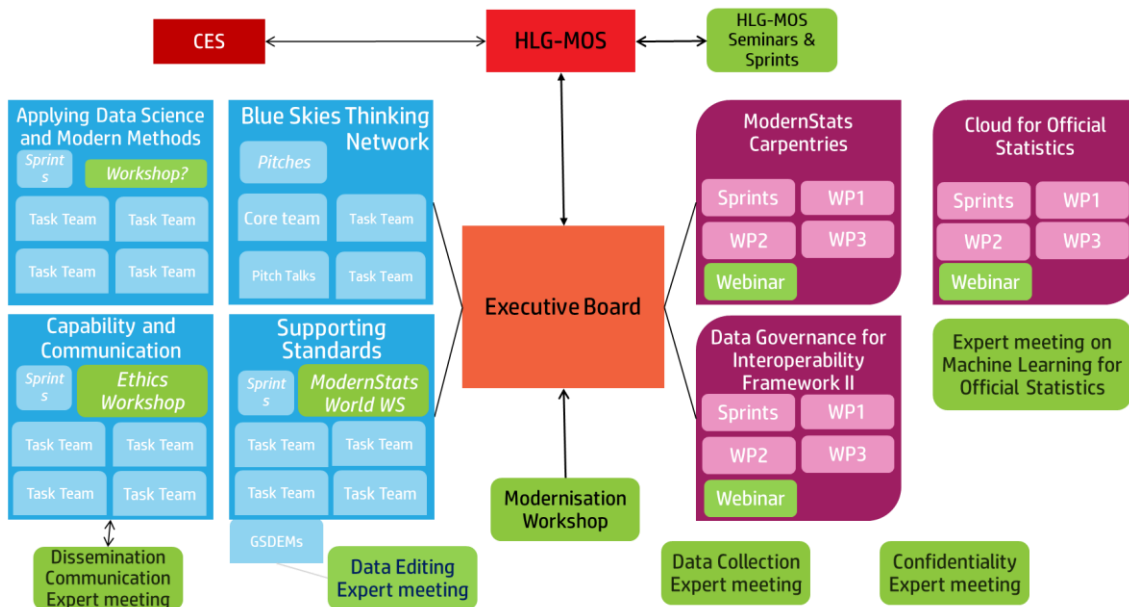
36. There is a conscious effort to ensure that all activities are continuously aligned and coordinated with other international initiatives such as the programmes under the European Statistical System and the UN Global Platform. This can be achieved by the exchange of information, coordination and collaboration and, in most cases, by partly overlapping membership.

37. Participation in the activities of HLG-MOS is open to staff of national and international institutes working in official statistics. Active participation and contributions from academia and relevant public and private sector organisations are welcomed and actively sought.

Annex 1

2023 Structure of High-Level Group on the Modernisation of Statistics

Figure 1
2023 Structure of HLG-MOS



Annex 2

2023 Project Proposals

A. Business Case for Cloud for Official Statistics

Type of Activity	
<input checked="" type="checkbox"/>	New project
<input type="checkbox"/>	Extension of existing project
Purpose	
<p>The UNECE HLG Executive Board encouraged a project be developed relating to Cloud for Official Statistics, following the suggestions by the Blue Skies Thinking Network. A business case is presented, with the purpose of establishing a set of common guidelines for Cloud Adoption in Statistical organisations.</p>	
Description of the project and the Work Packages/sub-activities	
<p>A Cloud for Official Statistics Sub Group met on the 23rd of September 2022, consisting of a broad participation of experts from many countries. This built upon discussions at two sessions in June (Belgrade) and July (Newport), which showed a clear interest and also provided ideas for the topics to cover and approach to take. The outcome of the September meeting led to the following structure being proposed for your review and approval.</p> <p>The chair of the group is John Conway, with support from Chirstopher Jones.</p> <p>It is proposed to establish 5 different themes relating to the most common considerations relating to the usage of Cloud Services. The themes are identified as:</p> <ol style="list-style-type: none"> 1. Common set of Considerations needed relating to the procurement of Cloud Services, assessing areas such as intellectual property, migration to another provider / vendor lock-in/ exit strategy / terms and conditions. 2. Understanding the behavioural nudges needed to adopt cloud. This theme will review indigenous/minority people's perspectives on Cloud, public perception, Data Sovereignty, challenges relating to convincing an organisation's executive board to approve the use of Cloud Services, the impact of cloud use on the official statistics brand. 3. The types of Cloud service models and services which exist, and which are suitable for organisations in which context. Topics for consideration include Infrastructure as a Service, Platform as a service, Software as a Service, Hybrid Cloud, Public Cloud, Private Cloud. 4. Explore the security and privacy considerations relating to the use of Cloud which may enhance or inhibit its adoption across statistical organisations. 5. The skillsets needed for the utilisation Cloud. Topics for review will include staff retraining efforts needed, the challenge for public sector organisations in a competitive marketplace for Cloud skills, and how could knowledge be shared between organisations. <p>Volunteers from the working group will be requested to form sub groups, focusing on a particular theme. Each sub-group will have a lead, who will coordinate the team meetings for that cohort. Every month one sub-group will present their theme to the wider working group, taking input from the group, in addition to their own research and contribution.</p> <p>Meetings will predominately take place virtually, however one to two meetings may be scheduled physically, in conjunction with other UNECE meetings which may occur.</p>	
Deliverables and timeline	
<p>The proposal sets out developing a set of guidelines and recommendations, across multiple themes, to assist each statistical organisation on their cloud adoption journey.</p>	

