TIC4.0 NEWSLETTER

2nd Semester - 2023

2023

Embracing the 4th Industrial Revolution in the Port Terminal Industry

TIC4.0 Newsletter - December 2023

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TIC4.0 NEWSLETTER

Introduction

2023 has been a successful year for TIC4.0. The association keeps growing and delivering. In terms of members, seven new companies joined in the second semester, bringing the total above 50 members. This is a clear sign of the growing commitment and trust in the initiative from the port industry.

Regarding the technical side, publication 2023.009 was published in November. Covering new topics such as maintenance and Key Performance Indicators, the release is a significant publication which strengthens TIC4.0's Semantics and potential to represent any reality of the port process.

The second semester has also been an active one in terms of events and dissemination, with the focus on Asia. In September, TIC4.0's representatives headed to Delhi for the very first General Assembly held outside Europe, which included technical visits and events. Furthermore, TIC4.0 was Strategic Partner of the 2023 ASEAN Ports and Shipping Conference in Bangkok. The Asian activities ended with a presentation at TOC Singapore.

Back in Europe, TIC4.0 was present at the Assembly of the European project "FOR-FREIGHT" in Antwerp, Belgium, and the Vice-President Norbert Klettner was one of the speakers at the 20th Anniversary of "Fundación Valenciaport" Digitalisation Event.

Want to know more? Find out about our activities in the following pages!

IN THIS DECEMBER 2023 NEWSLETTER, WE WILL COVER THE MAIN TIC4.0 HIGHLIGHTS OF THE SECOND SEMESTER, NAMELY

1- TIC4.0 PUBLICATIONS

Concluding a year marked by significant technical strides, we proudly introduce our final publication of the 2023, showcasing an array of new definitions and terminal process concepts.

All publications are freely available for download from our website www.tic40.org

2023.009 PUBLICATION

GENERAL DOCUMENTATION

- **White Paper 'Maintenance' ensuring 'Health':** After defining in the last Release (TIC4.0 2023.008) what Health means, this time actions were focused on the subject Maintenance, defined as a group of actions that take place in order to preserve the asset's Health. A distinction on the Types of Maintenance (Corrective, Preventive and Predictive) has been made.

- **Maintenance Data Model:** A new Data Model for Maintenance has been developed to reflect the processes, concepts and definitions that concern this area of interest.

- **KPI White Paper:** This paper intends to create an understanding of the methodology of how any KPI (standard or exotic) may be calculated and represented using the TIC4.0 semantic. KPI = Represents in a consolidated way a reality, during a period of time, filtered, grouped and split in such a way that allows the reader to understand it creating value.

DEFINITIONS

- **Cargo:** The definition has been expanded to reflect and cover Reefer-Cargo characteristics '**TypeReefer**'. Furthermore, the concepts of **OEM**, **air**, **series**, and the **status** of '**unpowered**, **plugged** and **unplugged**' were defined as well.

- **General:** Concepts like **On**, **Off** and **Powered** were already defined in the previous releases of the "Container Handling Equipment (CHE)". These have been updated and moved to the "General" section.

- **Spreader**: Concepts related to different parts of the spreader have been the focus of this latest release, with the goal of achieving a common ground on the definitions. Furthermore, definitions on specific tools of the spreaders (**grapple arm**, **legs**, etc.) and parts of the unit have also been developed in this release.

'MAINTENANCE' ENSURING 'HEALTH'

Maintenance is a cornerstone of industrial operations, ensuring the **Health**, efficiency, and longevity of equipment and processes. In the industrial context, maintenance is not just a routine task, it's a strategic imperative for preventing disruptions and optimizing performance.

Regular maintenance, including inspections, lubrication, and component replacement, prevents breakdowns, reduces downtime, and extends the lifespan of equipment.

In TIC4.0 semantics, Maintenance as a subject could be summed up as an action taken to keep the health of an asset at the original level.

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Maintenance can be broken down into different segments depending on the level of the performed action and/or the time when this action is performed. <u>We then have:</u>

- **<u>Corrective maintenance:</u>** groups all the actions taken after a detected issue.

- **<u>Preventive maintenance:</u>** groups all the actions that must be done during the lifetime of the asset at a specific time and according to a specific sequence.

- **<u>Predictive maintenance:</u>** It aims to optimize the maintenance schedule and reduce downtime by detecting faults before a problem happens.

