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**MILOS<sup>®</sup>**  
*Global Supply Chain Visibility*  
*(integrated with MasterSped<sup>®</sup>)*

2022

## Lack of dialogue

between the actors  
involved into the process

## High cost & paper document

related to the  
operative and customs  
activities

## Efficiency reduction of the logistic process

in terms of activities  
performance and long waiting  
times

\*Circle Group's products and software solutions are compliant with the requirements of the European GDPR.

## Complete visibility & control of supply chain

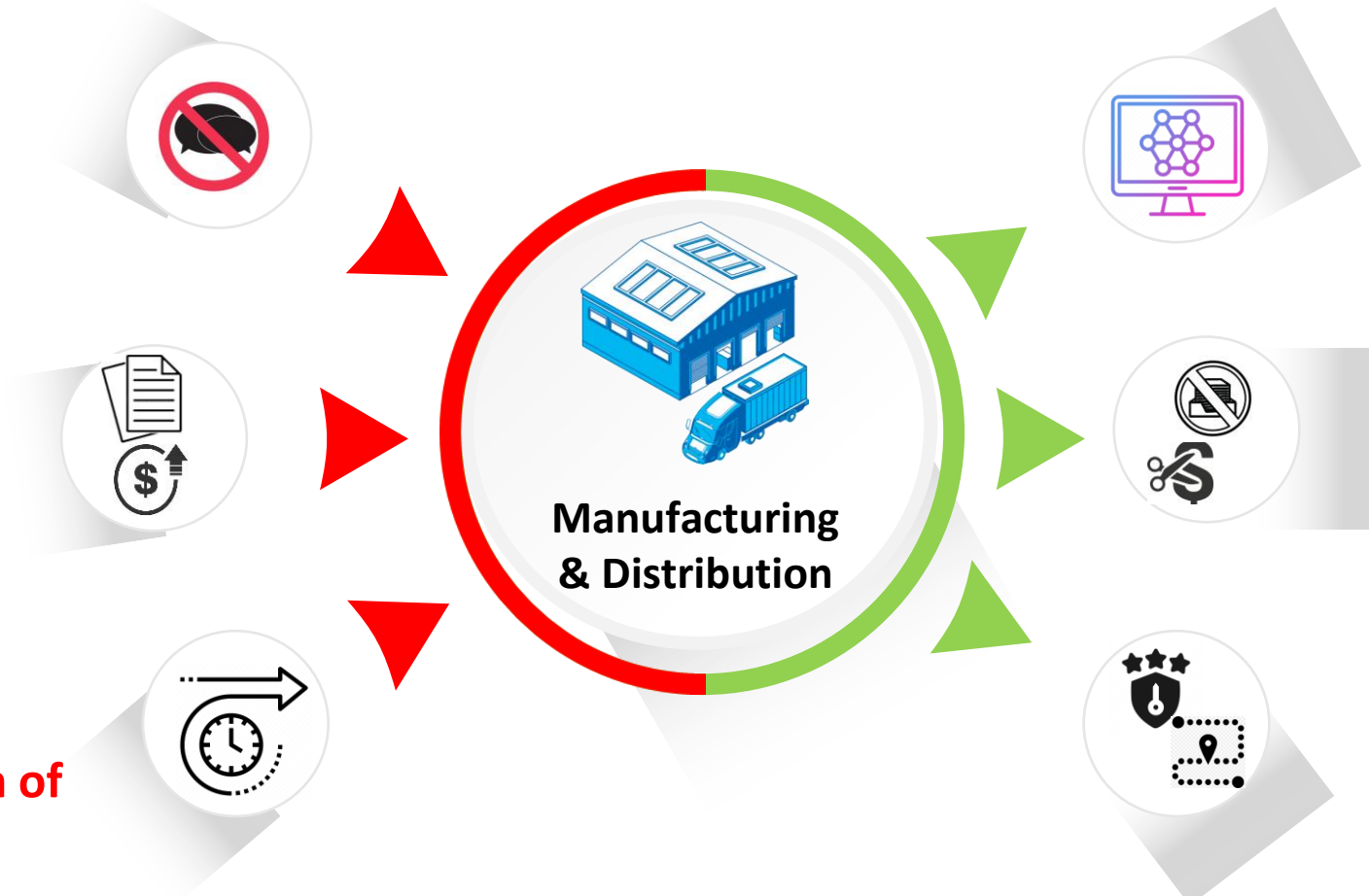
thanks to the  
implementation of a Digital  
Platform and IoT devices  
integration

