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CONFERENCE OF EUROPEAN STATISTICIANS

Meeting of the 2023/2025 Bureau
Cardiff, UK, 9-10 October 2023

Item V (a) of the Provisional Agenda

MOVING TOWARDS OPEN-SOURCE TECHNOLOGIES

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The 2023 CES plenary session seminar on "Moving towards open-source technologies" discussed strategic and managerial issues regarding the transition to open-source in official statistics. During the seminar, the Conference noted the wide transformation that statistical offices should undergo when adopting the open-source technologies, and the importance of a holistic approach encompassing both technical and managerial levels. The Conference asked the CES Bureau and HLG-MOS to discuss the follow-up to the session and decide on further steps.

This document presents the summary of the CES discussion, new developments that have taken place after the session and a potential way forward. ***The Bureau approved the proposals for the session follow-up and proposed next steps.***

I.   BACKGROUND

1.   In February 2023, the topic "Moving toward open-source technologies" was chosen for a CES seminar following an electronic consultation with all CES members. The seminar took place in June during the 71st CES plenary session[1]. It was organized by Ireland with contributions from Poland, the Netherlands, Norway, the United Kingdom and the HLG-MOS Open-Source Adoption team.

II.   DISCUSSION AT THE 2023 CES PLENARY SESSION AND THE SHORT BUREAU MEETING

2.   Facing the need to become more open, transparent and efficient, a number of NSOs are undergoing or planning to move from traditional software to open-source technologies. However, this is a massive transformation for a statistical office that involves action at the strategic and managerial level. It requires developing capacities and organizational flexibility to adopt and respond to challenges and risks related to the technical, cultural and infrastructure aspects. To ensure the successful adoption and implementation of open-source solutions for official statistics, it is crucial to foster collaboration and knowledge sharing among statistical offices across different countries, by leveraging and scaling up best practices and solutions, while also addressing challenges and mitigating risks. During the seminar, the following points were raised by the Conference:

   (a) NSOs **need to transition to open-source technologies** considering the growing demands for data which may involve using new sources, and accessing and processing huge amounts

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[1] https://unece.org/statistics/events/CES2023

of data. A successful transition would require new tools, processing environments and institutional capabilities.

(b) Adopting open-source solutions and using other emerging technologies such as cloud systems and generative artificial intelligence presents **opportunities for NSOs**, such as streamlining and accelerating statistical production processes to keep pace with the developments in other areas, which also allows NSOs to operate in a more collaborative and transparent way. However, implementing the transition while performing regular activities and functions raises **different challenges** such as business continuity, cybersecurity, and potential software community support (or the disruption of it).

(c) The **principles of openness, transparency, and collaboration** (division of work and responsibilities) are also valid and applicable when organising the transition to open-source solutions. At the same time, training, internal communication and culture shifting are vital to develop the skills and willingness of staff. A reasonable balance between developing internal capabilities and opting for faster solutions (e.g., coding with ChatGPT) is necessary to ensure a sustainable development pathway.

(d) **Guidelines, case studies and tools** could help and guide NSOs' and potentially other government agencies to adopt open-source software for official statistics in the best way possible.

(e) **Adopting open-source technologies is a corporate-wide initiative** that requires leadership, strategic planning, clear communication, and cultural shift. Promoting and sharing the best practices, cases of standards, and working practice transformations are just as vital as addressing the technical aspects.

3. The Conference expressed its support to the continuation of the work of the Open-Source Adoption team under HLG-MOS, taking into account the strategic issues and priorities identified during the session, and encouraged countries to contribute to the team's work. The Conference further asked the CES Bureau and HLG-MOS to discuss the follow-up to this session and decide on further steps.

4. The possible follow-up was further discussed at the short Bureau meeting on 28 June 2023 after the informal CES seminar in Paris. During the discussion, the Bureau suggested that the future work could focus on different aspects of open source, including the use of cloud, software, platforms, geospatial information and generative AI, potentially in a form of a HLG-MOS annual project. The Bureau also remarked that any follow-up action should build upon and take into account the work already ongoing on this topic, such as the related work of HLG-MOS and Eurostat.

III.   NEW DEVELOPMENTS IN HLG-MOS AND EUROSTAT

5. The main activity of the HLG-MOS Open-Source Adoption team was a series of mini-workshops to provide a platform for different organizations around the world to share experience and discuss common challenges. The initial plan of the team was put on hold during summer due to the departure of the lead, but the team will soon resume its activity with a new lead. The idea of proposing an HLG-MOS project on open source, however, might be affected as the team would need to rebuild a momentum.

6. The ModernStats Carpentry Project is another HLG-MOS initiative related to open-source, in particular, with respect to capability building. Drawing on the lessons of the 2022 Meta

Academy Project which highlighted a gap in providing training to upskill employees, the project was set up in early 2023 to explore the potential of the Carpentry model. This model operates as an open ecosystem of trainers, similar to a marketplace for data and software trainers where various organizations and academic institutions offer their training resources for reuse. The project is currently developing a training material for an open-source software (python) following the Carpentry model. The training material will be made open for reuse after the completion of the project.

7.   The HLG-MOS Blue Skies Thinking Network (BSTN) recently started a discussion on the co-development of a solution as an open community. This discussion focuses on perspectives of developers of open-source solutions (e.g., governance, process) rather than users of a solution already developed by others.

8.   One significant recent development is a survey on setting up a formal expert group on open source within the European Statistical System (ESS). This group would build upon the works of the Open Source for Official Statistics (OS4OS) group which concentrated on four key areas: principles, challenges, best practices, and suggested future steps[2]. The scope and work modality of this group are currently under discussion, and it would be crucial to collaborate and coordinate with this group to complement the ongoing international efforts related to the using open-source in official statistics.

IV.   PROPOSAL FOR DECISION BY THE BUREAU

9.   It is proposed to focus future efforts towards the adoption of Open-Source Software (OSS) on topics not being considered by existing or future work of the OS4OS group in Eurostat and the BSTN group. In the context of new developments mentioned in section III and the discussions at the CES session in June, potential areas could be:

- How to use OSS in production incorporating the concepts of Rapid Analytical Pipelines (RAP)[3] and to consider the possibility of the sharing RAP based code/products.

- Consider the adoption of OSS in other areas beyond analytical products.

10.   Other potential topics can also be added once OS4OS and BSTN have clear proposals on the focus of their groups, and these can be brought back to the Bureau for further consideration.

11.   The Bureau is invited to:

(a) Consider which topics could be included in a future work and whether the suggestions above could be investigated further;

(b) Encourage continued coordination of activities to maximize the synergies and avoid duplication of efforts.

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[2] https://code.europa.eu/OS4OS/pbbp
[3] CES seminar paper "Transforming statistical workflows to use open-source technology at the United Kingdom Office for National Statistics" (https://unece.org/sites/default/files/2023-06/CES%202023%2023_Item%203.pdf)