KPI WHITE PAPER

The aim of this White Paper

This paper intends to create an understanding of the methodology of how any KPI (standard or exotic) may be calculated and represented using the TIC4.0 Semantics. By using these Semantics, the TIC4.0 user is empowered to create KPIs which best suits his/her own requirements.
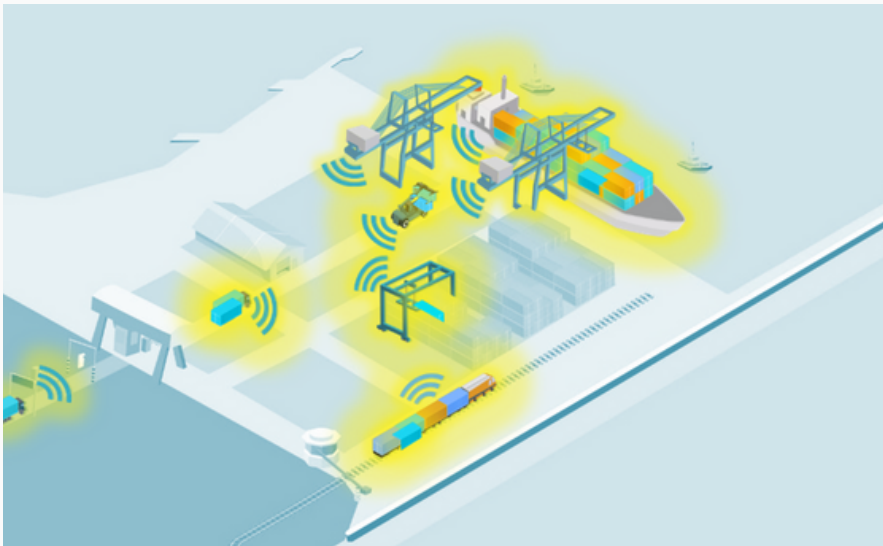
TIC4.0 KPI Semantics

The KPI Semantics defines the ontology to express a unique meaning of a KPI (consolidated reality) in just one "sentence" or long name. A KPI is always a mathematical formula that represents a dataset time series in a consolidated way. To achieve this, many attributes should be included in this sentence to consider all the dimensions of such consolidation.

CLICK TO ACCESS THE DOCUMENT

How can we represent the reality across time?
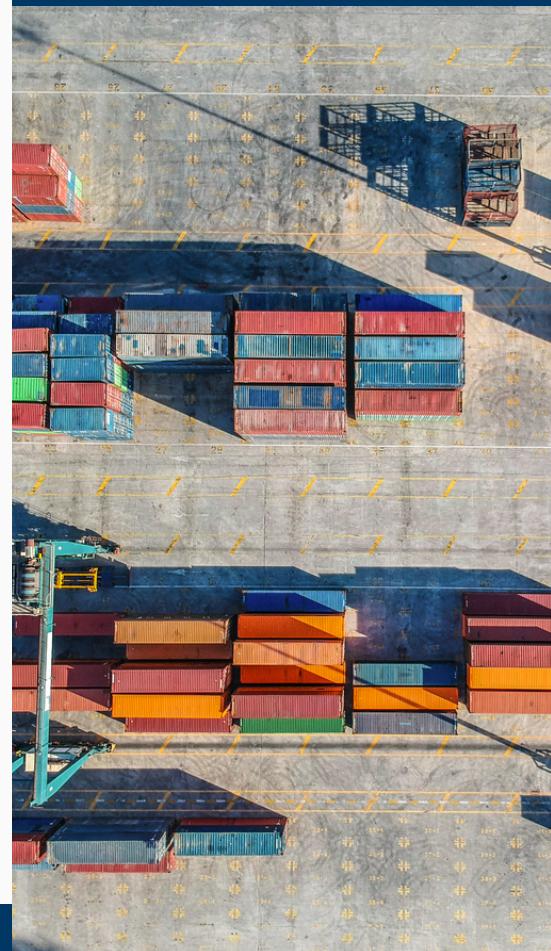
2 - TIC4.0 GENERAL ASSEMBLY DELHI - SEPTEMBER 2023

Highlights of the September TIC4.0 General Assembly & Conference

September 2023 witnessed the very first TIC4.0 General Assembly celebrated outside Europe in Delhi, India

A special conference and technical visits were organised alongside the main event, which included a tour of the largest Indian inland container terminal

