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Scenario

The worldwide transport and logistics scenario is constantly evolving. Strengthened shipping alliances, increased ship dimension and the competition among global logistic players for dominating the worldwide market, put actors involved in the supply chain under a lot of stress. In today's changing market, the main objective of all players involved in the global door-to-door supply chain (ports, intermodal operators, multinational companies, shippers, freight forwarders, etc.) is to be effective in meeting the efficiency requirements: speed in handling cargo, traceability and visibility of goods and security needs.

Milos framework

Milos is the innovative modular solution for optimizing the transport of containers, trailers, cars and general cargo through the logistic-intermodal chain, in order to swiftly sort goods arriving at logistic hubs and rapidly handle and trace them in a door-to-door perspective. The various Milos modules can be combined in order to optimize and simplify handling and logistic operations of Inland and Port Terminals, Shippers (multinational companies, MTOs) and Port Authorities.

Milos Framework mainly focuses on four areas:
Successful Cases

Milos
for Inland and Port Terminals

Due to process characteristic and complexity, freight transport addresses many challenges during day-to-day business. Specifically, port and inland terminals are currently facing increasing cargo volumes and demands of improved performance in terms of dwell time, reliability, security, that put additional burden on them.

MAIN FUNCTIONALITIES

Milos modules can be combined in order to provide value-added functionalities and services that allow inland and port terminals to increase significantly their performances.

Milos framework offers specific solutions for:

- automating gate, yard and weighing operations
- full digitalizing and simplifying Customs procedures
- optimizing rail planning operations
- managing yard operations in multipurpose and Ferries Terminals
- interoperating with other actors of the supply chain (Port Authorities, inland carriers, shipping companies, etc.) within a corridor approach

BENEFITS

- Speeding up gate in/out operations
- Harmonizing logistics and customs activities
- Reducing operational delays due to human errors
- Optimizing intermodal operation and anticipating the internal decision-making process

OTHER REFERENCES

Terminal San Giorgio (TSG), owned by Gavio Spa, operates since 2006 in Genoa Port. The terminal is strongly oriented towards technological innovation of equipment and training of personnel. Circle, as technological partner, supported TSG in the following projects:

- full integration of the terminal container information flows with Genoa Port Community System (e-Port) and Shipping Agencies IT Systems
- complete automation of gate operations by implementing the Milos Gate Automation module, thus increasing significantly gate in/out performance
- digitalization of Customs register procedures by implementing Milos Customs Registers module

Lugo Terminal is a private logistics company founded in 1999, operating an intermodal hub in central Italy, in Lugo, and one in the south of Italy, in Giovinazzo. Lugo Terminal has implemented the Milos Booking module for a fully digitalization of its booking procedure (including first and last miles), the Milos Rail Management module, which allows Lugo Terminal managing the rail planning activities related to its commercial routes in both intermodal hubs in which it operates and Milos Weight verification, for digitalizing and automating the interchange of data related to Verified Gross Mass with all the authorized actors.

In the early months of 2018, new functionalities will be added to Milos Rail Management and new modules will be implemented, such as Milos Mobile, for digitalizing handling activities of yard operators by using a mobile app and Milos Gate Automation module, for automating gate operation.
Milos for Shippers

Shippers have to face even more complex and global supply chains. The amount of players involved in a door-to-door transport and the different IT systems implemented do not allow an effective control and visibility over the transport and logistics process. The lack of information exchange directly affects performance, reliability and quality of services.

MAIN FUNCTIONALITIES

Milos digitalizes and harmonizes both logistics and Customs information and documentation flows by implementing specific connectors with IT systems of public and private key players directly involved in the international supply chain, such as suppliers, shipping lines, Port Authorities, port and inland terminals, inland carriers, multimodal transport operators, customs agencies, etc.

In order to increase the visibility and security of goods along the transport and logistics process, Circle launched an innovative framework, made by a mix of hardware (electronic seals, tag, etc.), software and interoperable access to logistic and customs processes, Milos IoT & Blockchain, for securing and speeding up intermodal supply chains (“security tracing”) on a Door-to-Door basis. Shippers can monitor their goods along the supply chain simply using MILOS DASHBOARD.

