

Intermodal Global Door-to-Door Container Supply Chain Visibility

INTEGRITY



Project News

INTEGRITY – Intermodal Global Door-to-door Container Supply Chain Visibility



The INTEGRITY project aims at significant improvements of the reliability and predictability of global door-to-door container transports by optimizing the cooperation between transport industry and Customs Authorities in the China-EU trade corridor. The consolidation of data will significantly improve the transparency of the transport chain. At the same time the container security will be significantly improved, for example by providing access to reliable sources of consignment information.

The core of the project is the development of the Shared Intermodal Container Information System (SICIS) allowing authorised companies and authorities to access planning and status information of selected consignments. The challenge of SICIS is the combination of existing technologies and new business processes together with legal and administrative agreements. Proactive planning according to the SCEM (Supply Chain Event Management) approach allows problems to be forecast well before they might occur. Matching logistics

data with security information, including data from electronic seals, container security devices, and scanning equipment, together with the integration of the AEO (Authorised Economic Operator) concept, are basic measures.

Customs and shippers/3PLs are satisfied in one integrated approach. Several recent investigations show that the enhancement of Supply Chain Visibility provides significant benefits for all participants in the chain – both industry and Customs – this was already validated during the project.

The INTEGRITY project is funded by the European Commission in the 7th Framework Programme for Research & Development and liaises with several EU Directorates.



INTEGRITY covers the entire container transport chain from China to the EU

SICIS – An open IT platform providing Supply Chain Visibility

In September 2009 – after a project duration of one year - the open IT platform SICIS started to track containers along the entire logistics chain by consolidating all relevant data and related events which are generated during the transport. Since then SICIS regularly monitors containers during their door-to-door transport from China to Europe. As an example, interfaces to terminal operating systems were developed in order to feed terminal messages into the system. Another important feature is linking the container monitoring data with AIS vessel tracking information provided by satellites.



An important SICIS feature especially for Customs is the possibility to upload consignment data, which can be used by Customs to further optimize risk assessment processes.

"We want to become the "First Choice" for our customers, employees and investors and are therefore always searching for good innovations and means to improve the service to our customers and make our processes simpler and more transparent.

SICIS would enable real-time information sharing of various parties along the supply chain resulting in better visibility, i.e. including the container terminal at origin, container terminal at destination and Customs.

We are using DHL controlled containers for this trial with CSDs and it allows us to perform pro-active monitoring of the supply chain. Equipping these containers with GPS devices enables us to view the container's current location and to see the security status of the container, i.e. if the doors have been opened.

These enhancements will lead to reliability of the overall supply chain, enhanced security and a potential "Green Lane" by Customs in future."

**Johan van Wensveen, Manager
Logistic Competence Center,
DHL Global Forwarding**

SICIS is an open IT platform. It can easily be adopted to any tradeline worldwide. Due to its sophisticated interfacing possibilities, there are practically no limitations in data exchange with other systems.

SICIS – An open IT platform providing Supply Chain Visibility

Amongst others, interfaces to platforms like the EU projects Smart-CM dealing with similar aspects of container visibility and CHINOS addressing the issue of RFID in container logistics were developed. Furthermore, data exchange with new cooperation partners like DP World was established, the latter being the second of the worldwide leading terminal operators implementing data exchange with SICIS in addition to project partner Hutchison.

SICIS is able to interact with any kind of Container Security Device (CSD). Interfaces to CSD provider Savi Networks and China-based CIMC and Long Sun were developed, negotiations with several further CSD providers are in progress.

