# Pandora Intelligence

data-driven risk assessment of cargo shipments starting from bill of lading, leveraging data sources and generating actionable and predictive intelligence to prioritise highest risk cargoes

the challenge

Cargo and freight companies, such as carriers/shippers, freight forwarders, and other logistics operators, are required to comply with international laws and regulations. These continuously increasing compliance and safety measures extend beyond the cargo itself, encompassing the shipment stakeholders and process. With the grow of e-commerce and specifically battery-powered devices, the increase of dangerous goods in cargo represents growing concern for safety in the shipping process.

Cargo and freight companies face significant challenges arising from resource constraints. These limitations involve financial constraints, technological gaps, and a scarcity of human resources, impeding their ability to timely assess cargo risks in-depth and with consistent quality. This obstacle not only heightens the risk of non-compliance, but also hampers their ability to minimize risks related to dangerous goods, resulting in additional costs and delays, impacting their competitive position in the industry
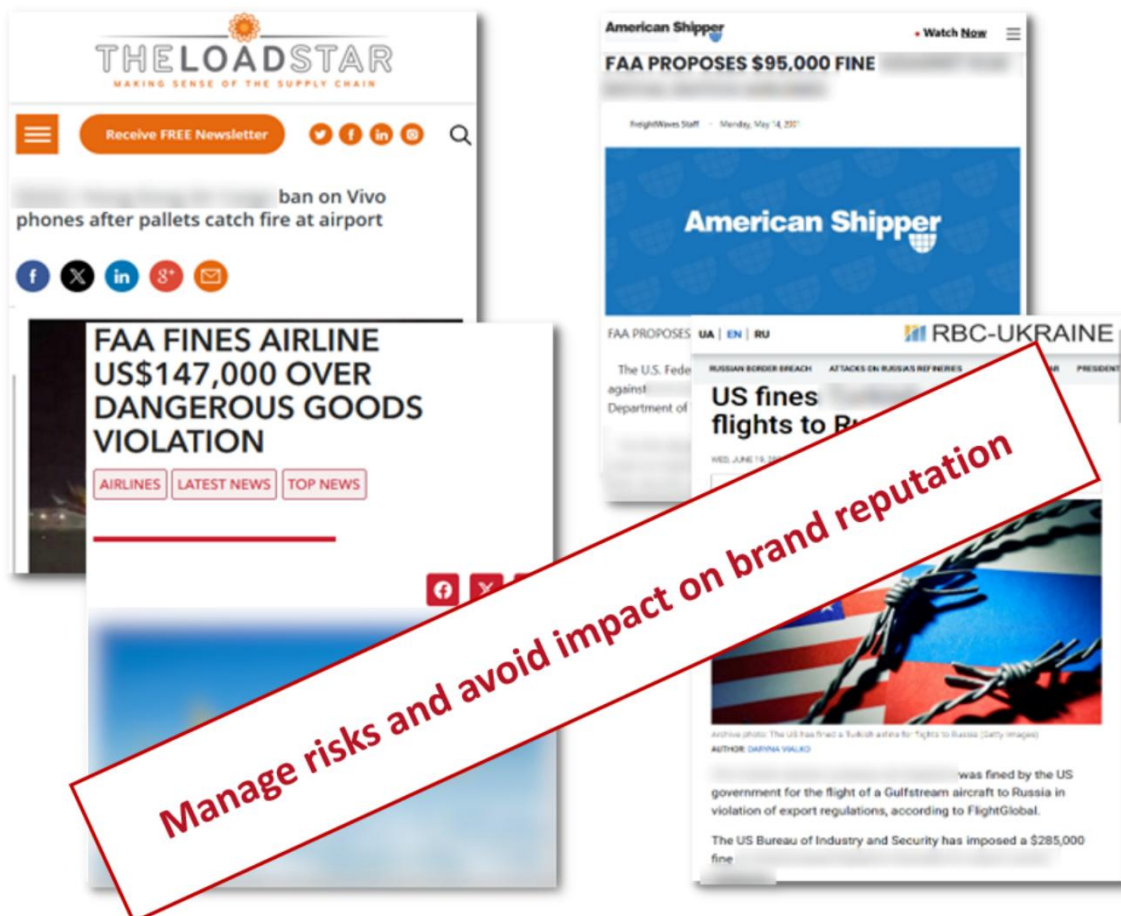
Sanctioned entities, restricted / controlled goods, strategic (military and dual use) goods, and dangerous goods are often detected too late in the cargo journey, while most of the required information is often already available at booking!

the innovation

With a goal to empower cargo and freight companies in identifying (safety) risks and mitigating them to an acceptable level, we decided to build Cargo Intelligence.