BENEFITS

- Full monitoring of the supply chain in a door-to-door perspective in order to anticipate the internal decision-making process
- Proactive management and possibility of reaction in case of unexpected events
- Reduced Transit Time and costs related to manual errors

SUCCESSFUL CASES

IKEA, the multinational group of companies that designs and sells ready-to-assemble furniture, appliances and home accessories, during 2014 launched the “banchina lunghissima” project. The aim was facing the need of reducing «complex procedures and documents» to be managed in the import process from extra EU countries to the IKEA logistic hub located in Piacenza.

Circle, as technological partner, supported IKEA in the implementation of the following customs corridors, with an increased volume of container shipped using this procedure of 80%:

- TWO TRUCK FAST CORRIDORS: first case in Italy, from Genoa and La Spezia ports to IKEA logistic hub in Piacenza
- AN INTERMODAL FAST CORRIDOR: first case in Italy, from Genoa to Rivalta Scrivia by rail (with important role of Rivalta Terminal Europa, another client supported by Circle), and from Rivalta Scrivia to the IKEA logistic hub in Piacenza by road (logistics service provided by Autamarocchi)

Thanks to fast corridor process, goods can reach faster and with digitalized controlled procedures the inland destination, making the customs clearance operations cost-effective and done directly at the IKEA logistic hub.

OTHER REFERENCES

- IKEA
- mirosolutions
- Circle
Milos for Port Authorities

Ports have to compete in an evolving environment. Shipping companies’ alliances, increasing ship dimension, global trade evolutions call for an effective response. Improving automation, optimization, security and, on the other hand, shifting the competition strategies to a port-centric corridor (inland and maritime), are key factors to successfully face the global challenges.

**MAIN FUNCTIONALITIES**

Milos extends Port Authorities’ IT system functionalities by fully digitalizing and automating port gate operations, digitalizing Customs procedures, connecting the IT systems of the actors involved in the supply chain (e.g. Terminal Operators, Multimodal Transport Operators, Inland Transport Operators, Shipping Companies and Shipping Agencies, National Customs Administration, etc.).

Milos framework addresses three different categories:

- **VEHICLES**: Milos allows to manage and automate the port gate in/gate out operations both for trucks and trains, exploiting also the customs innovative security procedures
- **GOODS**: Milos allows to receive and manage information concerning goods arriving at ports and transferred to the Temporary storage facility and Bonded Warehouse, according to Customs IT system
- **PEOPLE**: thanks to the native integration with the PCS Sinfomar, Milos allows to manage the access procedures of people and crew in the port area

Milos Corridor Management Platform module allows Port Authorities to cover the entire logistic chain, both for export and for import flows, sharing in real-time information and documents generated by private and public actors.

**BENEFITS**

- **Speeding up** gate in/out operations
- **Increasing Security** among Temporary Storages inside terminals and port areas
- **Harmonizing Logistics** and Customs activities
- **Improving Visibility** along the entire supply chain by shifting from a port-based to a port-centric corridor approach

**OTHER REFERENCES**

La Spezia Port Authority

Circle has supported the most innovative Italian ports in improving significantly their performance and extending their services thanks to the enhancement of Port Community System functionalities.

One of the most important projects was in La Spezia, one of the main container port in the Med. In Italy, the port of La Spezia is the second port in importance for the direct call services and for serving the north Italian market, this thanks to its technology, efficiency, quality of services and constant innovation.

Circle, as technological partner, supported La Spezia Port Authority in the implementation of a “Corridor Management Platform”.

Within the project, innovative functionalities has been implemented in order to allow the Port Community System to be interoperable with the information systems of stakeholders involved in the intermodal logistics process, in particular with MTOs, rail/truck operators, inland terminals, by exchanging automatically operational documents, such as loading list, transport and rail lists.

The Corridor Management Platform has been also integrated with the Milos Customs Corridor module and functionalities in order to digitalize and automate the information flow related to the innovative fast corridor procedure involving three important inland terminals: Rivalta Terminal Europa, Rail Hub Milano and Padova Inland Port.
Milos Fast Trade Lane

The **Fast Trade Lane procedure** regards the implementation of **digitalized** procedures among the actors involved in the supply chain by using innovative technologies, such as OCR, RFID, Blockchain and IoT applications in order to monitor goods and streamline the entire logistics process.

**SOLUTION** Circle took part to several international projects where the concept of **Fast Trade Lane** has been implemented among Israeli and EU ports (Marseille, Venice Koper) with the specific aim to monitor the container reefer traffic in a Door to Door perspective.

