UNECE Applying Data Science and Modern Methods Group

Achievements in 2022 and Plans for 2023

23 November 2022, Geneva, Switzerland
## Agenda

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<td>Introduction of the Group</td>
<td>Wai Kit (Jackie) Si Tou, UNECE</td>
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<td>14:35 – 14:40</td>
<td>Task Team 1: Understanding and Selecting Models</td>
<td>Joni Karanka, ONS</td>
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<td>14:40 – 14:45</td>
<td>Task Team 2: Accelerating the Implementation of ML-based Solution in Data Editing</td>
<td>Claire Clarke, ABS</td>
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<td>14:50 – 15:00</td>
<td>Open discussion</td>
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Introduction

• The Applying Data Science and Modern Methods Group (ADSaMM) was established in 2022, with the aim to identify concrete opportunities to modernize NSO’s business processes.

• Currently, there are 18 members from 9 organizations.

• A wiki space has been created for the group, with draft outputs and meeting notes.

• The group has conducted a market landscape analysis to take stock of existing works in the field of data science and modern methods.
Scoping of work

- Eight potential topics were identified under data collection and integration, data editing, data confidentiality, data dissemination, etc.
- Three task teams have been formed to work on modelling, data editing, and responsible AI
- Preliminarily ideas were shared at the ONS Data Science Campus International Collaboration event in Newport, UK, from 12 to 14 July 2022
Task Team 1: Understanding and Selecting Models

Background:
• 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

Purpose:
• To consolidate knowledge from NSOs into guidance that enables users to have a comprehensive understanding on how different methods and models fit different types of problem, data and purposes, thereby facilitating the selection of the most suitable solutions
Task Team 1: Understanding and Selecting Models

Plans for 2023:

• Collect use cases with detailed discussion on the selection criteria of models

• Prepare an initial decision tree of algorithm or model selection, classified in user-relevant families

• Develop guidance on how to select, describe and use methods and models at an organisational level
Task Team 2: Accelerating the Implementation of ML-based Solution in Data Editing

Background:

• Machine Learning (ML) has a good potential for efficiency gains in complementing or replacing traditional methods, as well as for improving quality in ways that may be difficult to achieve with traditional methods.

Purpose:

• To develop a generic guidance on key organizational issues when implementing ML-based solution in data editing in order to accelerate the productionisation process.
Task Team 2: Accelerating the Implementation of ML-based Solution in Data Editing

Plans for 2023:

• Collect use cases to review how project managers attempted to manage the obstacles that have been stopping NSOs from applying ML-based solution in data editing throughout the journey from experiment to production

• Summarize the problems and stakeholders involved and the actions taken to resolve the issues into lessons learned and best practices

• Develop a guidance based on the use cases to offer recommendations to facilitate the implementation of ML-based solutions in data editing
Task Team 3: International Framework on Responsible AI for Official Statistics

Background:
• With the wide-scale utilisation and adoption of AI and ML, core principles such as ethics, privacy, fairness, and legality are more important today than ever before

Purpose:
• To set up a common standard for responsible design, development, and deployment of AI-based solutions in NSOs, ensuring these new methods are acceptable from an ethical and human perspective
Task Team 3: International Framework on Responsible AI for Official Statistics

Plans for 2023:

• Conduct a literature review to summarise the experience of different NSOs

• Develop an international framework for responsible AI, which consists of a guidance document listing core guiding principles on responsible AI, with clear definitions and guidelines; an assessment tool/checklist along with use cases; and a detailed description of a review process

• Summarise lessons learned and propose recommendations on the implementation of the framework
Your comments and suggestions are appreciated

• In view of the existing works under the HLG-MOS and other international organizations, **what are the gaps to be filled** (based on the level of urgency and importance)?

• Are there any other areas of work you would suggest the group to consider? **How should this group help address these issues?**

• Do you agree with the focus of the task teams? **What would be a useful output for the international statistical community?**

• What are the **opportunities of collaboration** with your organization?
Thank you

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