COMPANY NAME

SLOGAN HERE

FREIGHT AI SOFTWARE

SOFTWARE SOLUTIONS COMPETITIVE LANDSCAPE

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PUZZLE INSIGHTS

Puzzle insights

Competitive Intelligence Consulting and Training Services

Background

The continuous increase in online trading has raised questions regarding regulation, consumer protection, revenue collection and national security, just to name a few. These questions cannot be dealt with individually but require a common, broad approach by the international Customs community, together with all relevant stakeholders as a whole.

There are several sections and/or sub-categories to be defined:

1. **Facilitation**
2. **Risk Management**
3. Data Exchange/Cooperation with E-Commerce Operators:
   We would relate to this aspect by providing some relevant use cases.
   (we find it somewhat out of this paper SOW)
4. **Control and Enforcement**
5. Revenue Collection *(out of this paper SOW)*

We'll relate just to several of them and only to the relevant aspects.

Market Research Purpose

COMPANY NAME team pursue the eCommerce customs clearance challenging demands.

The company develops an AI and machine learning based software to enable stakeholders (customs agencies / brokerage firms) a much easier clearance process, with a better risk assessment smart algorithm, compared to other solutions available.

This paper is solely focused on current and future software solutions for the customs clearance phase, in order to assess COMPANY NAME solution positioning.

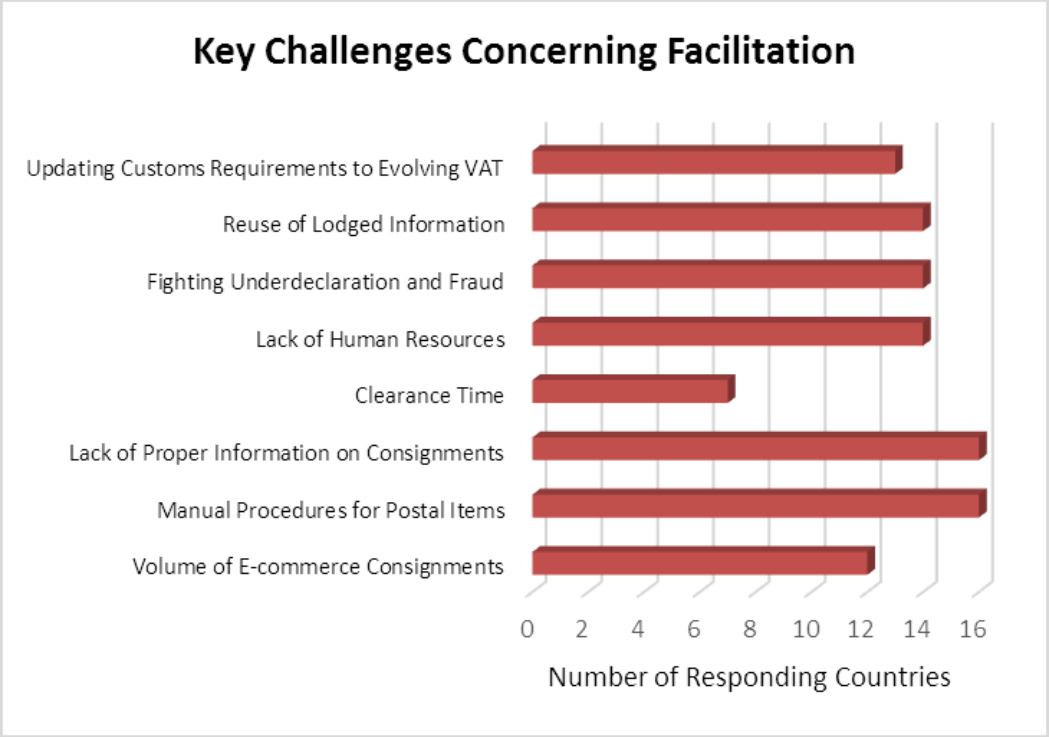
Going Downstream the Customs Clearance Flow

Facilitation

Member States of the EU require pre-arrival exchange of information to allow for the efficient clearance of shipments. While some Members from the AMS region noted that their current practices involve couriers electronically presenting an express manifest, followed by a manual inspection, if the value of the shipment is below the de minimis, it is immediately released. Further, responses by Members from the Europe region indicated that the new requirement for a simplified declaration entails implementing a new procedure of automatic exchange of information about each consignment, such as a unique ID, consignee information, value, weight, etc.