<p>It is envisaged that the process will take 9 months to complete, giving time for each sub-group to prepare a set of guidelines/recommendations for their theme. The themes will be incorporated into one final document for distribution to all statistical peers at the end of the project.</p> <p>Before the project, there is a lack of understanding on what stages of their Cloud journey other statistical organisations are on. It is also unclear what have been the lessons learned for those that have commenced their cloud journey. The first exercise under each theme sub-group will be to scope and define their outputs and deliverables, according to the specifics of each particular theme.</p>	
<p>Offices/Countries committed</p>	
<p>The following countries and organisations have already committed to actively contribute to this work:</p> <p>Canada, Finland, France, Ireland, Italy, Mexico, Netherlands, New Zealand, Serbia, Sweden, United Kingdom, European Commission and OECD.</p>	
<p>Alternatives considered</p>	
<p>Not undertaking this project could result in statistical organisations taking uninformed approaches to their Cloud adoption journey. They would not benefit from the value of information and knowledge sharing across the respective organisations, potentially resulting in waste of budget or suboptimal approaches to risks.</p>	
<p>How does it relate to the HLG-MOS vision and other activities under the HLG-MOS?</p>	
<p>Adoption of Cloud can directly contribute to modernising statistical production, and complements themes explored previously/currently under the HLG, such as Big Data, privacy-preserving techniques and governance, and may have synergies with current work on Data Science, Machine Learning, etc.</p>	
<p>Proposed start and end dates</p>	
<p>Start: January 2023</p>	<p>End: December 2023</p>
<p>It is proposed to commence the work in January 2023 and complete by September 2023.</p>	

B. Business Case for Statistical Data Governance Framework for Interoperability (extension 2022 project)

Type of Activity	
<input type="checkbox"/>	New project
<input checked="" type="checkbox"/>	Extension of existing project
Purpose	
<p>With statistical organisations increasingly engaging with new data sources (e.g., big data, administrative registers) and accelerating efforts in sharing and re-using data, the governance and management of data have become crucial. The interoperability across different data assets and metadata can greatly facilitate data exchange and help statistical organisations address new data needs (e.g., through data integration). Unfortunately, a large part of information in many statistical organisations is managed and governed in silos, making information semantically and synthetically non-interoperable.</p> <p>While there has been much attention on the data access (e.g., privately held data, social acceptance, statistical laws) or technical aspects (e.g., data storage, integration methods), there is not enough work done on the governance side (e.g., policy, process, capability) which is indispensable to institutionalise the interoperability across the entire organisation.</p> <p>The purpose of this project is to develop a framework describing a set of data governance elements, recommendations, and guidelines to achieve statistical information interoperability. The project started in early 2022 and the rest of this document summarises the work done and describes its plan for 2023.</p>	
Description of the project and the Work Packages/sub-activities	
<p>Throughout the discussions in 2022, there was a strong consensus among project members that information silos are impeding the full realisation of potential of the information that exists in the different domains and programmes in the statistical organisations.</p> <p>There are many IT tools that are being used to link information, but the lack of common concepts, classifications, constraints, and methodologies leads to limited results, or even misinterpretation of information.</p> <p>For these reasons, the team decided to produce a guiding document (outlined below) as a contribution to improve interoperability and pave the way to have a real statistical data and metadata platform connecting the different domains. This could serve as a basis for developing a new generation of statistical products and services able to deal with the new needs of the users.</p> <p>The main output of the project will be a document containing as its main sections:</p> <ul style="list-style-type: none"> • Glossary of core terms that could facilitate the communication and collaboration in the fields of data governance and interoperability • A framework describing a set of data governance elements required to achieve statistical interoperability which includes (but not limited): organisational elements; data and metadata management; business and legal considerations; data quality; data analysis and dissemination needs; documentation and transparency; capabilities, culture and skills, and Information Technologies aspects • Recommendations and guidelines on how to start achieving interoperability in statistical organisations and national statistical systems; in particular how we can apply the existing models and standards (e.g., GSBPM, GSIM, CSPA, SDMX, DDI, CSDA, COOS, FAIR) to achieve interoperability. <p>It is important to note that there are some other works around data governance in the field of statistics (but not focused in achieving interoperability), they will be used as references to provide value to the statistical modernisation efforts.</p>	
Deliverables and timeline	
<p>In early 2022, a team is organised to perform this project. The team is composed by experts with different backgrounds providing diverse points of view, therefore much effort was spent to agree on the scoping of the project and defining the main aspects that the framework must cover. The team</p>	

