According to the WTO World Trade Report 2018 , the world is entering a new era where a series of innovations that leverage the Internet can have a major impact on trade costs and international trade. Innovation will reshape trade patterns offering vast opportunities for developing and developed countries. In particular, Internet of Things (IoT), Artificial Intelligence (AI), blockchain, biometrics (to name a few), have the potential to profoundly transform not only the procedures and patterns for exchanging goods and services globally, but also the way Customs works and interacts with other border agencies. Although the benefits of such technologies for Customs (and in general, for border management) have not yet been fully explored, they are already being exploited by a growing number of Customs for improving and streamline their work processes (this is the case for instance of blockchain and AI).

The objective of the WCO study report on disruptive technologies , published in 2018 and lastly updated in June 2019, is to raise awareness of such technologies by Customs administrations and other stakeholders involved in cross-border supply chains, helping them to gain a better understanding of what they are about, how they are used today, and how they can be used in the future for securing, facilitating and boosting global trade, while ensuring proper revenue collection.

Many Customs have already started exploring the use of the blockchain technology for improving compliance, trade facilitation, and fraud detection, for monitoring e-commerce, the payment of duties and taxes/VAT, IPR violations, money laundering and other financial crimes, while Internet of Things (IoT), is mainly used today by some Customs for monitoring the movement of goods in real time (ex. the position of the container).

Concerning the Artificial intelligence (AI), this technology presents a tremendous opportunity in the cross-border movement of people and goods. Indeed, as data generated by people and goods moving across borders are huge, AI can help customs to interpret and handle them by employing predictive and machine learning algorithms for detecting and predicting patterns more accurately than humans. Visual search and facial recognition, and behavioural and predictive analytics are already being used in other sectors, but their use in Customs and Border Management is still under experimentation. AI is also used for risk-analysis purposes, for

analysing container images produced by x-ray scanners, for logistics monitoring and control in Customs warehouses and bonded areas, for identifying high-risk passengers and vehicles by using facial recognition and visual search at the border.

How the other technologies can be used to the benefit of Customs is still under experimentation. This is the case for instance of biometric data and drones. Some countries are studying how to use biometric data of individuals engaged in trade-related crimes which have been collected by other security agencies (like immigration agencies), can be put at disposal of Customs in order to increase the enforcement capacity of such administration, in particular for identification, investigation and prosecution of smugglers and illicit traders. Concerning drones, they are already being used by some Customs administrations (like the US Customs) for border surveillance and passengers/vehicle monitoring purposes, even though the use of such technology, although promising, has not produced so far satisfactory results.