Responses from the AMS region indicate that Postal services often do not have the necessary mechanisms to exchange information electronically. Members' responses emphasize that this causes inefficiency and hinders the evolution of e-commerce and digital Customs, and as a consequence prevents the full potential of e-commerce growth from being exploited.

According to a WCO 2017 survey, responding county representatives raised the following key challenges concerning facilitation:



Initiatives and Potential Solutions

Most of the initiatives reported by Members include some aspects of digitalization.

The use of ICT allows for the exchange of information with couriers, postal operators and other stakeholders, for better risk assessment and faster clearance times.

Risk Management

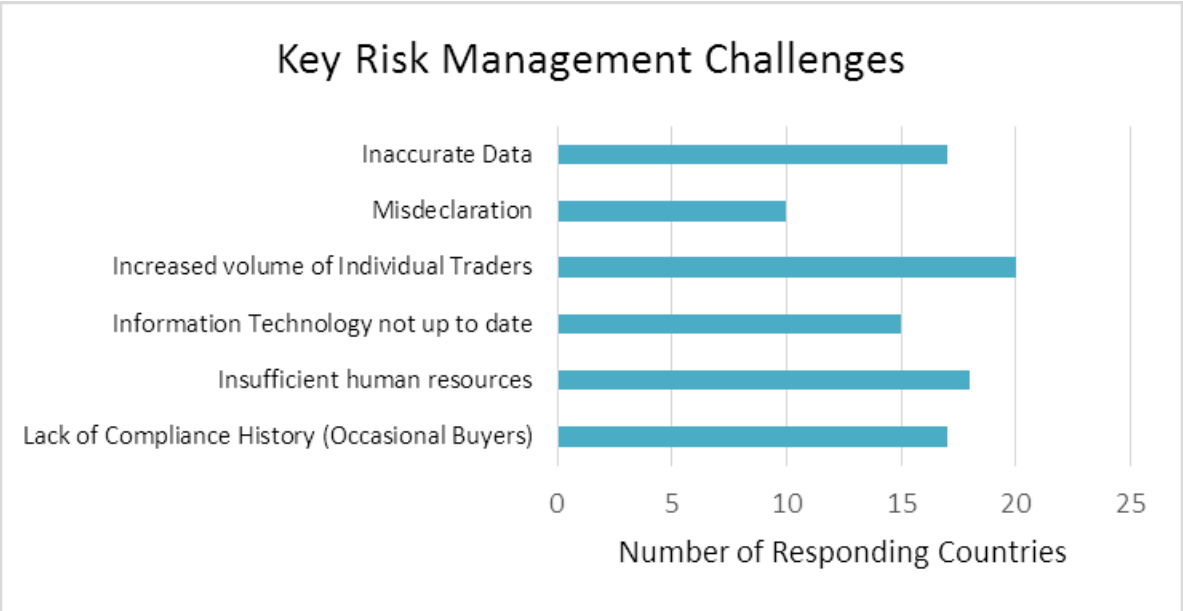
Risk management is the identification, assessment and prioritization of risks, followed by the harmonized and economical application of resources to minimize or avoid the possibility of risky (e.g., prohibited/restricted) goods entering a country. The objectives of risk management include ensuring the safety and security of societies and fair and efficient revenue collection.

Current practices reported by Members from the Europe region show that **the risk management process is still largely manual, especially in respect of postal items**. This is **becoming more challenging** given the **exponential increase in e-commerce volumes**, which are often large in number and smaller in size.

