World Customs Organization

Future of Customs and WCO Study Report on Disruptive Technologies

UNESCAP-WCO-ICC-ADB Webinar on Disruptive Technologies applied to cross-border transactions

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Future of Customs

- Virtual Working Group on the Future of Customs under the WCO Permanent Technical Committee established in 2015; brings together representatives of over 40 stakeholders (Customs, private sector associations and members of the Private Sector Consultative Group, academia, international organizations)
- Latest trends, technological developments, occurrences influencing the Customs and border management environment
- In 2017 focus placed on: 1. Disruptive technologies; and 2. Strategic Foresight

Study Report on Disruptive Technologies – background and objectives

- Acknowledges the importance of exploring new and emerging trends for successful policy making
- Addresses the enhanced interest of the Membership in what we commonly call disruptive technologies
- Brings together outcomes of the discussions in the WCO working bodies and events
- Objective: Raise awareness of the latest technologies and their potentials, provide practical examples and uses cases
- Published in June 2019: http://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/tools/disruptive-technologies.aspx
- Update expected by June 2022

Study Report on Disruptive Technologies - contents

- Focuses on 7 technologies: blockchain; IoT; AI and ML; biometrics; drones; virtual, augmented and mixed reality; 3D printing
    - What is it and how is it broadly used?
    - How is it used in Customs and border management today? And in the future?
    - What are the benefits and risks?
    - In case of 3D printing, what will be the impact?
- Strategy behind technology
- Recommendations
- 21 use cases

Blockchain technology

The blockchain is a type of sophisticated cryptographic distributed ledger architecture, a continuously growing list of records called blocks. It has the capability to move any kind of data swiftly and securely and, at the same time, make a record of that change, movement, or transaction available instantly, in a trusted and immutable manner, to the participants in a blockchain network, called validators or nodes.

- In Customs regulatory processes for improving Customs compliance, trade facilitation and fraud detection
- Reduction of intermediaries and paper/manual tasks
- Improving certainty and predictability based on reliable real-time data
- Allows for traceability and end-to-end visibility thus enhancing supply chain security and facilitation
- Pilot projects and PoC

Internet of Things

The Internet of Things (IoT) is the internetworking of physical devices (also referred to as "connected devices" and "smart devices"), vehicles, buildings and other items embedded with electronics, software, sensors, actuators, and network connectivity which enable these objects to collect and exchange data. Simply put, the IoT ransforms physical objects into smart devices to communicate, as well as interpret, information from the surroundings. It is used to make our lives more comfortable, and our businesses more efficient and less costly.

- Asset tracking has become very important for supply chain management and monitoring the movement of goods in real time
- IoT has contributed to the growth of E-Commerce; big companies are using IoT to track their goods and improve service
- The question is how can Customs and other border agencies plug into this network and benefit from this information to ensure that trade facilitation and security requirements are met

Artificial Intelligence and Machine Learning

Artificial intelligence (AI) is an area of computer science that focuses on the creation of intelligent machines that work and react more like humans. AI refers to systems that change behaviors without being explicitly programmed, based upon data that is observed, collected and analyzed. It is a broad term that includes different technologies such as machine learning, deep learning, computer vision and natural language processing that, taken individually or in combination, add intelligence to applications.

- Detect and predict patterns more accurately than humans can
- Visual search and facial recognition, behavioral and predictive analytics can be tailored for use in Customs and Border Management
- Revenue collection models, classification of products, Customs audits, risk-based targeting, analyzing container images from x-ray scanners, logistics monitoring, identifying high-risk passengers and vehicles etc.

Biometrics

Biometrics is the measurement and statistical analysis of an individual's physical and behavioral characteristics. The basic premise of this field is that every individual person is demonstrably unique and therefore identifiable via his or her physical or behavioral traits.

- Helps to identify wrong-doers and widely used already in immigration
- Potential uses by Customs in the future: verifying identities and controlling access of Customs operators, identifying the different actors in the supply chain such as Customs brokers, freight-forwarders, logistics operators and others

Drones

A drone is an unmanned aircraft or ship guided by remote control or onboard computers. Unmanned Aircraft Vehicles (UAVs) were originally used for missions too "dull, dirty or dangerous" for humans. While they originated mostly in military applications, their use is rapidly expanding to commercial, scientific, recreational, agricultural and other applications, such as policing, peacekeeping, and surveillance, product deliveries, aerial photography, agriculture, smuggling, and drone racing.

- Misuse of drones for smuggling
- Used by Customs for surveillance and monitoring purposes
- Customs needs to monitor, analyze and comprehend emerging developments concerning the use of drones and related regulatory developments and up with an appropriate policy response, together with potential adjustments of Customs procedures and requirements, where needed

Virtual, Augmented and Mixed Reality

Virtual reality, augmented reality and mixed reality are technologies that either create a fully simulated world or add digital artefacts to the physical world. Virtual reality is on one end of the spectrum, being a fully immersive technology. On the other end of that spectrum is augmented reality, where digital artefacts are added to the physical world. With mixed reality, digital artefacts are projected in the physical world. Those artefacts can interact with and exist alongside physical objects. This allows the merger of the physical and digital worlds.

- Can be used at physical inspection to project visual assistance in the physical world: 1. General assistance provided in advance to all employees; and 2. Assistance to provided by someone that can see what the Customs officer sees, in real time
- Visualization of big data sets
- Training of Customs officers

3D printing

3D printing, or additive manufacturing, is a process of making three-dimensional solid objects from a digital file, using a 3D printing machine and raw materials such as plastic, metal, nylon, or others.

- Potential impact in the future (perhaps more on tax administrations)
- Implications on origin, valuation, IPR, VAT and security
- Potential need to redefine the term ‘goods’ in the future
- There is an overarching feeling in the Customs community that the administrations should play an important role in monitoring cross-border movement of intangible goods

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Thank You

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