Asia-Pacific Model E-port Network (APMEN) Visualisation of Sea Freight Logistics
亞太示範電子口岸網絡的海運物流可視化計劃

Improving visibility, integrity and transparency of cross-border trade in the Asia-Pacific
改善亞太地區跨境貿易的可見度、完整一致性及透明度

Background

Ports play an important role in the supply chain acting in the first place as a transportation hub, as well as an information hub. Yet, finding the most suitable and accurate source of information is not an easy task in a global supply chain. Shippers and logistics operators need to be able to share information documents with operators and administrators of other ports to achieve "end-to-end" visibility.

Thus, the APMEN Visualisation of Sea Freight Logistics Phase I project was commissioned, to improve the visibility, integrity and transparency of cross-border trade in the Asia-Pacific by automating the exchange of Sea Freight data between APMEN members and using GS1 Global Data Standards.

Project Overview

The project was undertaken by APMEN and its members (NSW Ports, Xiamen E-port and Shanghai E-port), DP World (Australian port operator), GS1 Australia, GS1 China, GS1 Hong Kong, and GS1 Global Office.

The initial challenge of the project was to map and review the end to end processes for both imports and exports between participating ports. Through this process of mapping exercise, the project team identified common process "events" which were deemed critical, and which would trigger the exchange of Sea Freight data between participants for improved visibility.

Project Approach

For each critical event, data standards were developed to capture information about these events as the basis for the data exchange. Data attributes such as Container ID, Vessel ID, etc. were agreed and aligned to the GS1 EPCIS Standards.

GS1 EPCIS is a global data standard that enables physical supply chain critical tracking events (e.g. a container being loaded on a vessel) to be defined, and for event data (e.g. what, where, when, why) to be captured and shared across enterprises so that users can gain a shared view of inventory as it transitions between process steps across an extended supply chain. It is necessary to achieve inter-port information connectivity through the world's prevailing standards, which is the foundation of realisation of the 'global e-port community'

A single technical platform (ezTRACK™ – an EPCIS-Compliant cloud-based traceability solution) developed by GS1 Hong Kong was used. The platform was configured specifically to meet the process and data requirements, so that participants could record actual event data for each critical event onto ezTRACK™ which enabled data exchange and reporting.

背景

港口往往是運輸樞紐的首站,亦是承載資訊的關鍵環節,在供應鏈上擔當著重要的角色。然而,在全球供應鏈中找出最合適及準確的資訊來源卻非易事。航運及物流營運者需要與其他港口的業界同儕及監管機構分享資訊文件,才能達致端到端的透明度。

亞太示範電子口岸網絡(APMEN)的海運物流可視化首階段計劃因而展開,運用GS1全球數據標準將APMEN會員間的航運數據溝通自動化,目標是改善亞太地區跨境貿易的可見度、完整一致性及透明度。

項目概覽

APMEN與其成員新南威爾斯口岸(NSW Ports)、廈門電子口岸及上海電子口岸,聯同DP World(澳洲港口營運商)、GS1澳洲、中國物品編碼中心、香港貨品編碼協會(GS1 HK)及GS1總部一同推行該項目。

項目初期的難題,在於對接和審視參與口岸之間的出入口貨品、整個端到端的過程。在對接過程中,團隊確立了多項關鍵的恒常流程、統稱「事件」,該些「事件」會引發參與者之間的航運數據交流,提升流程可見度。

推行項目方法

團隊會就每一項重要「事件」而發展出一套數據標準,方便擷取這些資料以作交流。團隊會運用GS1 EPCIS標準,協調不同數據如貨櫃號碼、船號碼等的標準。

GS1 EPCIS是全球數據標準,能夠確立實質供應鏈發生的重要追蹤「事件」(如貨櫃運送上船)變成數據,讓該些數據(什麼物件、在什麼地方、什麼時候、為何)被收集及分享至不同企業。當貨品在供應鏈上不同過程中流動時,用戶都可透視庫存內容。利用全球最普遍的標準將口岸之間的資訊連結起來,是達致「全球電子口岸社群」願景的基礎。

項目運用了GS1 HK開發的蹤橫網™(ezTRACK™)技術平台(蹤橫網™是符合EPCIS標準的追蹤追溯雲端解決方案)。平台根據項目的流程及數據要求而作出了調整,讓參與者能在蹤橫網™中記錄真實的關鍵「事件」數據,方便數據交換及匯報。