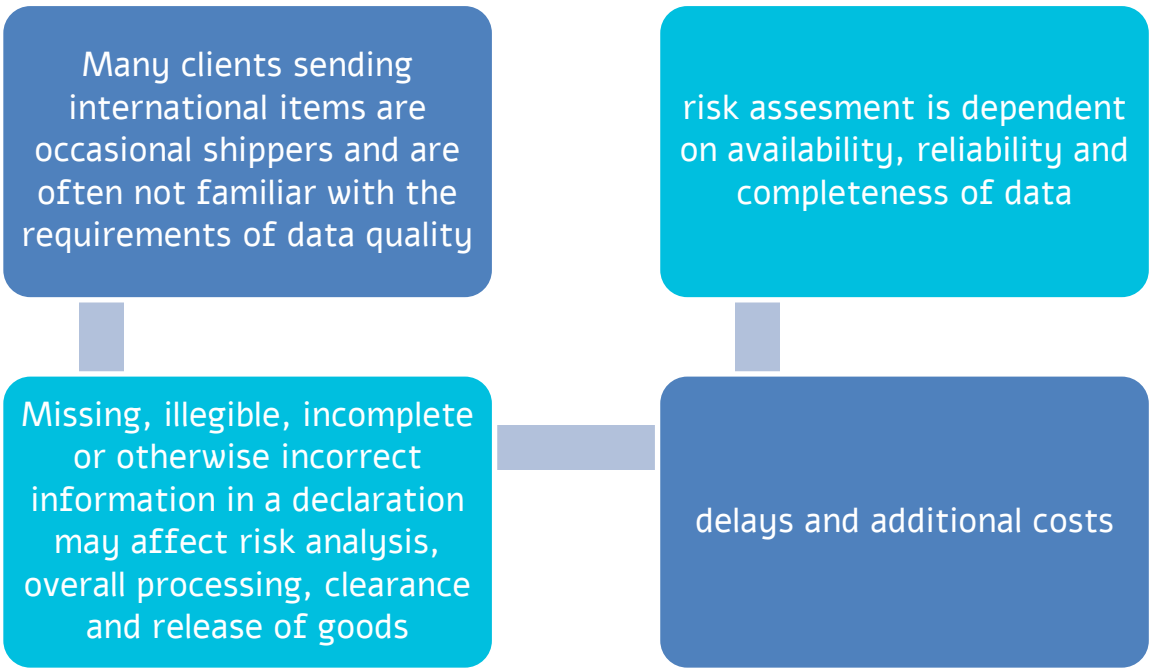
The use of **advance cargo information (pre-arrival) allows Hong Kong Customs** to carry out effective risk profiling. At present, road cargo and sea cargo information is submitted electronically prior to the arrival of the cargo.

Denmark currently has **an automated system in place**. Low-value consignments below the de minimis level are handled by the Customs system in which **declarations are risk assessed and VAT amounts are collected automatically**. **Release of shipments takes place within a maximum of 15 minutes**, if the declaration is not picked out for control.

According to a WCO 2017 survey, responding county representatives raised the following key challenges concerning risk management:



Several Members indicated that inaccurate information is **one of the main reasons why issues arise when assessing risks**. The documents submitted may be misleading, illegible or may contain other incorrect information. This, in turn, hinders facilitation, leading to delays and additional costs.



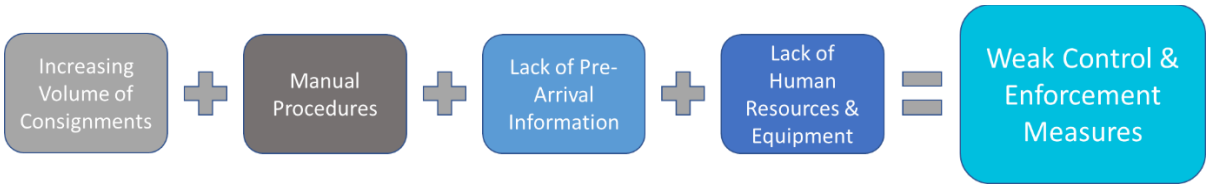
Additionally, many Members indicate that numeric fields like the ID Number, Tax Number, and GTIP Numbers are not always compulsory fields in the Customs declaration, which leads to problems in risk analysis.

Control and Enforcement

Control and enforcement are fundamental aspects of every Customs administration around the world. Protecting societies from harmful goods and counterfeit products ensures a healthy society and a competitive economy. However, this has become increasingly difficult due to the large volumes of e-commerce shipments being cleared under a simplified declaration method, as mentioned by Members in the Europe region. This is primarily because most e-commerce shipments are below de minimis thresholds. Also, occasional traders are unlikely to be aware of the rules and regulations, and hence there will be an increased chance of non-compliance.