## Operative, customs costs reduction & paperless

thanks to the digitalisation of  
documental flows and the  
improvement of the logistic process  
in terms of service quality and  
security level

## Increase of efficiency through a complete cargo and e-document T&T

and improvement of service quality  
and security level





**Shipping Line  
Shipping Agency**



**Carrier**

**ACTORS**



**Multimodal  
Transport Operator**

**INVOLVED**



**Freight Forwarders  
(Air – Road – Sea)**



**Customs Agency**

## COMPONENTS

**Booking info  
&  
data**

**Track and Trace  
&  
TFP**

**ERP  
&  
KPI Dashboard**

**IoT devices  
&  
Blockchain**

**International Fast  
& Secure  
Trade Lane**

**Customs  
Innovative  
Procedures**

## KEY SUCCESS METRIC

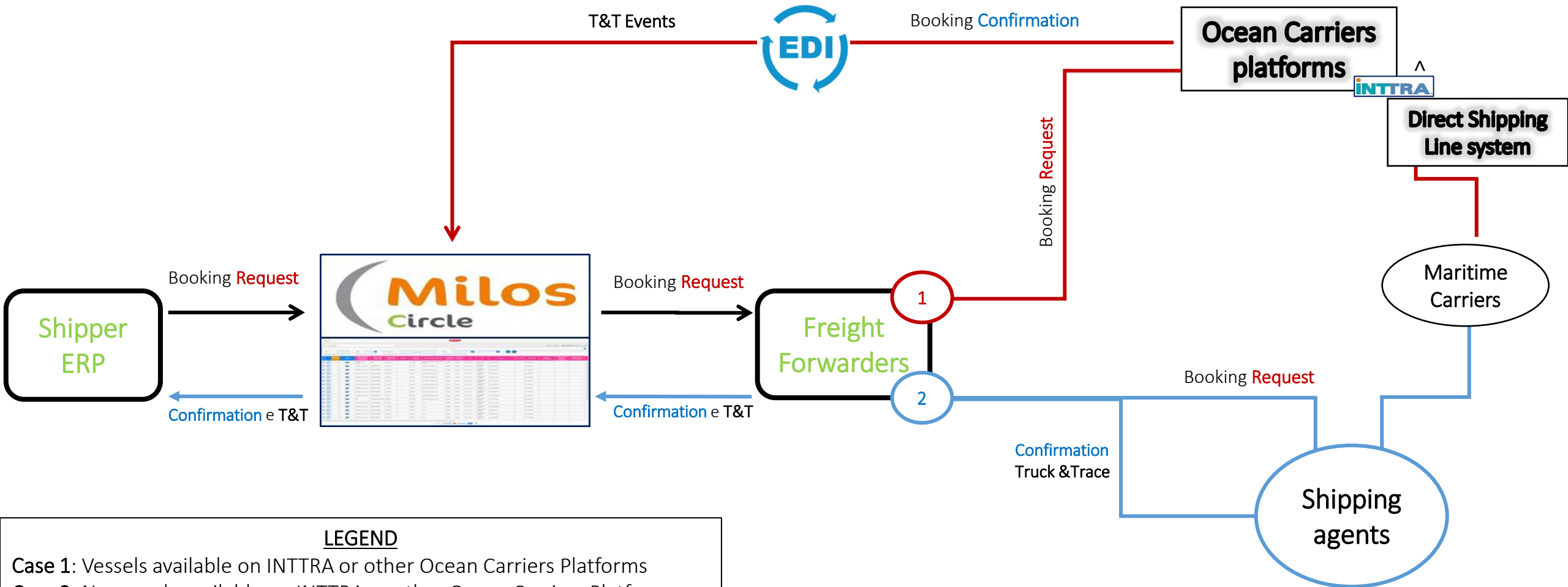
**100% Paper reduction**

**+ 90% Dwell time reduction**

**- 30% Direct cost reduction / TEU**

- MILOS for Manufacturing & Distributions
  1. Booking info & Data
  2. Track and Trace & TFP
  3. ERP Integration & KPI dashboard
  4. IoT devices & Blockchain
  5. International Fast & Secure Trade Lane
  6. Customs Innovative Procedures
- Crosswise & added value services – MILOS Federative Services
- Key differentiation points & Award
- Ongoing developments