Innovative operative and customs procedures have been implemented in order to streamline the **Ro-Ro** traffic flows between **Turkey** (Mersin, etc.) and **Trieste** thanks to the use of **Milos International Fast Trade Lane** and **Milos IoT & Blockchain** by using electronic tags and seals, thus monitoring the international traffic flow through **Milos Dashboard**.

**MAIN BENEFITS**
- **Full Monitoring** of the supply chain in order to integrate logistics and customs procedures
- **Proactive Management** and possibility of reaction in case of unexpected events
- **Reduced Transit Time** and costs related to manual errors.

Milos IoT for Logistics & Secure Trade Lanes

**Door-to-Door supply chain visibility** is extremely difficult due to a significant number of players and processes involving different standard and IT systems.

**SOLUTION** Circle has developed a specific solution, the **Milos IoT framework** that allows authorized companies and authorities **monitoring the status of goods** (container, cars, trailers, etc.) in a door-to-door perspective, matching logistics data with security and Customs information.

**Milos IoT Framework is composed by:**
- **RFID/GPS/NFC/Bluetooth** ISO compliant hardware solutions (eSeals, tags)
- **Milos (IoT) Mobile** using palmtops, handhelds or smartphones to easily manage logistic operations
- **Milos IoT Platform and Connectors** for harmonizing logistics and Customs operations

**MAIN BENEFITS**
- **Increasing** security and visibility of goods
- **Reducing** manual errors in the seal check operation
- **Automating and speeding up** procedures along the entire supply chain
- **Exploiting** logistics and customs simplifications
**Milos Gate Automation & Security**

The logistics industry is under pressure to come up with the necessary capacity to accommodate the increasing freight volume. **One critical issue is the limited gate capacity of both port and inland logistics terminals that leads to congestion.**

**SOLUTION**

Circle has developed the **Milos Gate Automation** solution, a complete hardware (OCR, RFID readers, entrance/exit barriers, etc. - provided by different suppliers) and software modular framework designed for inland/ port terminals and Port Authorities that allows **automating the gate information flow** by using standard connectors (web services, ftp, etc.), in order to exchange relevant operational data (operative, customs, logistics data, etc.). This makes the solution compatible with all the major **Terminal Operating Systems and Port Community Systems**.

The solution is compliant with the new European Union Customs Code (and it is in a pilot stage in several Italian ports), where innovative customs procedures regarding the use of automated gates and Internet of Things devices, such as RFID electronic seals and tags, are ongoing.

**MAIN BENEFITS**

- ✔ Accelerating gate activities and reducing gate congestion
- ✔ Minimizing both truck ad train processing time
- ✔ Enhancing security control standard

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**Milos Automation & Optimization**

Intermodal terminals can be seen as a mix of complex and interconnected operations. One of the main objectives of a container terminal is to optimize, in terms of times and costs, the activities related to container handling and forwarding.

**SOLUTION**

Circle offers a set of modules: **Milos Gate Automation**, **Milos Rail Management**, **Milos Mobile** and a complete **Milos Terminal Operating System Multipurpose with optimization tools** that allow port and inland terminals fully automating and integrating intermodal handling operations.

**Rail planning activities and gate operations** are optimized by using **specific algorithms**, providing a complete control over the entire handling process by addressing them simultaneously.

**MAIN BENEFITS**

- ✔ Optimizing handling operations
- ✔ Speeding up train loading and discharging activities
- ✔ Reducing inefficiencies in handling activities
Circle offers a set of solutions for automating and optimizing terminal operations based on a deep knowledge in logistics and transport processes. Milos modules and connectors allow both inland and port terminal operators significantly increasing their performance by using an innovative Terminal Operating System solution. 

RAIL MANAGEMENT
Milos Rail Management module is designed to improve operations inside terminal rail yards, allowing to:
- graphically display in real-time the rail yard state, the position of wagons and containers and related information
- manage rail planning and containers loading and discharging activities by using "Drag&Drop" functionality

MOBILE APP
Milos Mobile App module allows to manage the different terminal operations from mobile devices such as the management of loading and discharging, the gate in and gate out of goods at the terminal gates and the registration of some events like damage, extra operations, etc.

VESSSEL MANAGEMENT
The Milos Vessel Operations Management module allows the monitoring of vessel arrival, the management of booking operations, the planning of loading and discharging operations and all reporting activities.

YARD MANAGEMENT
The Milos Yard Management module is developed for multipurpose and Ferries Terminals. It allows a fully digitalization of information related to goods and vehicles entering/leaving the terminal by the gate access or loaded and discharged from the ship.