Members in the Europe and AMS regions highlighted the **challenges for traders and Customs caused by the fact that operators' manifests are not standardized** (in terms of format and content). Furthermore, they mentioned that national postal operators do not always have sufficient pre-arrival information on consignments, which makes the efficient selection and targeting of goods rather difficult.

The increasing volume of consignments, the use of manual procedures, and the lack of advance information and human resources contribute to an overall deficiency in control and enforcement activities. The increasing amount of consignments requires more human resources. Advance information is needed in order to make the selection and targeting, and thus the control of goods, more efficient.



Geographical (Country) Analysis

Our report was conducted thoroughly and covered current and future **clearance systems in more than 160 countries** (full list of countries) This chapter reviews the countries which show indications of advanced such systems.

South Korea 

This is the most advanced country in that respect.

Established in 2006, CUPIA (**C**ustoms **U**NI-**P**ASS **I**nternational **A**gency) is an expert group that focuses on development & operation of e-customs and single window systems as well as providing customs modernization consulting services to various customs authorities around the world for more than a decade.

UNI-PASS system is the Korea's national e-customs system which is currently connected to 27 trade related government agencies, 169 different government organizations and over 260,000 trade related companies via the Single Window system and safest systems among the 180 WCO member states, and CUPIA has successfully implemented its sister systems in various other countries.

CUPIA experts aim to provide world class services in implementing state-of-the-art customs systems and result-oriented consulting, the most recent achievement of such efforts was the signing of the new **e-Single Window system development** with the **Ethiopian Customs** and development of the new customs modernization system in **Cameroon**.

The CUPIA team is determined and has aspirations to expand its presence to **other export markets**.

CUPIA was initiated by the Korea Customs Service – KCS .

In recent years KCS applied for numerous patents. The following are the once we found most related to this report goal:

1. 2017 Dec. 29 | Method and apparatus for transforming image [Additional info: Espacenet]
2. 2017 Dec. 29 | Image processing apparatus and method [Additional info: Espacenet]
3. 2017 Jan. 04 | Apparatus for providing Smart Trade Service [Additional info: Espacenet]
4. Overseas direct purchase shopping method and system employing real time individual customs system [Additional info: Espacenet]
5. 2014 Oct. 20 | Parallel import goods customs clearance label, parrel import goods customs clearance label management system and the method for managing the system [Additional info: Espacenet]

6. 2013 Jun. 14 | Integrated risk management system related customs administration and its method [Additional info: Espacenet]
7. 2009 Dec. 17 | Early warning system and method for recovering error of customs clearance system [Additional info: Espacenet]

No infringement indications were found with regards to the mentioned KCS patents.

In May 2017, Samsung SDS launched a blockchain consortium with government authorities including the KCS, Korea's Ministry of Oceans and Fisheries, logistics giant Hyundai Merchant Marine and tech giant IBM Korea.

In Sep. 2018 The Korea Customs Service (KCS) has entered an agreement with Samsung SDS to implement the latter's blockchain technology for an export customs clearance system. | read more

Netherlands 

The Netherlands is a major player in international trade. **Around 30 percent** of all import declarations in the EU are processed by Dutch Customs. **It is impossible** to check the contents of all packages and containers coming in here. | read more

The DCA wants to migrate everything to the AGS within 1 year (thus current venue will be abandoned), and they want to launch **a new AGS system in 2019**. | read more [*Thesis: Artificial Intelligence in Customs Risk Management for e-Commerce; p. #133*]

According to this article 'Sagitta', the old declaration system of Dutch customs, was being replaced by AGS (AanGifteSysteem) in the period of 2014 to 2017. AGS has now been implemented for **import declarations** (**AGS2**).

The Dutch customs agency selected **IBM** a few years ago to develop AGS. However, they have outsourced this assignment to **a Greek software company**. This may seem like a remarkable choice, but nothing is less true. The Greek software company has been the developer of the successful **NCTS** (New Computerized Transit System), a European operating software system with which customs goods can be transported throughout the EU and some countries outside. It takes longer than expected, but it will eventually come.

Furthermore, **the central module of AGS import is universal in design**, so that **it may also be used by other EU member states in the future**.