On the first day, the TIC4.0 members were invited to visit the Tughlakabad Inland Container Terminal Depot, the largest Indian inland terminal and part of CONCOR India, in a technical visit that showcased the terminal's use of ATAI's AI-powered solutions implemented at the gate, rail terminal and yard. ATAI's AI solutions integrate TIC4.0 language for seamless connectivity and data integration.
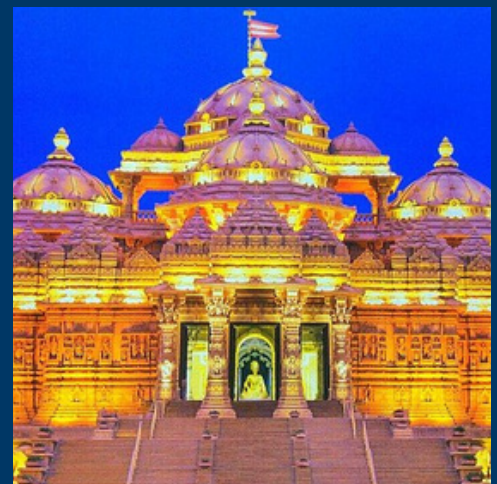
On the second day, the General Assembly, hosted by ATAI, took place in conjunction with the conference 'Maritime 4.0: The Way Forward' at the Imperial Hotel, Delhi. The TIC4.0 President, Boris Wenzel, delivered a Keynote titled ' Maritime Industry Operations: The Role of Standards' and the TIC4.0 Vice-President, participated in the panel 'Role of Standardisation in the Maritime Industry

The Members were updated on the association's matters by José Andrés Giménez, TIC4.0 Secretary General. Among these, the ongoing talks with BSI to create a Publicly Available Specification of the TIC4.0 Language were presented.

Finally, the TIC4.0 members gave a warm welcome to the new members that joined TIC4.0 since the March General Assembly.

3 - TIC4.0 NEXT GENERAL ASSEMBLY

Valencia (Spain), 19th April 2024

On behalf of the TIC4.0 Executive Council, we would like to announce the next TIC4.0 General Assembly Meeting, which will take place in Valencia (Spain) and kindly hosted by TIC4.0 Spain.

The next TIC4.0 General Assembly will be held in conjunction with the Container Terminal Automation Conference - CTAC, organised by Port Technology in Valencia, on April 19th, 2024.

The General Assembly will be hosted by TIC4.0 Spain in the Port of Valencia, leader port in the Mediterranean with future plans of automated terminal expansion.

4 - PARTICIPATION IN CONGRESSES AND CONFERENCES

TOC Asia 2023 - Singapore

TOC Asia 2023 completes an intense year in Asia for TIC4.0, being an strategic continent for the association to increase its presence and visibility

After being present at TOC Rotterdam, TIC4.0 headed to Singapore for the next edition of TOC Asia. The association's President, Boris Wenzel, together with our members Matthieu Desiderio and Mathew Paul from MILLE407 represented TIC4.0.

Matthieu Desiderio presented the context and challenges that the port terminal industry faces, namely:

- The urgency of SmartPorts: Highlighting the critical need for ports to evolve into 'smart ports' amidst increasing global trade pressures.

- Overcoming operational challenges: Addressing current inefficiencies and transforming these challenges into growth opportunities through digital technology.

- The mission of Terminal Industry Committee 4.0: Focusing on standardizing operations definitions and digital communication for interoperability in port-maritime ecosystems.

- Standardizing communication: Discussing TIC4.0's efforts to develop a universal language for efficient data exchange and operational integration.

- Data Management and TIC4.0: Emphasizing the importance of effective data management and using TIC4.0.

- Envisioning the future: Outlining the roadmap for TIC4.0, aiming to further embed standards and build a digital future for maritime trade.

ASEAN Ports and Shipping 2023 Ports and Shipping Conference - Bangkok

The Event

ASEAN Ports and Shipping 2023 was organised by our strategic partner Transport Events in Bangkok (Thailand). An important opportunity to share knowledge and learn from local operators and stakeholders. TIC4.0 particpated in the conference program with Boris Wenzel, Norbert Klettner as well as Matthieu Desiderio, José Andrés Giménez Maldonado and Gonzalo Sandiás Corbillón. Our organisation was also present with a booth in the exhibition area.