WEIGHT VERIFICATION
The Milos Weight Verification module allows digitalizing the weighing process of the Verified Gross Mass in compliance with upcoming SOLAS Container Weight Verification Requirements and digitally exchanging this info with authorized stakeholder.

CORRIDOR MANAGEMENT
PLATFORM
The Milos Corridor Management Platform (CMP) represents a technological platform for the management of information interfaces among actors involved in the supply chain (MTO, Rail/Truck operator, inland/port terminals, shipping lines etc.), in a door-to-door perspective. The platform works in parallel with existing systems by using specific standard connectors. The CMP Dashboard allows authorized stakeholder easily visualizing all the relevant information related to the entire process, thus monitoring in real time the status of cargo and improving efficiency and flexibility of transport processes, quality of information and goods traceability.

TRACKING & TRACING
The Milos Tracking & Tracing module provides an information network able to retrieve and manage information about the movements of any means of transport and goods, as well as pinpoint the real-time position of any means of transport. It allows graphically representing on a map the geographical coordinates of tracked cargos. The module is developed as a web application, able to independently extract data from a web service layer and show it on a map, accessible by web, mobile and wearable devices.

BOOKING & FREIGHT
The Milos Booking & Freight module allows logistics operators (MTO, inland carriers, etc.) managing the booking operations related to both rail and road commercial services. It provides also the possibility of booking the first and last miles and it has been developed in order to be interoperable with Milos Rail Management and Gate Automation module, automatically exchanging relevant information for managing the rail planning activities and speeding up gate in/out operations.

Circle offers innovative solutions for managing goods along national and international intermodal corridors. Milos solutions for Intermodal Corridor Management allow making interoperable information systems of actors involved in the intermodal logistic process. Milos allows managing Internet of Things devices, such as electronic seals and tags both inside terminals and inside intermodal logistic chain in a door-to-door perspective in order to enhance visibility and security of goods.
CUSTOMS REGISTERS

Customs Registers helps logistics operators at digitalizing the management of the following Customs registers: Temporary Storage Warehouse, Customs Warehouse and VAT Warehouse.

These registers report all the events in the different warehouses making it possible to automatically obtain movements, final quantities and reports from each register. Customs Registers module is constantly updated to be compliant with both Italian and European regulations.

MILOS eCUSTOMS

This module and related connectors have been designed for the digitalization and automation of Customs procedures in the EU legal framework. This module can interoperate with Customs IT platform by using standard connectors in order to automate customs procedures and reduce manual activities and the use of paper documents. In particular, the module complies with the new European Union Customs Code procedures and Authorized Economic Operator regulation, in order to reduce dwell time of goods along the supply chain.

MILOS INTERNATIONAL FAST TRADE LANE PLATFORM

This module and related connectors have been designed with the purpose to allow the digitization and automation of the data exchange among all the public and private actors involved in the supply chain. This data can be viewed in the comfortable Milos Dashboard.

This system can be adopted to share information with the IT Customs Agency Systems, thus decreasing the transit time and improving the security level. This procedure can be done along the multimodal logistics chain, within maritime, rail and road transports, and exploiting simplified customs procedures (Pre Clearing, Customs corridors, etc.).

TERMINAL OPERATING SYSTEM CONNECTOR

The TOS connector allows transport and logistics operators, such as Railways Undertakings, Multimodal Transport Operators, Freight Forwarders, Shippers, Inland Carriers connecting with TOS services and functionalities. It is set up with “general Web Services” in order to access to specific operational information, such as operational readiness of freight, gate in/out at terminal, etc.. Milos has been successfully integrated with some of the main TOS currently marketed: Copas Step, Jade, Plan-Master, Cosmos, Navis/N4 (ongoing), and several home made solutions.

D.65 LAYER/NMSW CONNECTOR

The Directive 65 Layer/NMSW Connector is the layer that allows ports, terminals, freight forwarders & shipping agencies interacting with other operators and the National Public Authorities in charge, in order to be ready for the FAL FORMALITIES.

PORT COMMUNITY SYSTEM CONNECTOR

The PCS connector allows transport and logistics operators, such as Railways Undertakings, Multimodal Transport Operators, Freight Forwarders, Shippers, Inland Carriers connecting with PCS services and functionalities. It is set up with “general Web Services” in order to access to specific functionalities provided by Port Authorities, such as operative (operational readiness of freight, estimated/actual time of arrival of ships at port, gate in/out at port security gate, etc.) and customs information.