Using Collaborative Methods and Innovation Models

Dutch Customs is using hackathons in collaboration with the logistics industry to innovate around new solutions, for example by finding use cases for new technologies such as blockchain and evolving the concept of a digital passport for containers.

As such case studies underline, border agencies that are forward-thinking and develop the ability to proactively navigate and predict "the uncharted" can help shape the digital future of borders and trad. | read more

An opportunity: the hackathon might be a place for **COMPANY NAME** to develop the company innovative directions (e.g. blockchain, and containers' 'digital passport').

However, after selecting IBM for the AGS2 development, the Dutch customs focus might have moved to explore other avenues.

Action item: learn more about the Dutch customs hackathons. Who are the participants? What's the hackathon topics?

Competitive Landscape

While scanning COMPANY NAME ecosystem we identified several categories/layers of software providers: Market leaders, high level of connectivity players, and innovative startups.

Some of them are trying to meet the same pain points as COMPANY NAME (ecommerce customs clearance complex process), while others are putting their efforts on the containers customs clearance process or in the customs operational aspects, which has different needs in some respects.

Our focal point is both the market leaders and the innovative startups, which represent a direct competition to COMPANY NAME.

Market Leaders

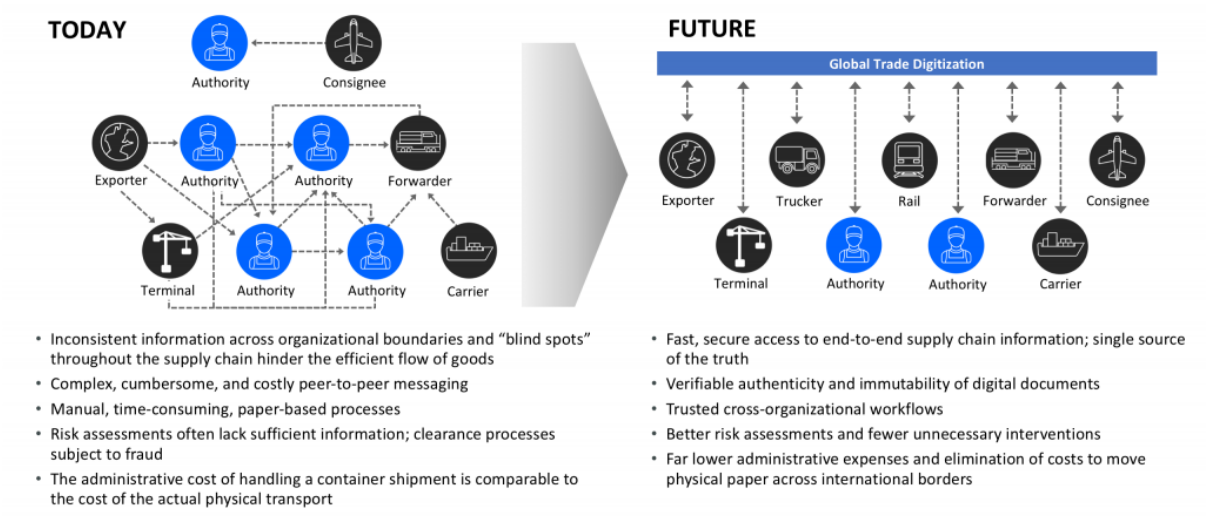
The companies/customs agencies under this category are the ones to develop/provide all-in-one solutions: software solutions that both integrate information from multi-channels, and analyze the information, utilizing advanced technology, such as artificial intelligence, machine learning, blockchain, etc…

IBM seems to be the 'shark in the tank'. Utilizing and leveraging its **Watson** technology, the company has grown its presence in the customs arena, and is involved in several major projects with a worldwide reach.

S. Korean customs software solution integrates multi-sources, and on top of that they analyze the information obtained with artificial intelligence and machine learning tools.

S. Korea customs governmental agency has decided to develop an **indigenous proprietary technology** to support their customs procedures. Only one commercial company is mentioned in relate to the S. Korean customs clearance software solution: **Samsung SDS**, which has been chosen to develop/provide the system's future **blockchain** authentication mechanism.

