

Distr.: General
20 June 2017

English ONLY

Economic Commission for Europe

Conference of European Statisticians

Sixty-fifth plenary session

Geneva, 19-21 June 2017

Item 4 of the provisional agenda

The next generation of statisticians and data scientists

Seminar on the next generation of statisticians and data scientists

The Conference of European Statistics (CES) Plenary Session discussed the skills and capabilities needed to address the challenges arising from the new data-driven world where statistics should be better integrated to support policy and decision making. The seminar used twitter to engage with participants and supplement the panel discussions.

The key outcomes of the seminar were:

- (a) In order to remain competitive and credible as the official data providers statistical organizations are required to significantly invest in modern statistical skills. The data revolution generates new user needs, and stiffer competition from the private sector.
- (b) Advances in the statistical tools for (big) data analysis have allowed increased value to be added to data. The value added can be related to timeliness, improved precision, and coverage of “old” statistical output (economics, business, etc.), but also to new indicators.
- (c) The combination of administrative, survey, geospatial, and new (big) data sources can add significant value, when successfully incorporated into statistics production systems.
- (d) Statistical organisations adopting Big Data should critically assess the reliability and usefulness of the new data sources and applied methodology. Particularly, issues related to collection and management of big data for official statistics, big data privacy and protection, increasing data accessibility but maintaining privacy and confidentiality need to be addressed.
- (e) Successfully developing the next generation of official statisticians will be one of the most critical objectives for the coming years.
- (f) The skills that are impacted most by the emergence of new data sources are 1) statistical skills, 2) IT (management) and 3) other skills, including leadership, creativity and communication.
- (g) These new skills will not be found on just one staff member. Statistical organisations should consider building and maintaining collaborative and multidisciplinary data science teams. Data scientists are

able to understand the relevant applied mathematical and statistical tools, have programming skills and data storage know-how, domain knowledge and soft skills related to collaboration and team work, and also possess the ability to communicate and visualize data compellingly.

- (h) Statistical organisations can benefit from the network of peers by sharing best practices. The UNECE High-Level Group for the Modernisation of Official Statistics (HLG-MOS) proposed a common competency framework of skill development that serves as a blueprint for all the statistical organisations looking to develop the data science toolbox.
- (i) There are important examples of collaboration with the higher education institutions that could be emulated elsewhere. Some universities have masters programs in official statistics, and tight links to the statistical organisations.
- (j) Universities are increasingly offering data science and business analytics programs. Statistical organizations can benefit from close collaboration with these study programs and can provide employment opportunities (internships, and other forms of practical training) for the students at different levels.
- (k) Talented new graduates are interested in self-development, learning opportunities, fully utilizing their potential, and the societal impact they may have. Statistical organizations can stress these points when recruiting and attracting data scientists.

This conference has progressed towards that goal by delineating the necessary skills in order to produce high-quality statistics in the future, and discussed how statistical organizations can acquire, develop and maintain them. In particular, statistical institutions are encouraged to work more closely together, invest in key priority areas, and develop stronger links to educational institutions to ensure that the needed skills are available.

Further work in this area could include:

- (a) Sharing country experiences in how to create an innovative culture where experimental activities are encouraged and rewarded.
- (b) Investigate how capacity in new competencies (for example soft skills) can be built in statistical organizations.
- (c) Sharing experiences in how to actively seek partnerships and other types of collaboration with the academic community, especially examples where partnerships have supplied the needed skills for statistical organizations.
- (d) Exploring possibilities of how statistical organizations can develop a reputation of being an attractive workplace for talented individuals.

The CES Bureau will discuss at its next meeting how to implement the proposed follow-up actions. CES members are encouraged to use the resources produced by the seminar.
