Key findings

Blockchain and distributed ledger technology

- Blockchain and distributed ledger technology (DLT) can help to provide better transparency, immutability and accessibility of information and data quality, as well as the sharing of relevant information on border management procedures among all stakeholders.

- The greatest hurdles to the successful introduction of blockchain and DLT in customs processes is overcoming a lack of expertise and good practices, and the associated costs. For a broader uptake of blockchain by customs authorities, there needs to be more widely available standardized datasets which are used by both government agencies and authorized economic operators. Standardizing datasets would help to avoid the appearance of inefficient governance systems and to potentially prevent the proliferation of different blockchain solutions that are not interconnected.

Internet of things

- There have been positive developments in the use of the internet of things (IoT) by customs authorities. Members are experimenting with the IoT to fully automate border-crossings and customs procedures in national ports. An initiative includes the integration of X-ray scanners into a cross-border image exchange to analyse the results of multiple scanning stations centrally. The specialized training facility for X-ray systems operators and the unified training software for image analysis under that initiative have optimized human resource allocation and enhanced the quality of image analysis. Other projects include the use of radio frequency identification antennas or e-seals to ensure traceability of goods and means of transport.

- Thanks to IoT, customs authorities can benefit from better risk management, greater efficiency of customs clearance processes and improved analytics. For this to succeed, members need first to address the challenges of integrating information collected through IoT devices into customs operating systems. The different IoT devices need to exhibit compatibility and interoperability across a range of interfaces, without compromising data security and privacy.

Big data, data analytics, artificial intelligence and machine learning

- Customs authorities have embraced advanced analytical technologies. Around half use some combination of big data, data analytics, artificial intelligence and machine learning. Those who do not currently use them have plans to do so in the future. The majority of customs authorities see clear benefits from advanced technologies, in particular with regard to risk management and profiling, fraud detection and ensuring greater compliance.

- There is a need to establish a data strategy to ensure improved data governance and quality required. However, data protection laws can limit the extent to which data can be used. Better guidance on how to interpret such legislation in analysing data for customs purposes would help to prevent any excessive caution when designing projects and to promote the exchange of data between organizations and customs authorities. Resources will be required to address the obstacles and challenges to introducing these types of technology, such as the cost and the need for expertise and good practices.