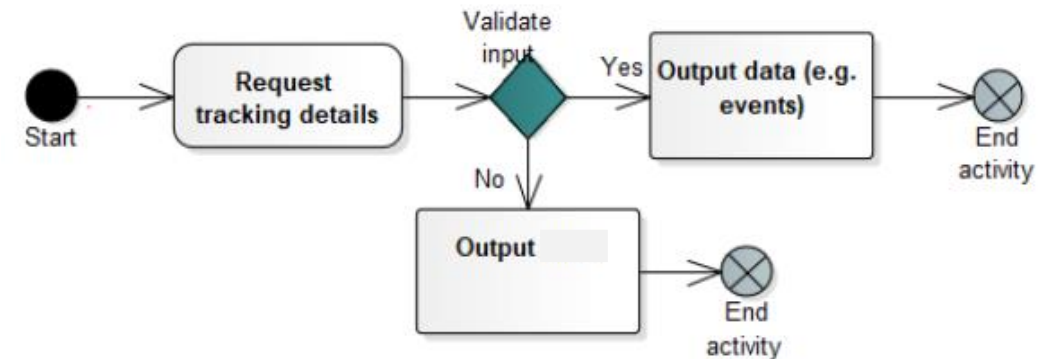
# 1. Booking flow for a Shipping Line



^ Intra is one of the integrated platforms (another is CargoSmart, TradeLanes, etc)

## 1.1 Milos directly interface with Shipping Lines systems

Moreover, through Federative Services, MILOS allows to interface directly with Shipping Lines systems and have visibility of the shipment, without providers (e.g. DCSA standard);



### POTENTIALITIES of a CONNECTORS to SHIPPING LINES DIRECT SYSTEMS

- ✓ Increased transparency to the shipper
- ✓ The shipper would enjoy the **benefit of transparency for payment**, privilege in **choosing schedule**, monitoring cargo movement
- ✓ **Time reduction** to handle a big number of agents and **Time-saving**
- ✓ Paperless document handling
- ✓ Reduction of manual error

## 1.2 Trading Ocean Platforms for Shipping Lines (ex. INTTRA Connectors)

- Milos offers solutions for shipping lines that use Ocean Platforms (ex.Trading Ocean Platforms)
- In this way, MILOS is compliant with worldwide leaders such as **INTTRA** and emerging leaders such as **CargoStart** (Air Transport);
- MILOS is able to offers opportunities also for companies that use **other different platforms** or manage this service through their own agencies, not addressing platforms;

### POTENTIALITIES of a CONNECTORS to OCEAN PLATFORMS

- ✓ A connection allows your customers immediate access to **different carriers worldwide**;
- ✓ A connection allows access to many **shipping companies worldwide**;
- ✓ **Increase customer satisfaction** with faster bookings and a single monitoring and reporting;
- ✓ **Error reduction** related to the **manual data entry**;
- ✓ **Increased speed** of documentations shared;

## 1.3 MILOS: the case of INTTRA

The benefits of the integration with INTTRA Platform is that shippers can automatically receive on MILOS the **tracking of the containers** from the **departure to destination port**, until the delivery of the empty container provided by the INTTRA Carrier partners.



Some of the shipping companies that has a connector with INTTRA





## 2. MILOS\_Multimodal (inland) Transport

As already seen above for the maritime transport, MILOS offers solutions for shipping lines that address to Ocean Platform, but also to those who manage the activity through their own agencies.