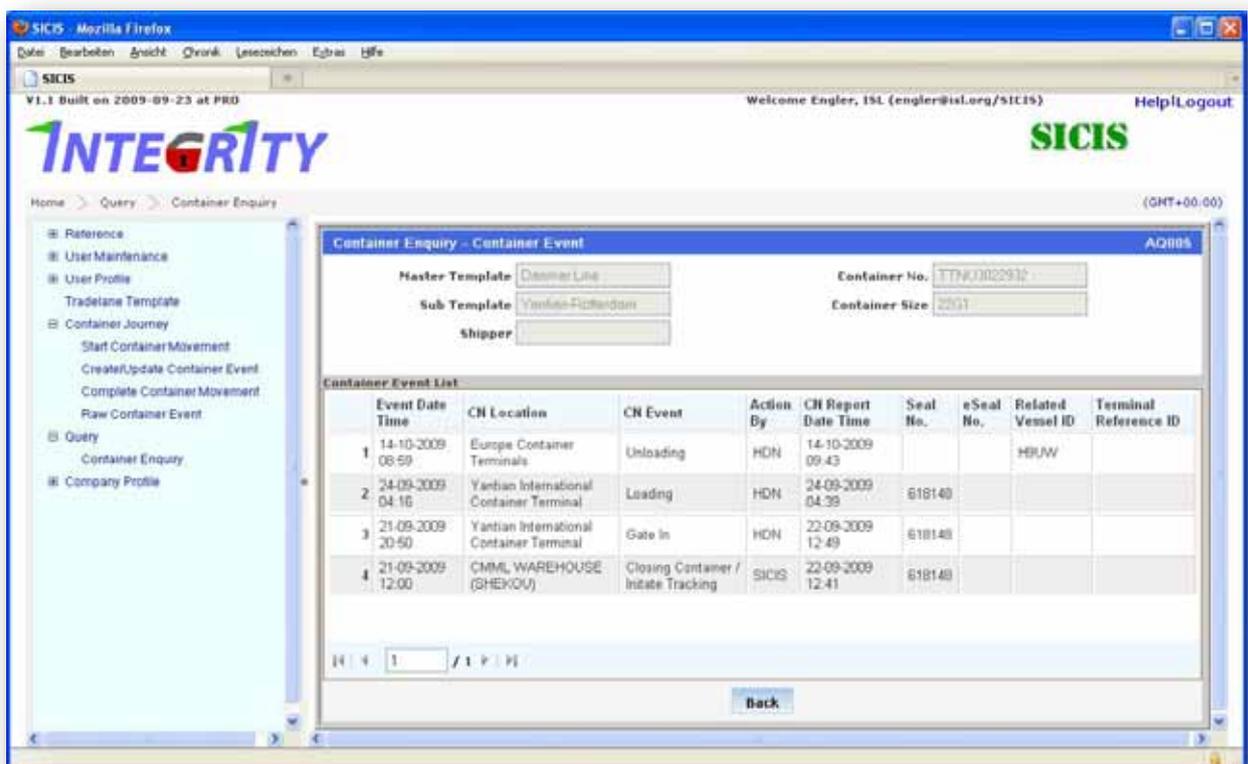
CSDs are responsible for initiating the container monitoring by sending a "start journey"

event when the container doors are closed and for sending security events such as "door opened" to SICIS. Furthermore, CSDs provide regular updates of the container position by using GPS.

"At the moment, the only movements we can guarantee accuracy on are those in SICIS. For us SICIS is proving to be a lifeline."

**Robin Smith, Senior Manager
Research, BAP Group Ltd**

However, it should be noted that the INTEGRITY approach is in no way dependent on CSD use. Equipping each and every container with a CSD in the near future is unlikely. Therefore, SICIS is still capable of monitoring conventional containers not equipped with a CSD.



The screenshot shows the SICIS web application interface. The main content area is titled "Container Enquiry - Container Event" and displays a table of container events. The table has the following columns: Event Date Time, CN Location, CN Event, Action By, CN Report Date Time, Seal No., eSeal No., Related Vessel ID, and Terminal Reference ID. The table contains four rows of data:

Event No.	Event Date Time	CN Location	CN Event	Action By	CN Report Date Time	Seal No.	eSeal No.	Related Vessel ID	Terminal Reference ID
1	14-10-2009 09:59	Europe Container Terminals	Unloading	HDN	14-10-2009 09:43			HRW	
2	24-09-2009 04:16	Yantian International Container Terminal	Loading	HDN	24-09-2009 04:39	618148			
3	21-09-2009 20:50	Yantian International Container Terminal	Gate In	HDN	22-09-2009 12:49	618148			
4	21-09-2009 12:00	CMML WAREHOUSE (SHEKOU)	Closing Container / Initiate Tracking	SICIS	22-09-2009 12:41	618148			

SICIS provides access to all relevant information on monitored containers

Cooperations

INTEGRITY and China Customs

In March 2010 a delegation of INTEGRITY representatives was invited for a meeting at the General Administration of Customs of China (GACC) in Beijing. The high-level delegation of China Customs was led by Director Hao Chongfu.



During the meeting representatives of the INTEGRITY project illustrated the project approach and its current status. After the project presentations and exchanging information, inspiring and lively discussions followed. It was pointed out that GACC could be granted access to INTEGRITY's open information system SICIS aiming at enhanced supply chain visibility and improved Customs clearance processes in the same way as the participating European Customs.

The INTEGRITY project agreed to keep China Customs informed of the progress of the project resulting in further meetings to establish mutual information exchange.

Furthermore, INTEGRITY is the first project to achieve official approval by China Customs of the usage of Container Security Devices (CSDs).

DP World joins hands with INTEGRITY's IT system SICIS

On Friday 11th June 2010 DP World, one of the world's largest terminal operators, and the Consortium of the INTEGRITY project signed a cooperation agreement.

The direct outcome is the participation of DP World already in the project demonstration phase, intending to send terminal data on containers which are monitored

during the INTEGRITY demonstration and which are handled in DP World terminals to the open IT platform SICIS. For this purpose DP World is implementing the system interface with SICIS.

Demonstrations which are continuously running since September, 2009 show that SICIS is functioning properly in all parts and that it guarantees improved visibility and security of container transports.