TIC4.0 Participation

TIC4.0 received the visit of Mr. Kriengkrai Chaisiriwongsuk, Director General of the Port Authority of Thailand who exchanged views on port standardisation, technology and innovation with Boris Wenzel and Norbert Klettner.

Moreover, Boris Wenzel participated in the conference session 'New Port Developments, Expansions, Port Financing and Smart Port Initiatives in the ASEAN Region' with a presentation introducing TIC4.0 activities and how the association is contributing to speed up the transition of port terminals towards the smart port model.

Presence of Members

It was a pleasure to see several members of TIC4.0 and to collaboratively showcase the association's commitment to supporting the industry on its journey towards standardization.

Members such as Camco Technologies, Konecranes, Siemens, Liebherr Group, and RBS were among the companies present.

5 - PROJECT OFFICE

The aim of FOR-FREIGHT is to develop an interoperable platform compatible across all steps of the logistics chain where the TIC4.0 Language can be used as a standard digital layer for the efficient exchange of data across the supply chain

Antwerpen General Assembly

From September 26th to 28th, the General Assembly of the European project FOR-FREIGHT met in Antwerp, Belgium to update and discuss on relevant matters.

Our Senior Project Manager, Jorge Melero, gave a presentation on the updates of the tasks TIC4.0 is leading, namely a document on standardisation and the Data Management Plan.

The aim of FOR-FREIGHT is to develop an interoperable platform compatible across all steps of the logistics chain. Three Use Cases will be demonstrated in Spain (transport from port to locker via subway trains), Greece (port to airport transit of cargo) and Romania (inland waterway to hinterland). TIC4.0's common language will be implemented in the platform to showcase its potential to foster interoperability and compatibility.

SEAMLESS

The EU Horizon Europe SEAMLESS project is heading for its second year, celebrating its General Assembly in Rome. TIC4.0 will participate as member of this innovation project.

TIC4.0 has been active in tasks related to the development of concepts for cargo handling interfaces. Our team, led by Gonzalo Sandiás, has been coordinating efforts with Fundación Valenciaport to craft them and present an innovative solution.

Regarding meetings and events, the consortium will head to Rome for the next General Assembly. There, the consortium will discuss and bring to the table relevant topics and advancements made by the work packages, seek consensus on new tasks and set the strategy for the coming months.

The SEAMLESS project, funded by the European Commission through the Horizon Europe Programme, aims at developing and adapting missing technology building blocks and key enabling technologies into a fully automated, economically viable, cost effective and resilient waterborne freight feeder service for Short Sea Shipping and Inland Waterways.

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The iTerminals4.0 project has been awarded at the WaterborneTP Awards 2023 in the framework of the WaterborneDays taking place in Brussels the 26th and 27th of September. iTerminals4.0, a project co-funded by the European Commission through the Connecting Europe Facility Programme (CEF) and CINEA - European Climate, Infrastructure and Environment Executive Agency, was awarded in the category of "Innovation".

WaterborneTP is an industry-oriented EU technology platform that brings together maritime stakeholders such as classification societies, shipbuilders, shipowners, maritime equipment manufacturers, infrastructure and service providers, universities, research institutes and with EU institutions, including Member States.

The Waterborne Awards jury, made up of representatives of the logistics industry and different General Directorates (DG) of the European Commission, evaluated the originality, value contribution and impact of the project as main criteria among thirty candidate projects.

The objective of iTerminals4.0, an initiative promoted by some of the founding members of the Terminal Industry Committee 4.0, has been the development and application of digital standards associated to operations in European port container terminals. iTerminals4.0 has achieved, for the first time in the port container industry, the seamless information exchange of operational information under the same digital language (TIC4.0 Language), demonstrating #interoperability among digital systems, platforms and port equipment from different manufacturers and solution providers.

The project developed, tested and validated these standards by applying them to four key operational areas in container terminals: operational performance, maintenance, energy efficiency and operational safety. Thanks to iTerminals4.0, the TIC4.0 Language has increased its degree of maturity and has demonstrated its scale-up potential for large-scale implementation in the sector, allowing the harmonisation of data generated by different port equipment and leveraging the use of #BigData as a tool for decision making.

The iTerminals4.0 consortium is composed by the TIC4.0 members Terminal Link SAS, Realtime Business Solutions Pty. Ltd., Konecranes, Hyster, PSA Belgium, Cargotec, ZPMC, Prodevelop, Kho Management, and with the technical and financial coordination of the Fundación Valenciaport.

