Facilitators and Blockers of ML Adoption in Official Statistics

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Abstract

Machine learning (ML) has the potential to transform Official Statistics by tapping into new data sources and improving efficiency. However, the adoption of ML is challenging due to many factors.

To better understand the key facilitators and blockers for the adoption of ML in the public sector, we will consider the following domains adopted by Statistics Sweden: data, technology, organisation, expertise and culture.

- Data: Statistical offices often have access to good quality data, however restrictions with regards to data privacy and difficulty of accessing and combining data sources can limit the effectiveness of ML.
- Technology: Advances in computing power and software tools have made ML more accessible. However, restrictive policies on open source software, low adoption of cloud and budget constraints can block the successful delivery of ML solutions.
- Organization: Initiatives regarding data science, ML and AI have become more common in NSOs in the last few years, often leading across national governments. This innovation is often hindered by hierarchical structures, lack of dedicated MLOps, and high impact data products that promote more risk-averse decision-making.
- Expertise: Successful ML adoption requires skilled professionals who can design, train, deploy, and maintain ML systems. However, these roles are in high demand and the public sector often is not competitive relative to industry. Building skills and roles often happens in a piecemeal fashion and retention of practitioners can be difficult.
- Culture: NSOs do benefit from the availability of an international community of practitioners as well as the national activities in the field of ML. On the other hand mixing with open source or private sector communities is often limited.