

# ***Digitalization of containerized dangerous goods declaration process***

## **PROJECT SUMMARY**

### Introduction

The IPCS (Israel Port Community System) Founded at 2005 for promote the Israeli maritime trade by providing infrastructure which enable transference of E-messages between all different operators taking part in Israeli sea trade. It also promotes the use of single window.

The IPCS reach the best balance between the need to keep the ports independent in order to create free competition that would improve service and efficiency and the need to maintain order through uniform codes and reports, working methods and common interfaces for each sector in sea trade.

Today almost all processes of Israeli maritime transport are carried out paperless. One of the few processes still not computerized is the Dangerous Goods Declaration in container export process.

The partners in the supply chain that taking part in the Dangerous Goods Declaration are: exporters, ship agents, forwarders and custom, ports and ports authority.

### The project

In order to enhance safety, protect the environment, reduce time and cut costs, a year ago the IPCS (Israel Port Community System) started

a national project of computerizing the dangerous goods declarations in container export process.

The first step of the project was to build a community database of authorize signers who met the requirement of the certification course, According to "Carriage of Dangerous Goods by sea in packaged form (IMDG Code), maintained by the Israeli Ports Authority. The database enables more accurate management of authorized signatories and tracks the authorization expiry date. The system also sends alerts when the authorized signatory is required to undergo training for Certification renewal.

In addition, we have developed a platform that is accessible to all maritime community users to create the declarations by using Online interface Service from their operating systems. In the new process the exporter create the declaration form in maritime system, sign it and send it to custom agents and ship agents via Israeli Ports Authority.

A year ago, in October 2015, the IPCS started implementing the entire project. IPCS teams visited exporter custom and ship agents all over the country, held system use training meetings and established a support team that gives an online response to the end users.

The system will be in use also by the Ministry of Environmental Protection to enforce hazardous waste export limitations.

The final part of the project is to create a national database for MSDS (Material Safety Data Sheet) which describes for each material the instructions for treatment in case of leak or fire. At the Dangerous Goods Declaration Exporters will link to the appropriate MSDS. In case of emergency the transports companies or rescue services or the ports will be able to immediately access the MSDS with the appropriate instructions for the specific container.

The project intends to make improvements in the transport containers containing Dangerous Goods:

- A. Using a standard form of declaration approved by the Israeli Port Authority and IMDG code.
- B. Validation of the Declaration by authorized signers. Only authorized people who know the dangerous materials and successfully completed the appropriate training course can fill in and sign the declaration; this ensures safety and security.
- C. Improve data and information exchange - Single window – the shipper fills in the declaration, and other maritime community members (custom agents, ship agents) and government officials (Port authority) receive the data.  
It also increases transparency by all members who can see the updated information on line.
- D. Saves time for ship agents – they don't have to come to the Ports authority premises to obtain an approval for the dangerous goods ship loading plan.
- E. Environmental protection – By adopting an electronic archiving solution, there is no longer a need to print documents to keep a copy neither some sort of a location store these records.
- F. MSDS - Improved safety and security - transport companies and ports know how to handle all material correctly in case of failure.
- G. The software is taught in courses, which empowers the signatories.  
This ensures that all students will work according to the same standards.

During 2016 we implemented the system with exporters, customs agents, ships agents. We expect the ports authority to declare mandatory reporting using the system starting 1/4/2017.

## Results achieved

After a year we can say that more than 100 exporters registered to IPCS services.

80%-90% of exports Reported a declarations through the system.  
Today 41% of dangerous goods declarations are transmitted to Israeli Port Authority by using the IPCS online services. At this stage it reflects full integration and we achieved efficiency and interconnectivity along the logistics chain.

One company that exports about 40% of Israel's exports of hazardous materials was registered in the last few days and will soon begin to send computerized declarations.

The new system enhances integrational procedures by supporting the creation of declarations directly from the exporters' IT system by using xml file to IPCS system. This xml file is received by the IT system of the customs agents and ship agents.

We establish a new Workflow system that intended to do without printing documents and their movement within different departments for validation.

The Israeli Ports Authority has informed us that the project improves safety and security because the declarations data is improved due to preventing errors as a result of repetitive typing.

Today signatories are certified by the system, and signature verification is not required for every statement by the Ports authority. Consequently, the approval time of dangerous goods declarations has been shortened to a few hours – compared to days, when the statements were filed with paper.

The system increases transparency by publishing the authorized list, and allowing the MSDS forms to be viewed as needed.

## Obstacles overcome

In the implementation of the project, we had to cope with a number of issues.

- A. Introducing the system to all the dangerous materials exporters.  
Each week we get lists of dangerous shipments from the ports.  
We reach every exporter by phone and email and even arrange training sessions in the factories.
- B. Getting data from exporters' IT systems.  
Large exporters of dangerous materials decided to build an interface that generates the declarations directly from their operational systems. The interface is used as an alternative to working through online web pages.  
In order to avoid double data entry, we developed an xml message that the IPCS system get from the IT systems.  
This message will create the dangerous materials declarations in the system.
- C. Teaching the authorized signers of declarations how to use the IPCS system. We created a pilot environment and introduced it to the Authorized Training School for transporting dangerous cargo at sea.  
The trainers demonstrate the system in the class, and give the students an experiment environment.
- D. Convincing the community that a physical signature is not needed.  
The local ship agents keep demanding the physical signature of the authorized signers. With the Israel Chamber of Shipping we explained that the first step in the project was the establishment of a computerized database of authorized signatories in the Israeli

Israeli Ports Authority. In each declaration, the system crosschecks the signer information in this database.

- E. Ship agents and custom agents had difficulties giving up the paper format.

We explained that at any moment, they can view or print the declaration from the system. At implementation we have seen huge savings in printouts, which contributes to environmental protection

- F. Large exporters who have factories all over the country note that a number of people can work on the same declaration in different locations.

The problem was solved when we explained that the system works on the platform of the Internet, so each user can get into the system from every location.

## **The Dangerous goods declarations technology base**

In the project we used the common and well-known technologies of Google Inc. Open Source Angular JS with the support of WebApi as intermediate level of data getter and setter.

The WebApi then applies a WCF service that acts as the Business Logic and Data access layer.

This structure gives us the ability to let our customers operate the WebApi Methods either from the UI screens or by applying the WebApi using REST Services for B2B data interchange.

The bigger user in the Israeli dangerous materials group is applying to web services to transmit information directly from their IT systems. Our smaller users that don't have the ability to develop interfaces to our WebApi services are using the online web page for managing their data.