In the same way, for inland transport management there are two types of **targets**:

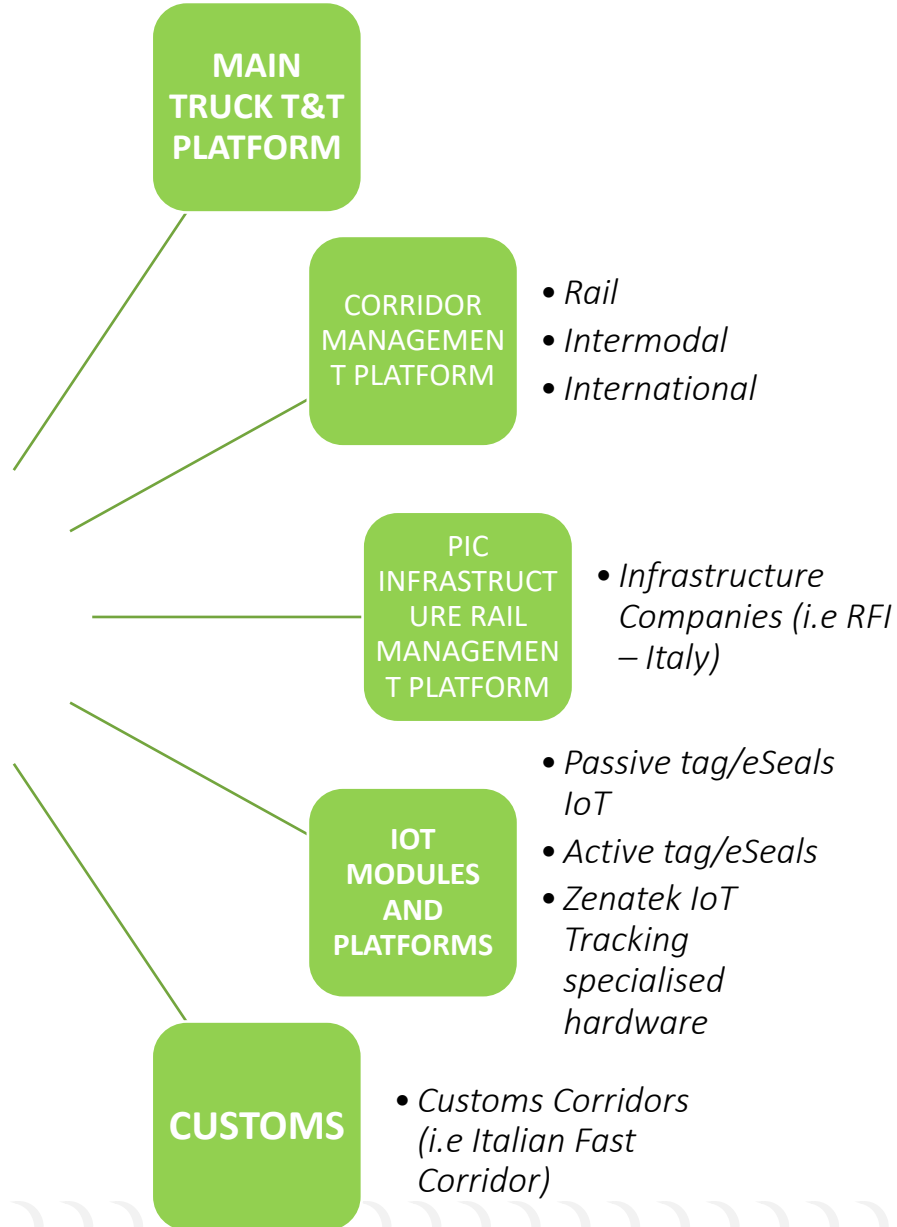
- shippers that *manage internally* all the flows of the logistics chain;
- shippers that address to *Freight Forwarders* activities regarding for example customs procedures;

Circle offers solutions for both cases, also thanks to the acquisition of Progetto Adele within the Circle Group, a software house specialized in **logistics** and **freight forwarders**.