In general IBM vision is as follows (source):



In a comprehensive white paper, **DHL** mentions **IBM AI capabilities**, and its fit to various logistics domains. Customs is pointed out as one of these domains (p. #24):

Cognitive Customs refers to **customs brokerage processes augmented and automated using AI**. At the risk of oversimplification, customs brokerage services generally involve the following four major steps:

1. **Shipment data and documents** (bills of lading, commercial invoices) are received from customer shipments. Heterogeneous document formats and various degrees of completeness must be harmonized before declaration.
2. Once all necessary data and documents are thoroughly completed and successfully harmonized, **the goods are declared**, and must be translated into **valid customs codes** to be accepted by customs.
3. **Customs officers validate** the given information, provide tax statements, and release goods.
4. **Brokerage costs** are invoiced to the customer according to commercial agreements.

DHL claims that the major issue with customs declarations today is that they rely on highly complex manual processes that require skillful knowledge of regulations, industries, and customers. It is also an effort-intensive process; information must be cross-referenced and validated from customer and carrier documents, regulatory bodies, and government-specific forms. All of this necessitates close attention to detail yet, of course, it is difficult for human workers to maintain consistent levels of concentration throughout the workday.

This can result in costly mistakes; companies may incur non-compliance fees and demurrage charges for goods held in customs too long.

The solution is AI based for the customs brokerage service firms use:
An enterprise AI platform like IBM Watson can be trained with legislative materials, regulatory documents, customs brokerage SME knowledge, and customer and industry handbooks to learn how to automate customs declarations. Using natural language processing and the self-learning capabilities of deep learning, a customs brokerage AI could ingest customs documents in myriad formats, extract relevant information using its collected body of knowledge, and present an automatic declaration. When the **AI-based system** runs into an exception case, **a human customs brokerage expert** could review the declaration. Their input as well as **each automated declaration** provides new data with which the AI-based system **can continue to improve its performance**.

High Level of Connectivity Players

This category is the most common one. The companies included under the category offer high level of connectivity to customs and all the port community systems with 'seamless integration'.

These solutions are highly integrative – supporting multi-channel sources of information and a hub to many stakeholders in the ecommerce customs clearance process.

However, they are **not utilizing** breakthrough advanced **AI/machine learning** capabilities.

Company Name #1

Founded: 1994

No. of Employees: 1,500

HQ: Australia

Short Description

Acquisitions: ...

Advanced Capabilities: ...

Opportunity:

As evidenced, the company seems to have an organic and **inorganic growth strategy**. **COMPANY NAME** might have capabilities that could contribute to **Company Name #1** and fit its strategy.

Company Name #2

Founded: 1994

No. of Employees: 1,500

HQ: Australia

Short Description

Acquisitions: ...

Advanced Capabilities: ...

Opportunity: ...

Innovative Startups

COMPANY NAME Tech is falling under this category.

We found only a handful of startups which offer smart solutions to improve the ecommerce customs clearance process, by utilizing AI and machine learning capabilities.

Company Name #1

Founded: 1994

No. of Employees: 1,500

HQ: Australia

Short Description: ...

Acquisitions: ...

Advanced Capabilities: ...

Company Name #2

Founded: 1994

No. of Employees: 1,500

HQ: Australia

Short Description: ...

Acquisitions: ...

Advanced Capabilities: ...

Concluding Remarks

The market research focused on current and future software solutions for the customs clearance phase.

We recognized several phases which are crucial: facilitation, risk management/assessment, and control & enforcement.

Country Level Analysis

On **the geographical level** we identified several countries which are exploring their path to a smart advanced customs clearance software solution with different levels of maturity.

 **South Korea** is leading ahead by far the evolution of ecommerce customs clearance software domain with its UNI-PASS system. We may expect other countries to follow S. Korea footsteps.

 **The Netherlands** is one of the EU regional leader in that regards. It's derived by a real pain: around 30 percent of all import declarations in the EU are processed by Dutch Customs. It is impossible to check the contents of all packages and containers coming in here. **AGS2** is the new country **import declaration system**. **IBM** had been selected to be the software solution provider. The central module of AGS import is universal in design, so that it may also be used (or considered to be used) by other EU member states in the future.

Company Level Analysis