DP World, one of the largest marine terminal operators in the world, with 49 terminals in 31 countries, took notice of the INTEGRITY research activities related to the company's interest to enhance customers' supply chain efficiency by effectively managing container transports. DP World's team of nearly 30,000 people serves customers in some of the most dynamic economies in the world like the Middle East and China.

Hutchison Port Holdings (HPH), the world's leading port investor, developer and operator, has already been involved as a partner in the INTEGRITY project since its inception. The new cooperation

with DP World extends the scope of the INTEGRITY project to additional ports and tradelanes, with the aim of improving efficiencies for customers globally.



Initialisation of a Container Security Device (CSD)

Cooperations

INTEGRITY negotiations with CSD providers

During the ongoing INTEGRITY demonstration phase since September 2009, the SICIS system is continuously monitoring containers on their way from Hong Kong and Yantian, China to Europe, namely Felixstowe and Rotterdam. Since March 2010, Container Security Devices (CSDs) are used to improve the monitoring process. The first CSDs were provided by CSD provider Savi Networks.

The first CSD equipped container started its trip from the DHL Consolidation Centre in Hong Kong in March 2010. After following the major INTEGRITY tradelane from China to Europe, the container was discharged at the Delta DDE Terminal of project partner ECT in Rotterdam in April and was unloaded at the DHL Global Forwarding Ocean Freight Warehouse in Rotterdam.



Johan van Wensveen, DHL Global Forwarding, and Dr. Albert Veenstra, Erasmus University Rotterdam, present the first CSD-equipped container

Since then SICIS tracks container movements by merging CSD data, terminal messages and AIS vessel tracking data on a regular basis. The vessels' positions together with related events like course divergences are visualized on a world map.

In the past, the starting event in SICIS was still a manual process performed by the factory where the container was stuffed. With the use of CSDs this process is also automated.

By closing the container, the CSD is activated. Immediately a GPS position is acquired and all details are transferred to the SICIS server. The GPS module and the GSM communication allow the reporting of waypoint events by using geo-fencing functionality. It also reports any tampering of the container. Possible gaps during the sea leg of the voyage are closed by integrating AIS signals of the vessel obtained via satellites.

However, it should be noted that, although the data quality provided by CSDs cannot be achieved by other means, the INTEGRITY approach is in no way dependent on CSD use. Equipping each and every container with a CSD in the near future is unlikely. Therefore, a manual start process and tracking based on terminal data only are still options, which already implies significant benefits.

SICIS is able to interact with any kind of CSD. The INTEGRITY Consortium established contacts to several CSD providers in order to achieve a possible cooperation. Recently, cooperation agreements were signed with two Chinese CSD providers, CIMC and Long Sun. Interfaces between SICIS and the CSD providers' systems were developed, such that the respective CSDs will soon be integrated in the INTEGRITY demonstration.

Cooperations with EU Projects

INTEGRITY closely cooperates with its EU-funded partner project Smart-CM which aims at similar improvements in global door-to-door transport chains. The different approaches of both projects will be combined in joint demonstration activities. An appropriate interface between SICIS and the Smart-CM platform is currently under development and will accomplish data exchange between the two systems.

In July 2010 the EU funded projects INTEGRITY

Cooperations

and e-Freight agreed to cooperate. The e-Freight project is aimed at supporting, from a transport perspective, the three pillars of European Policy, namely strengthening of the internal market and competitiveness, improving regulation to create a more dynamic business environment, and promoting sustainable development. The project will contribute to the goals of the Freight transport Logistics Action Plan and the ITS Action Plan pertaining to the development of, amongst others, a standard framework for freight information exchange covering all transport modes and all stakeholders, a European Single Transport Document, and a Single Window (single access point) for administrative procedures in all modes.

INTEGRITY will support e-Freight's standardization activities by providing access to relevant project results.

Logistics for Life (L4Life) is a Coordination Action funded by the EU. It will bring together leading logistics companies, technology providers and research organizations working on innovative ICT solutions to ensure the long-term sustainability of the logistics industry by increasing its operational efficiency. L4Life identified INTEGRITY's SICIS platform as a best practice, being a single point where all relevant logistics and security information are consolidated. INTEGRITY will further contribute to the cooperation efforts of L4Life.

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Programme and Registration
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Consortium



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Contact and Coordination

ISL Institute of Shipping Economics and Logistics

Prof. Dr. Frank Arendt, Director
Universitaetsallee 11-13
28359 Bremen
Germany
Tel.: +49(0)421/220 96-0
Fax: +49(0)421/220 96-55
Mail: arendt@isl.org

Dr. Nils Meyer-Larsen, Project Manager
Barkhausenstrasse 2
27568 Bremerhaven
Germany
Tel.: +49(0)471/30 98 38-53
Fax: +49(0)471/30 98 38-55
Mail: meyer-larsen@isl.org

www.integrity-supplychain.eu
www.isl.org