Cargo Intelligence provides a data-driven risk assessment of cargo shipments, taking the air waybill / bill of lading as starting point. Then, leveraging numerous open (or closed) data sources, Cargo Intelligence generates actionable and predictive intelligence. This empowers analysts to focus on decision-making (instead of data-gathering), and prioritize their work on the cargo which poses the highest risk to their business.
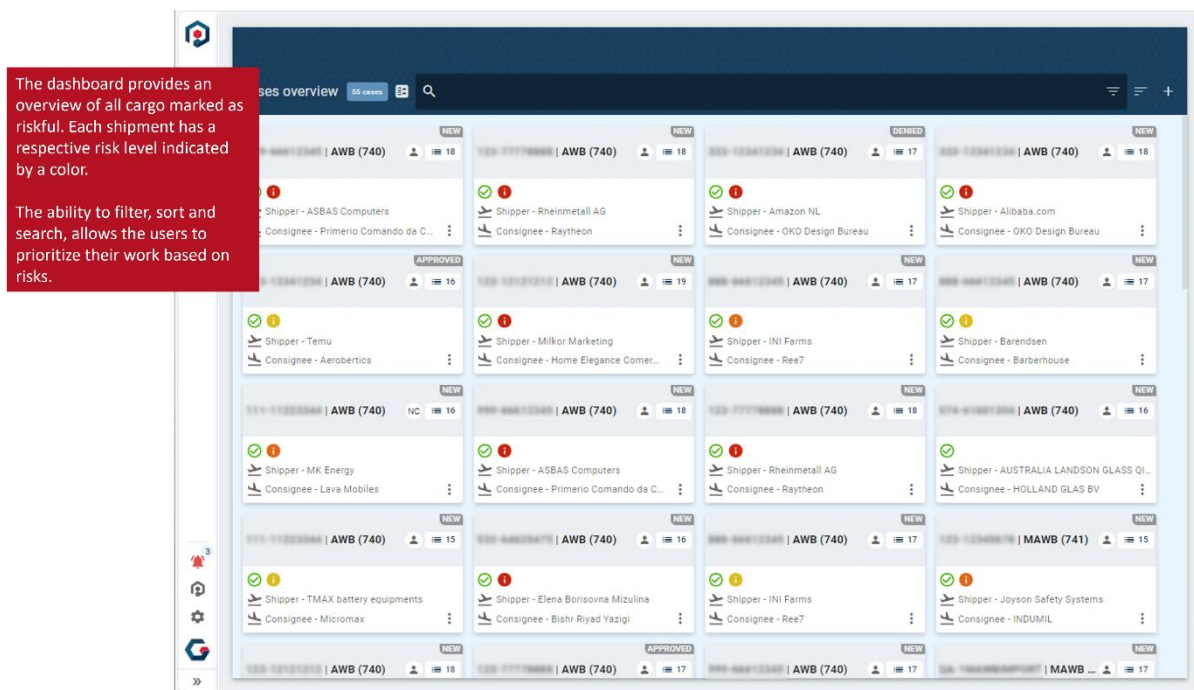

Using our API, a copy of the air waybill / bill of lading is sent to Cargo Intelligence to perform the risk analysis early in the journey (at origin or pre-acceptance) and avoid potential disruption of operations and business.
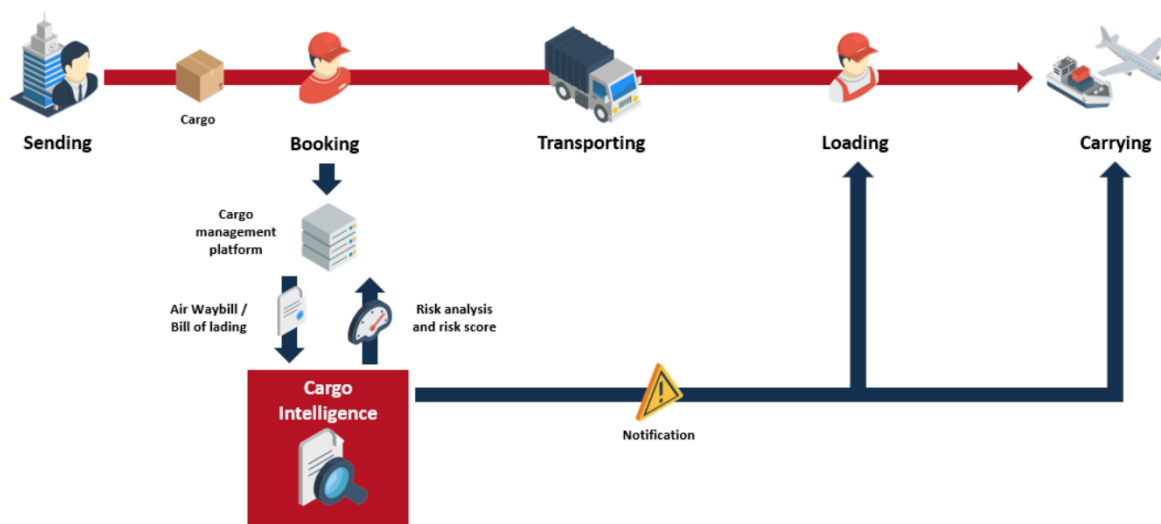
By automating and enhancing the cargo screening using our AI models we:

- avoid false positives (wrongfully detected risks which burdens the teams)
- make it possible to detect dangerous goods, even when hidden (undeclared)
- enable detection of embedded dangerous goods (e.g. devices with lithium batteries)
- make it possible to process high volumes of cargo in a timely manner (a few seconds instead of hours per shipment)
- provide consistency in the risk assessment (in contrary to analysts which might have different knowledge and expertise)

This results in the ability to make faster, more accurate and consistent decisions in the screening process, and ensure compliance and safety

The dashboard provides an overview of all cargo marked as riskful. Each shipment has a respective risk level indicated by a color.