Milos PCS Connector has a native integration with the PCS Sinfomar, a complete framework of solutions for managing port activities within port Administrations.
International Initiatives

**EU funding**

CIRCLE EXPERTISE

Focused exploitation of European funding supports Public Bodies and Companies in gaining competitive advantage via R&D activities results. All of this leads - faster - to new processes, services and marketing of new products, supporting promotion of technological and business development at an international level catalyzing, inter alia, innovation, economy of knowledge, jobs creation and growth, together with overall quality of life increase.

Our 3 steps to EU Funded initiatives strategy will provide you with EU funding experts with a track record of successful cross-functional business development processes and large scale international consortia management, experienced in working with politicians, policy makers, industry, academics and third parties, specifically in developing new public and private business using national and European funding.

**PROJECTS**

Docks The Future

Horizon 2020 Programme - defines the vision for the ports of the future in 2030, covering all specific issues that could define this concept including among others, dredging, emission reduction, energy transition, electrification, smart grids, port-city interface and the use of renewable energy management.

MoS WorkPlan

Circle is the Leader of the Consortium chosen by the EC for the development of the “Study on the TEN-T Motorways of the Sea horizontal priority of the European Commission DG for mobility and transport”. The MoS Work Plan was launched with the aim of supporting the MoS EU Coordinator, Brian Simpson, in developing a detailed and targeted Work Plan for MoS; the role of MoS is to support and integrate the development of maritime transport, ports and their hinterland connections whilst promoting the deployment of infrastructure, transport technology and information systems.

TIGER (Transit via Innovative Gateway concepts solving European-Intermodal Rail needs)

7th FP - Development and implementation of solutions to overcome current congestion affecting EU ports and roads.

MIELE (Multimodal Interoperability E-services for Logistics and Environmental sustainability)

TEN-T Programme - Maximizing efficiency of the interchange of information along the logistics chain (ship-port interface).

TrainMoS (Training Human Element For Efficient Massive Freight Transport With Maritime Links)

WiderMoS (Wide Interoperability and new governance models for freight exchange linking Regions through Multimodal maritime based corridors)
TEN-T Programme - Operative and policy supporting Framework, targeting the interface between maritime transport and other modes (mainly rail), developing new port/ship/train interfaces and efficient port-hinterland connections, connecting ports and integrate origins and destinations and bridging gaps in and between different trade corridors.

OnTheMosWay Network
Marco Polo Programme - Development of a set of professional training and vocational education activities in 3 EU countries.

iFreightMED (Intermodal Freight Services Development Committees)
Interreg MED 2007-2013 Programme - Promotion of sustainable intermodal and rail freight services.

ChemLog TT (Tracking and Tracing solutions to improve the intermodal transport of dangerous goods in the UE)
Interreg Central Europe Programme - Strengthen competitiveness of the chemical industry by improving framework conditions for supply chain management in Central and Eastern Europe.

RCMS (Rethink Container Management Systems)
Horizon2020 Programme - Presentation of a 3D “architect” model for RCMS, first step for the implementation of a Robotic Container Management System, an innovative infrastructure-specific and resource-efficient solution for enhanced cross-modal inter-connectivity and active container management.

SYNCHRO-NET
Horizon 2020 Programme - Demonstration of how a powerful and innovative synchronodal supply chain can catalyse the uptake of the slow steaming concept and synchro-modality.

FRESH FOOD CORRIDORS
Connecting Europe Facility Funding Instrument - Global Project whose objective is to achieve a safe, sustainable and efficient fresh food transport system in the Euro-Med area.
Circle is a European company strongly focused on consultancy and technology exploitation to be a unique partner for business development, process efficiency and integration of innovation.

Circle combines three complementary factors: consulting with a focus on process innovation and project management, technology with a focus on automation, tracking solutions and Internet of Things applications and developmental services based on the innovative Milos Platform, the modular framework for simplifying and digitalizing customs and operational procedures. Each element is linked by a focus on innovation, relying on a network based approach with consolidated partners and an EU project & consultancy know how center.

All Circle modules are focused on reducing the environmental impact of freight transport, in accordance with the European transport policy.

Circle has joined TICASS (Innovative Technologies for Environmental Control and Sustainable Development), a non-profit consortium targeted at green solutions, in order to raise effort in this direction.

Circle is part of Log@Sea Network (with IB and Aitek), that is member of ALICE.

Info.era has recently become part of the group owned by Circle.