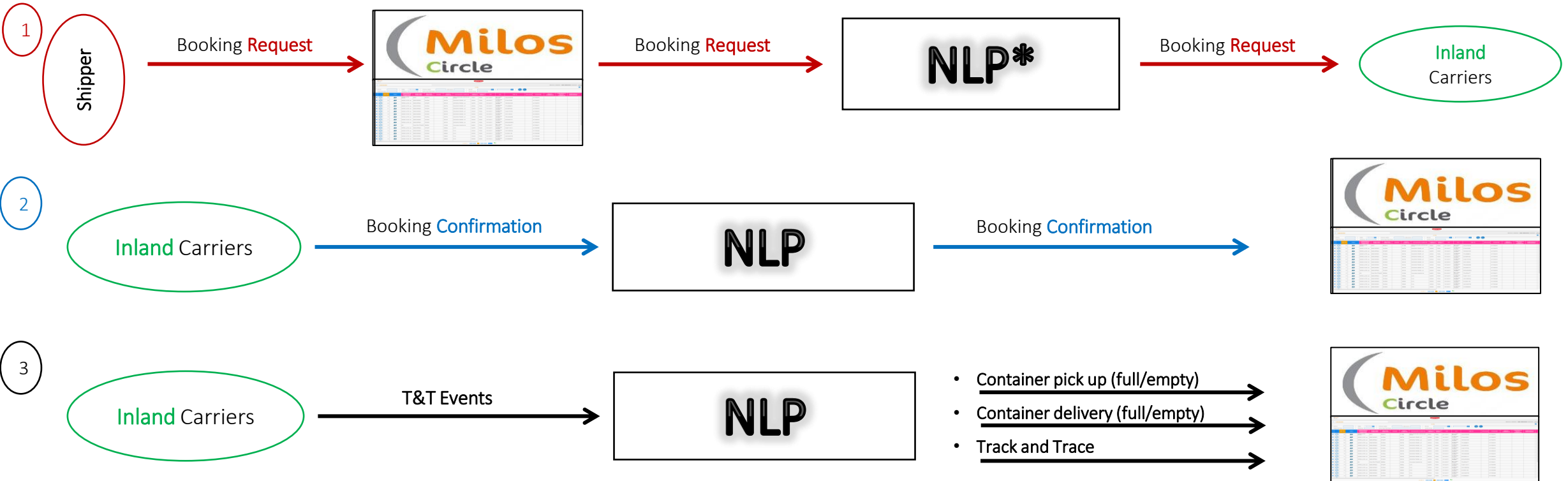
The integration of their products with the solutions already adopted by Circle of Tracking, Internet of Things and intermodal transport, allow an enormous recovery of efficiency, a reduction of costs and an increase in performance as required by major international importers and exporters.

## 2.1 Milos<sup>®</sup> Transport Federative Platform (TFP) - Interoperability

### Milos Transport Federative Platform



## 2.3 Track & Trace for inland transports



Shipper makes a booking **Request** (booking request) to the default transport company (**Inland** carrier) through the appropriate command on the MILOS dashboard.