<p>also has agreed on the main concepts the framework needs to communicate to the people. Now the team is working on developing the contents of the framework.</p> <p>In the next year:</p> <ul style="list-style-type: none"> • By the first quarter of 2023, the team aims to finish the structure and description of the components of the framework • In the second and third quarter of 2023, the team will work in developing the recommendations and guidelines on who to achieve interoperability. • For the last part of 2023, the team plans to finish the editing of the document. 	
<p>Offices/Countries committed</p>	
<p>The team has committed experts from following organisations and countries: Canada, Egypt, France, Hungary, Israel, Italy, Kyrgyzstan, Mexico, Saudi Arabia, USA, ILO, OECD, and UNECE.</p>	
<p>Alternatives considered</p>	
<p>The work that has been developed by the team agreeing in concepts and elements needed for the framework this year is very valuable and the team has achieved a phase in which we are developing contents that will be valuable for the statistical community, the work must continue the following year to deliver its full potential.</p>	
<p>How does it relate to the HLG-MOS vision and other activities under the HLG-MOS?</p>	
<p>The project is completely aligned with the aims of the HLG-MOS groups and provides an excellent opportunity to provide a structured set of data governance elements needed to get statistical interoperability while making use of the existing models and standards in the ModernStats community.</p>	
<p>Proposed start and end dates</p>	
<p>Start: January 2023</p>	<p>End: December 2023</p>

C. Business Case for the ModernStats Carpentry (Phase 2)

Type of Activity	
<input checked="" type="checkbox"/> New project	<input checked="" type="checkbox"/> Extension of existing project
Purpose	
<p>The ModernStats Carpentries project draws from the lessons learned in the context of the 2022 Meta Academy project (see the short Annex explaining the main takeaways from the Meta Academy project, including a definition of the gaps and potential capabilities that would make for a Meta Academy, and how the Carpentries initiative is well positioned to support them).</p> <p>The purpose of the project is to pilot a partnership with the Carpentries organisation to create the ModernStats Carpentry. The Carpentries are a non-profit organisation, registered in the US, funded by membership and workshop fees, and grants from donors. Their vision is to be the “leading inclusive community teaching data and coding skills.” In order to engage³ with the Carpentries, the HLG-MOS and/or member organisations will need to pay a membership fee; however, in the context of a ModernStats Carpentry, participating organisations could organise as many trainings as they wish (within national context or in the context of a cross-national initiative) at no fee; also, all Carpentries contents and training materials (data samples, codes, documents, etc.) are open and free under CC license, stored in the open GitHub platform, and can be reused at no cost. The Carpentries membership fee covers typically the following cost for the member organisation:</p> <ul style="list-style-type: none"> • A framework and support to develop training, • A methodology to train trainers and a certain volume of trainers trained per year, • Access to a community of 4000 certified trainers and maintainers (mainly from academia), to peer review training contents, exchange good practice, reuse existing content, etc. • A platform to organize and coordinate training sessions. <p>The Carpentries business model addresses several of the needs identified in the Meta Academy project (see Annex) in the following ways:</p> <ol style="list-style-type: none"> A common understanding of the training needs, a shared methodology or pedagogic approach to create learning content: The Carpentries have a standard Lesson Program Incubation model that covers these aspects, with an emphasis on the quality assurance of lessons, through an iterative approach (learn by doing) and based on experience gained with the other Carpentries initiatives; A forum or community for ‘academy managers’ or ‘trainers’: through the ‘Train the trainers’ programme, but also mentoring groups, the development of a consistently skilled network of trainers is at the heart of the Carpentries’ value proposition – to which should be added the existing network of 4000 trainers from all over the world. A forum and method to ensure training content and delivery evolve with the industry: through the community of trainers and maintainers that includes academia and industry partners, as well as the Carpentries requirement and methods to keep training up, ModernStats can efficiently and effectively be kept up to date. 	
Description of the project and the Work Packages/sub-activities	
<p>The Meta Academy project for 2023 will be split into two work packages.</p> <p>The purpose of work package 1 will be to put together the initial ModernStats Carpentry Lesson Programme or curriculum. This work package will focus on repurposing existing Carpentries content for select key personas within statistical agencies as well as exploring how to put traditional official statistics courses into the Carpentries framework. Under this umbrella, we will encourage member NSOs to take the Carpentries’ <i>Train the Trainer</i> course, at their own expense, to undertake pilot training sessions and help evaluate the value of the Carpentries, and to determine how best to turn Carpentries content into an official statistics content.</p> <p>Work package 2 will explore membership, collaboration and organisational models between the HLG-MOS and the Carpentries. Topics to be covered include membership with the Carpentries, procurement, administrative overhead, IP of content, legal aspects, etc. The goal of this work package</p>	