The ability to filter, sort and search, allows the users to prioritize their work based on risks.

how it was implemented

To replace carriers/shippers static lists which were resulting in too many false positives and mismatches (even when using smart, configurable, algorithms), we built AI models to interpret text as humans would do. With that capability, we started teaching those models which text (paragraphs or sentences) include information about goods that could represent a risk for cargo carriers/shippers (e.g. types of dangerous goods).

After processing large volumes of cargo shipments we realized that despite an exceptional precision in the detection of risks, it was still important for our specialists to regularly train the AI models due to the changes in market trends and new products or technologies being developed (e.g. replacement of NiMh and NiCd batteries with Li-ion or Lipo technology).

Therefore our ultimate solution has been to replace our AI technology with models fed on all publicly available information.

By assessing the background and/or business of the consignor and consignee, by looking into countries of origin and destination, and by correlating all of it with the information available in the goods description, it became possible for our Cargo Intelligence solution to precisely pinpoint the cargo which might represent compliance and safety risks. By doing so, we can empower carriers/shippers to act before cargo potentially gets stuck in their warehouse, or before it mistakenly get loaded in their planes or vessels.

result

Since implementation of Cargo Intelligence, detection of risks (previously undetected) rose by more than 18%, and false positives declined by more than 84%; most importantly, not a single fine has been imposed.
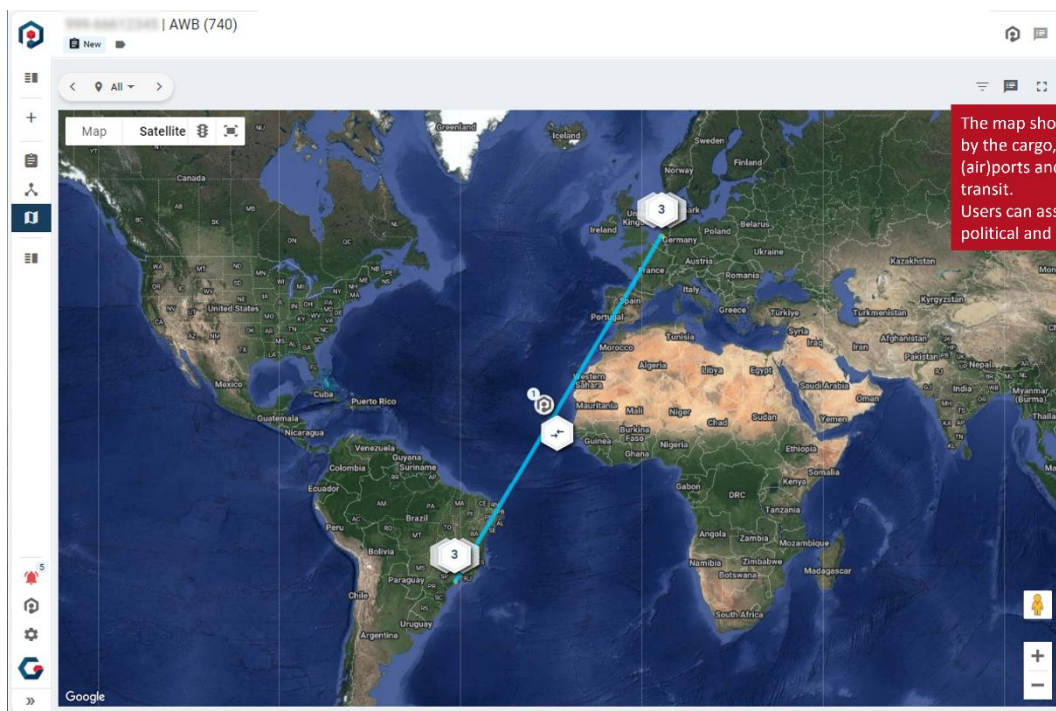
By taking away all the cumbersome work (data gathering, research, list checking, etc.) we enabled analysts to spend their time on what they are good at: making decisions.

In addition, with the risk levels being suggested by Cargo Intelligence, the analysts could suddenly also prioritize their work by first clearing cargo which poses the highest risk to the business.

So far, the visible results have been the sharp decline in fines (and undesirable brand exposure for non-compliance), a lower impact of risk management on operations, with the ability to prioritize handling of potential high risk cargo by both the analysts and the handlers, and the ability to clear all of the cargo timely and proactively with risk assessments being perform pre-acceptance. The consistency added by the automation resulted in less human-errors, thereby a reduced dependency on manual labour and thus cost savings related to the staffing challenges.

LINK: https://www.pandoraintelligence.com/