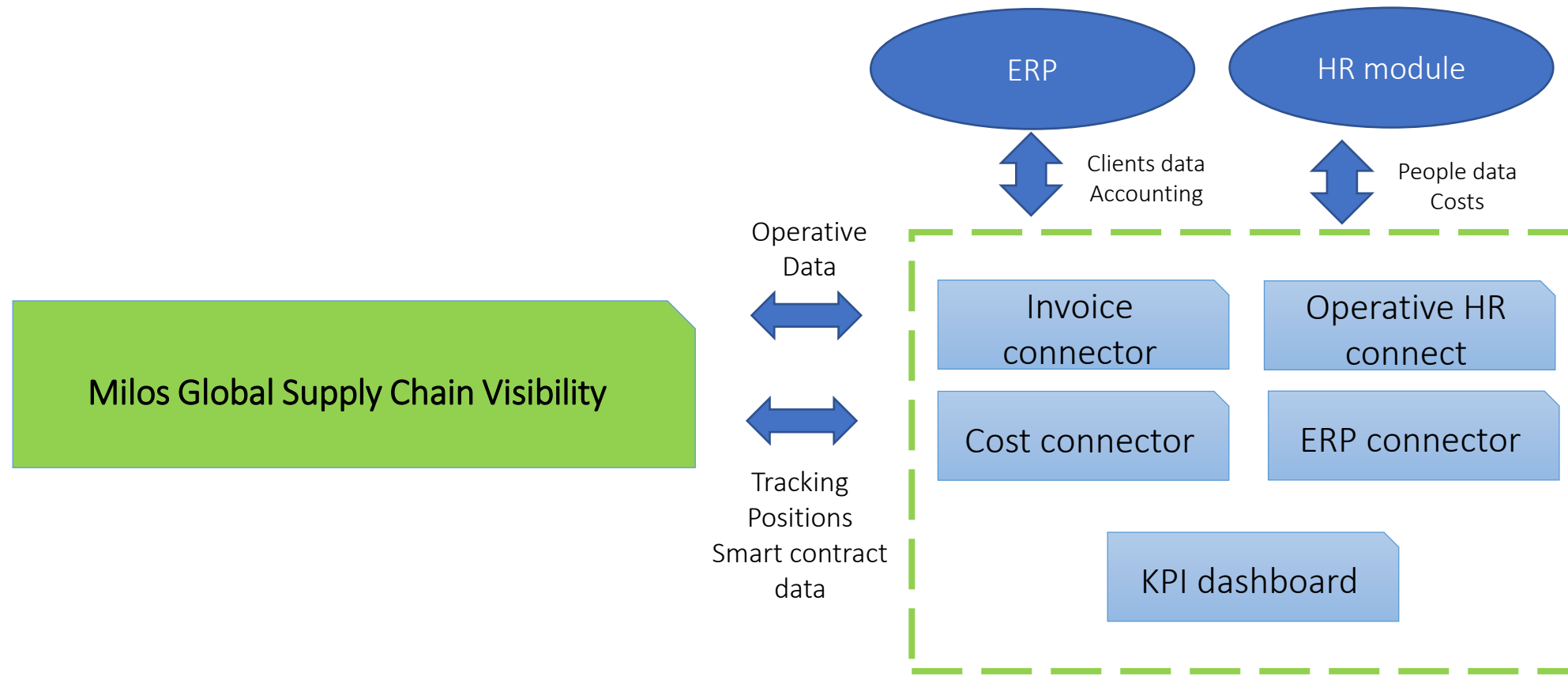
Thanks to the MILOS PLN (National Logistic Platform) connector, the **Request** is sent to the National Logistics Platform.

The carrier accepts the transport by sending a Booking **Confirmation** to the PLN. The MILOS dashboard receives the **Track and Trace** flows of the booking containers.

\*National Logistic Platform (I.e: Piattaforma Logistica Nazionale Italiana)

### 3. ERP integration & KPI dashboard

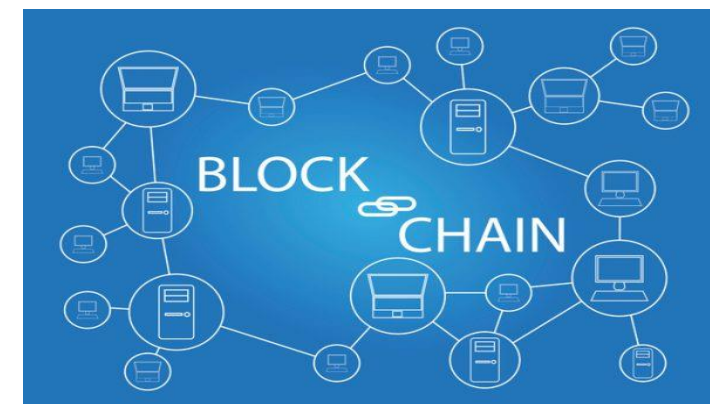
The global supply chain visibility connectors allow Milos to integrate with **ERP systems** of companies, the management software that integrates all the relevant business processes of a company, offering the possibility to manage cost / invoice process, ERP integration (and HR for costs comparison) integration creating also a KPI dashboard.



## 4. Milos IOT & Blockchain



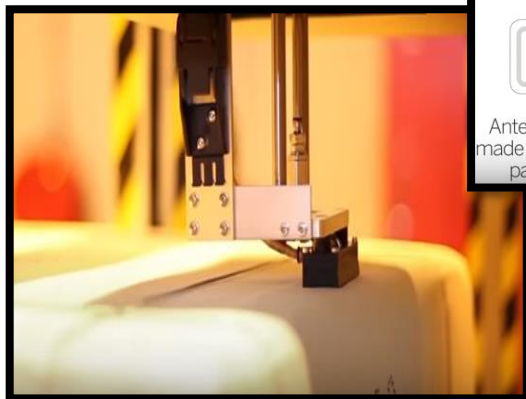
The **Internet of things (IoT)** is the network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, actuators, and network connectivity which enable these objects to connect and exchange data. **Milos IoT** allows to automatize procedures and operation in the terminal. a clear example to understand the potential of this technology are the **gate operation** automatizing the gate-in and gate-out procedures.