6- TIC4.0 NEW MEMBERS IN 2023

In the second semester of 2023, five companies have joined TIC4.0 as full members and two as affiliated, broadening the scope of the association by providing their extensive experience within the industry and their different points of view, further enriching the growth and development of TIC4.0.

FULL MEMBERS

The company BTG Positioning Systems is a Dutch SME specialized in developing, producing and installing position measurement systems for automated container ports. The product portfolio consists of RF-based sensors for gantry and trolley measurement on all crane types, sensors for AGVs, Straddle Carriers, Trucks and IRM optical sensors for spreader position measurement, used for sway measurement and positioning. BTG is joining TIC4.0 as a full member port solution provider.

As a full-service provider in the field of maritime and intermodal transport consultancy, HPC provides an extensive international experience with a multidisciplinary approach. HPC was founded in 1976 as an independent consulting firm within HHLA Hamburger Hafen und Logistik AG. Ever since, HPC has established its reputation as leading consultancy for tailor-made solutions in supply chain logistics, especially ports, with a specific determination towards modern terminal operations worldwide. Today, around 100 experts work with HPC around the globe.

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FULL MEMBERS

MILLE407 is a French company based in La Rochelle. Its expertise areas are the development and operation of transport services (freight and passengers, urban and interurban) on the phases of design, construction, financing, operation and maintenance of port infrastructure projects.

TSB, based in Korea, is a maritime logistics solution company founded in 1988 specialised in port solutions and ship automation. The company's products portfolio includes solutions such as CATOS (Computer Automated Terminal Operating System), MOST (Multi-Purpose Terminal Operating System) and CASP (Computer Automated Stowage Planning). TSB continues to grow and move forward and extends the reach of its services, from shipping to port logistics and to intermodal services

V & V Comptech Systems Private Limited is an Indian IT company dedicated to software development and service delivery in Ports, Shipping and Logistics verticals. Its products aim to streamline operations of container terminals, bulk terminals, Ro-Ro car terminals, container freight stations, NVOCC, ICD terminals, rail freight and freight forwarders.

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AFFILIATED MEMBERS

The Duisport Group is a full-service provider in the logistics industry on the Rhine and Ruhr, including area development beyond the own port area, settlement management for logistics and industrial companies, development of port and logistics concepts, transport services, industrial packaging as well as contract logistics. Around 300 companies have settled in the Duisburg port area. More than 20,000 ships and around 25,000 freight trains arrive and leave the port of Duisburg every year

Our media partner Transport Events is a full-service international events company that arranges every aspect of international exhibition and conference trade events anywhere in the world. Transport Events Limited owns and operates the largest annual containerised ports, shipping and transport logistics exhibition and conference trade events for Africa, The Indian Ocean Islands, The Middle East, the Black Sea, Baltic Sea and South East Asia.

JOIN THE TIC4.0 COMMUNITY

FULL MEMBERS

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CARGOTEC · DMS LOGISTICS · DSP · DUBAI TECHNOLOGIES · ELME Swedish Spreader Systems · EUROGATE · HHLA

HPC · HUTCHISON PORTS · HYSTER-YALE · ICT GROUP · IDENTEC SOLUTIONS · INFORM · KONECRANES

künz · LIEBHERR · navis · NextPort BY MOFFATT & NICHOL · NOKIA · MILLE 407 · PSA The World's Port of Call

PORTS AMERICA · RAM SPREADERS · RBS · SAAB · S-cube · SIEMENS · SICK Sensor Intelligence.

stinis · TBA Simplifying your operation · TERMINAL LINK A joint venture of CMA CGM and CMPORT · TiL Terminal Investment Limited · TMEiC We drive industry · TOTAL SOFT BANK LTD. · VnVCS V&V Comptech Systems Value Customer Vision

Wilson, Sons · YILPORT HOLDING INC. · ZPMC

AFFILIATED MEMBERS

duisport · Kho Management BV · prodevelop · Solid Port Solutions · SPLIA Shipping & Port Logistics Information Association · TGI MARITIME SOFTWARE · TRANSPORT EVENTS

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FEPORT · PEMA PORT EQUIPMENT MANUFACTURERS ASSOCIATION

MEDIA PARTNERS

TOC WORLDWIDE · TRANSPORT EVENTS

TIC4.0 Wishes you a Merry Christmas and a happy 2024

2024

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