WCO-WTO
STUDY REPORT ON
DISRUPTIVE
TECHNOLOGIES

Key findings
Background

Collective effort of the WCO/WTO:
- 1st version published in 2019
- WCO’s 2021 Annual Consolidated Survey
- WCO/WTO paper "The Role of Advanced Technologies in Cross-border Trade: A Customs Perspective"
- WCO regional workshops on disruptive technologies

Aim of a joint work:
- broader trade perspective
- all relevant stakeholders considered
- duplication avoided
- benefits in developing relevant projects
Introduction

Seven technologies:
- Blockchain and DLT
- IoT
- Big data, data analytics, AI and ML
- Biometrics
- Drones
- Virtual, augmented and mixed reality
- 3D printing

42 case studies from:
- Customs administrations
- Private sector
- IOs
- Other stakeholders
Blockchain

Challenges and risks:
- Lack of expertise
- Associated costs
- Governance
- Interoperability
- Scalability
- Legal issues
- Privacy
Interesting potential for:
- Customs declaration
- Inter-agency cooperation
- Electronic certification/verification of regulatory requirements
- Identity management
- Compliance management
- Post-clearance audit

Case studies:
- **Argentina, Brazil, Peru & IADB**: AEOs
- **Europe** (VAT, ATA carnets)
- **Guatemala** (port community system)
- **Singapore** (trade digitalization – transferable documents, trade finance)
- **Thailand** (customs & shipping services)
- **UAE** (e-commerce)

- **Port of Rotterdam** (customs clearance)
- **Ysyncro** (logistics digitalization)
- **Wave** (eBL)
Internet of Things

It’s all about asset tracking!

**Benefits:**
- Better risk management
- More efficient customs clearance processes
- Better analytics

Importance of cooperation between different stakeholders

**Challenges and risks:**
- Cost
- Integration of IoT with Customs processes
- Compatibility and interoperability of different IoT systems
- Lack of expertise
Internet of Things

Case studies:

- Guatemala
- **Italy** (Port of Bari, optimization)
- **Kenya** (real-time monitoring of cargo in transit)
- **UAE** (vessels tracking for risk mitigation)
Big data, data analytics, AI, machine learning

Benefits:
- Better risk management
- Detection of fraud/anomalies and greater compliance
- Predict future trends
- Improve revenue collection
- Improve imaging (e.g. of containers) and visual search

Challenges and risks:
- Lack of expertise/good practices
- Costs
- Existing legacy systems
- Lack of transparency
- Need for strong ethical principles and robust compliance and legal frameworks
- Need for redress mechanisms to ensure integrity
Big data, data analytics, AI, machine learning

Current/potential use:
- Risk management
- Tariff classification
- Scanning
- Revenue collection
- Post-clearance audits and control
- Chatbots
- And much more…

Case studies:
- Belgium (tariff classification)
- Brazil (HS classification and risk assessment)
- China (image recognition)
- Hong-Kong, China (to combat smuggling and online IP crime)
- Korea (data analytics)
- Netherlands (image recognition, risk management)
- Nigeria (e-customs)
- Russian Federation (risk management)
- US (multi purpose)
- Zambia (chatbot)
- GeTS (HS classification)
Biometrics

Current/potential use:
- Immigration and border security enforcement
- Investigations of individuals
- Interagency coordination
- Identity verification (Japan)
- Visa and border processing (Australia)
- Facial recognition at border crossing points (Azerbaijan)
- Verifying identities of Customs operators
- Identifying different actors in the supply chain

Benefits:
- Security of the Customs officers
- Security of the information, systems, and Locations
- Prevent crime in the international supply chain
- Strengthening existing security systems
Biometrics

Considerations for establishing a biometrics programme:
- Additional technological developments required to ensure reliability
- Legal authorities/barriers
- Non-compatibility of information-sharing systems between agencies
- Physical barriers to implementation
- Expectations and business practices of the trade and travelling public
- Sufficient IT and personnel resources
- Political will

Concerns about security and use of biometric data:
- Cancellable biometrics
- Burdens of hardware
- New danger to individuals
- Merely a stop gap in information/location security

Case studies:
- Australia (fingerprints)
- Canada (identity verification)
- EU (iBorderCtrl system)
- Kenya (Bonds Execution Process)
- New Zealand (facial recognition)
- US (facial comparison technology)
Drones

Current/potential use:
- Surveillance and monitoring
- Monitoring port areas and coastal regions to combat drug smuggling and to provide aerial assistance (Dutch Customs)
- Underwater surveillance (Dubai Customs)

Case studies:
- United Arab Emirates (surveillance of suspicious activity and inspection of trade vessels)

Use of drones for domestic and cross-border deliveries!

Challenges and risks:
- Unavailability of a drone policy framework for developing drone regulations
- Security concerns
- Use of drones for smuggling
Virtual, augmented and mixed reality

Current/potential use:
- Customs training (Dubai Customs)
- Physical inspection
- Enhanced use in training Customs officers
- Protecting intellectual property rights (US CBP)
- Performing efficient security screenings
- Identifying and assessing vehicles
- Providing translating services
- Visualization of big data sets

WCO Virtual Reality Training project:
- Launched with financial support from CCF-Korea in 2021
3D printing

Implications for:
- Origin
- Valuation
- IPR
- Security
- VAT

Current/potential use:
- Industrial, medical, construction and consumer goods
- Automotive and aerospace sectors
- Consumer electronics sector

HS 2022:
the new heading 84.85 for additive manufacturing (3D printers)
Recommendations

➢ Cooperation
➢ Standardization
➢ Legislative work
➢ Awareness raising, capacity building, and IT infrastructure
➢ Experience sharing and joint work
Online joint WCO-WTO launch of the Study Report on Disruptive Technologies 2022

Monday, 3 October 2022
2:00pm - 3:30 pm (Brussels/Geneva time)