Key ports events for sharing
關鍵口岸「事件」分享

| 1.0 Export: Container Receipt 出口：貨櫃收貨 | 2.0 Export: Customs Status 出口：海關狀態 | 3.0 Export: Load Container on to Vessel 出口：貨櫃上船 | 4.0 Export: Vessel Departs 出口：貨船離港 | 5.0 Import: Vessels Arrives 入口：貨船到港 | 6.0 Import: Unload Container from Vessel 入口：卸貨下船 | 7.0 Import: Custom Status 入口：海關情況 | 8.0 Import: Container Departs the Port 入口：貨櫃離開口岸 |

The project implemented a basic process flow that enabled participants to capture four export and four import events and record these in the GS1 EPCIS Sandpit (ezTRACK™).

項目展示了基本的流程，讓參與者能在建基於GS1 EPCIS標準的蹤橫網™內，記錄出口及入口各四項「事件」數據。

GS1 HK had contributed to the development of comprehensive GS1 Global Data Standards to support the exchange of critical Sea Freight data between ports and other key stakeholders including Freight Forwarders, Cargo Owners, Transport and Logistics providers and Government Agencies. The team had also made modifications to ezTRACK™ to deliver additional query, display, report, integration functionality and other technical support.

The scope of Phase 1 involved the tracking of inbound and outbound containers between three ports – NSW Ports in Australia, Shanghai ePort and Xiamen ePort in China using the ezTRACK™ solution.

GS1 HK參與了擬定全面的全球數據標準工作，以支援各口岸及主要持份者的航運關鍵數據交換，當中涉及貨運代理人、貨主、運輸及物流服務供應商和政府部門等。GS1 HK團隊亦對蹤橫網™作出了調整，以提供額外的物流查詢、顯示、匯報、融合功能及其他技術支援。

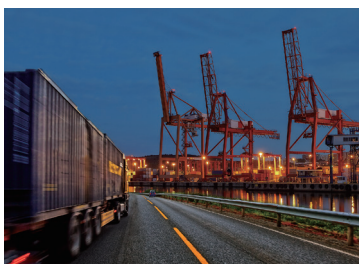第一階段涵蓋了三個口岸(澳洲新南威爾士口岸、中國的上海電子口岸及廈門電子口岸)，以蹤橫網™方案追蹤入境及出境的貨櫃。

Benefits

The exchange of critical Sea Freight data between ports can deliver benefits to participants, including

- **Greater transparency in container movements;**
- **Improved planning of port operations through increased visibility;**
- **More efficient track and trace operations;**
- **Better access to data for port management systems;**
- **Better customer service support to port community stakeholders.**

The majority of participants provided insights into potential benefits, and particularly that the sharing of data and events would deliver:

- **Implementation of early warning systems;**
- **Visibility of vessel location and status;**
- **Improved track-and-trace;**
- **Strengthening regulatory and operational effectiveness.**

效益

口岸之間互換關鍵航運數據能為各參與者帶來效益，當中包括：

- **提升貨櫃運輸過程的透明度；**
- **透過提升可見度，改善口岸運作計劃；**
- **更有效率地在營運中實踐追蹤追溯；**
- **更易掌握口岸管理系統的數據；**
- **為口岸社群的持份者提供更佳的顧客服務支援。**

大部份參與者都對當中的潛在效益提出見解，特別指出數據和事件的互換可有助：

- **實踐預警系統；**
- **船隻位置及狀態的可見度；**
- **改善追蹤追溯；**
- **強化規管及營運效率。**

"It is suggested that the next step is to promote the model within APMEN members to improve the efficiency of data connectivity between other member ports in the future.
建議下一步在APMEN成員間推廣項目，期望未來可改善成員口岸之間的數據聯通效率。"

Wayne Q. Y. Gu 顧勤毅
International Cooperation Manager
E&P International, Shanghai ePorts-Easipass
上海電子口岸億通國際國際經理

GS1 Standards used 應用的GS1標準

Global Location Number (GLN)
全球位置編碼

Global Trade Item Number (GTIN)
全球貿易貨品編碼

Serial Shipping Container Code (SSCC)
貨運容器序號

Electronic Product Code Information Services (EPCIS)
產品電子代碼訊息服務

Global Individual Asset Identifier (GIAI)
全球個體資產識別碼

Global Shipment Identification Number (GSIN)
全球貨運識別碼

Solution(s)/Service(s) applied 應用的解決方案 / 服務

ezTRACK™
蹤橫網™