³ meaning: create a programme dedicated to modernisation of official statistics, train trainers, take part in training organised by other *Carpentries* organisation

is essentially to determine a cost effective and sustainable **business model for the HLG-MOS ModernStats Carpentry** and its members to benefit from the Carpentries model and products, in the context of the HLG MOS existing governance and structures (especially, the Capabilities and Communication Group).

Deliverables and timeline

The main deliverable for **work package 1** will be a Lesson Programme that will be submitted to the Carpentries organisation for approval to become the ModernStats Carpentry. This lesson programme will include:

1. A repurposing of existing Carpentries content for a NSO specific persona within statistical agencies.
2. This content will then be translated into French (and possibly other languages depending on participation) in order to demonstrate the international outreach and applicability of the Carpentries curriculum.
3. This work package will explore putting a traditional official stats course (like price indexes or GDP) into the Carpentries model.

The deliverable of **work package 2** is to determine a cost effective and sustainable business model for the HLG-MOS and its members to benefit from the Carpentries model and products in the HLG MOS context.

Offices/Countries committed

This project will be led by Statistics Canada and the OECD, in a fashion similar to the 2022 Meta Academy project. Members from the 2022 project are welcome to continue their participation; new members are warmly welcome to join in. Participating entities from the 2022 project include: Eurostat, Statistics Canada, OECD, Statistics Netherlands, Statistics Norway, Statistics Ireland, Bureau of Labour Statistics, Census Bureau, ISTAT and INEGI.

Alternatives considered

The main alternative considered would be to build ourselves (under the HLG-MOS) the platform and necessary frameworks to establish an international academy for official statistics. This method approach would be very time consuming and costly. In addition, this method would be inefficient since we would need to develop frameworks that already exists as open, reusable assets.

How does it relate to the HLG-MOS vision and other activities under the HLG-MOS?

This project already has connections with the Capabilities and Communication Group, particularly the *Future of Work* project – of which a central pillar is the offering of development opportunities to staff. In addition, there has been a need highlighted at the Executive Board, to enable HLG-MOS groups and projects to develop capacity building opportunities – a general goal for the ModernStats initiative to which the ModernStats Carpentry would directly contribute. Beyond direct benefits in a national context (capacity to create or co-create more smoothly training; capacity to discover and reuse training content from other organisations), the project can also contribute to better interconnect with the academic world – heavily involved in the Carpentries initiative – as well as feed into a development agenda through cooperation with developing countries. This project can help agencies adopt a service-oriented approach and an agile adaptive culture to meet their own and their stakeholders and statistics users' needs.

Proposed start and end dates

Start: February 2023

End: November 2023

During the first phase of the project (Feb-Jun), emphasis will be on work package 1 and experimentations with the Carpentries model (taking trainings, training trainers, possibly producing one pilot training). During the second phase of the project, lessons learned from the experimentations should lead to the two strategic outputs:

- A proposal for the ModernStats Carpentry Lesson Programme,
- A proposal for the ModernStats Carpentry business model.