

## World Customs Organization Permanent Technical Committee - 235th/236th Session

### Agenda Item 8: Theme of the year: Scaling up Customs Digital Transformation by Embracing a Data Culture and Building a Data Ecosystem, 27 March 2022

#### Presentation by David Widdowson<sup>1</sup>

For some years now the INCU has been working with the WCO to support its emerging data strategy.

And in the September 2019 edition of the World Customs Journal we included a section dedicated to research focused on the need to better utilise the huge amount of information that's available to customs administrations in order to inform strategic and operational decision-making. Importantly, these papers were developed as a direct result of a series of innovative WCO workshops on data analytics.

The following year we dedicated the Journal to papers that were delivered at the WCO PICARD conference, many of which included articles on data analytics – including, I should note – an article co-authored by the Secretary General and Mr Thomas Cantens, which was rather cleverly titled “If algorithms dream of Customs, do customs officials dream of algorithms? A manifesto for data mobilisation in Customs”.

We'll have to ask the Secretary General and Mr Cantens later whether he dreams of algorithms, but in that article it was argued that governance by data is a growing global trend, supported by strong national public policies whose foundation is open data, artificial intelligence and decision-making supported by algorithms.

The article highlighted the fact that, despite this global trend and the associated technical advances, administrations face a number of obstacles in progressing a more ambitious use of data.

It concluded that even though the most advanced customs administrations have deployed techniques based on data analytics, none have embraced the wide range of possibilities offered by data and data science. And it identified a number of principles regarding the use of data analytics, including such things as:

- Developing know-how on exploratory data analysis
- Favouring the free tools of data science and their appropriation for customs purposes, noting that some basic open software and languages are better than commercial software, and
- The need to work together at the global level to use data technology to strengthen the customs community. As an example, producing standard datasets that may be used to assess the performance of algorithms, and to share algorithms and models – in order to promote peer review among customs experts.

In many respects this article has formed the basis of the WCO's Data Strategy as it now stands, which aims to build an international Customs data ecosystem, connecting technologies, infrastructure, experts working with Customs data and academic and technology actors who are outside the Customs community. With this objective in mind, the WCO Data Strategy is comprised of three building blocks:

1. Data sharing,
2. Communities of practitioners, and
3. Assistance to Members.

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Of particular relevance to academia is the development of the second of these building blocks, which seeks to establish communities of practitioners. In relation to this aspect of its strategy, the WCO rightly sees itself as a hub for knowledge sharing, by leveraging its capacity to bring together national specialists, industry experts and academics at an international level. In fact the WCO sees this role of establishing communities of practitioners as an essential first step in developing the fledgling domain of data analytics.

Now, importantly, the Strategy aims to develop the use of data across all aspects of Customs responsibilities, including such things as post-clearance audit, statistics production, performance measurement, impact assessment and enforcement. Given the fact that the WCO and its member administrations have access to an absolute wealth of data – much of which is heavily underutilised - the potential benefit of developing increasingly sophisticated analytics is obvious, and I would encourage further contributions in this relatively embryonic research field.

The WCO is encouraging its academic partners to engage with them in progressing the Data Strategy, and the INCU has pledged its support for this important initiative. We are therefore encouraging all INCU members to consider their potential capacity to contribute to this important piece of work.

And I believe that this is most likely to occur where opportunities for collaboration are identified, noting that a growing number of academic institutions now have expertise in the field of Customs and cross-border management; but even more have expertise in data analytics. And by working together I believe that the subject matter experts and the technical experts will quickly discover that the sum of the whole is much greater than the sum of their parts.

One such institution that's accepted the WCO challenge is our own university – Charles Sturt University, which is not only the home of the Centre for Customs and Excise Studies, the World Customs Journal and the INCU Secretariat, it is also the home of our internationally recognised Data Science Research Unit. Now, the scope of research within this unit is quite vast, with more than 70 researchers, together with some 130 honours and higher degree research students focusing on the University's research strengths in areas such as:

- machine learning
- machine vision
- cybersecurity
- simulation and modelling
- computational intelligence and robotics
- data mining, and
- astronomical and space sciences.

Some interesting projects in cross-border research areas are already in the pipeline, including:

- A blockchain-based system, which is seeking to develop and demonstrate an efficient Agri-food data management framework that ensures food health and safety that benefits all parties involved in the respective supply chain.
- Another project which has particular relevance to Customs is the design and development of imaging software tools for hand-held wireless mobile devices that can perform real-time scans of shipping containers
- And another is the security and privacy analysis of microservices architecture in the supply chain, which aims to build new ways of securing data-sharing in particular industry sectors.

The university is therefore pursuing a collaboration between the Centre for Customs and Excise Studies and the Data Science Research Unit's various research groups that include:

- The Data Mining Research Group
- The Machine Vision and Digital Health Research Group
- The Cyber Security Research Group
- The Imaging and Sensing Research Group
- The Advanced Networks Research Group, and
- the University's Data Analytics Laboratory which is a dedicated state of the art technology space for delivering quality teaching and research outcomes in the areas of Wireless Communication, Data Science, Cyber Security and Forensics and Software Design and Development.

As I have said, the WCO and its member organisations have a wealth of data which, if exploited appropriately, could significantly change the operational landscape of Customs. In my view, the Data Strategy establishes a solid base for progressing this work, and its academic partners welcome the opportunity to collaborate with the WCO in achieving its data-leveraging potential.