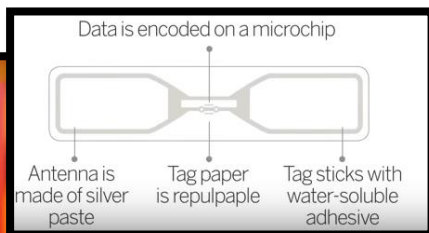
The combined use of smart devices **IoT** and **Blockchain Platforms** has the purpose to digitalizing the terminal operation leaving traces of all operations and events occurring.

## 4.1 An example of IoT devices integrated with MILOS - Cycle Flow

1)



*Compliance with the most common passive RFID tags used by cellulose producers*



*Passive RFID TAG for cellulose*

2)



*Digital check of loading/unloading operation with handhelds*

3)



*Automatic Gate-in and Gate-out at the terminal thanks to RFID antennas*



4)



*Proof of delivery at final destination*





### **Involvement in Pilot Maersk / IBM Tradelens (case study and analysis)**

TradeLens is a multinode private blockchain solution for maritime supply-chain logistics. It is based on IBM's implementation of Hyperledger Fabric (PaaS). The containerized microservice platform is horizontally scalable and delivers its functionalities to the project participants through a publicly available API layer.

### **Participation of Bill of Lading Pilot**

A decentralized application deployed on the Ethereum blockchain. Its main purpose is to handle and certify data interchange between users through a set of Smart Contracts and to provide document immutability by using IPFS as a secure and unbiased storage service.

### **Preliminary IFSTL IOT Pilot**

Distributed notarization service for document and data interchange based on client-server-signer interaction model. The system has been designed to generate a verifiable signature by using blockchain's metadata as proof of existence medium.

### **Notarization Pilot**

Blockchain service for document management that is built upon Ethereum Smart Contracts and decentralized storage systems. It's goal is to certify the documents by creating a provable timestamp and storing the resulting authenticity reference data on the blockchain.

### **IPCSA digital Bill of Lading (Israel + Trieste Port) Pilot**

A private blockchain solution developed with Hyperledger Fabric on Azure Cloud. The distributed application is designed to leverage high data throughputs and heterogeneous formats by instantiating a Smart Contract for each Bill of Lading.

## 5. International Fast & Secure Trade Lane Perspective



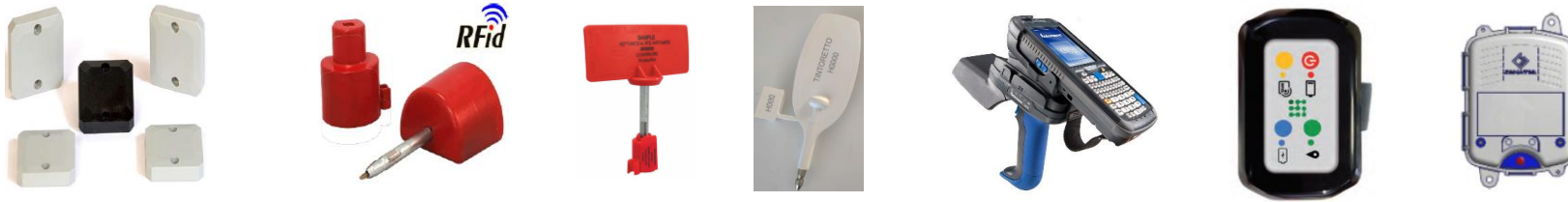
- Digitalisation of European document flows
  - Digitalisation of international document flows through a direct dialogue between Countries, Customs European and Not European and Importer - Exporter
- This is possible thanks to the implementation of **IoT devices** and **Notarisation** (Blockchain - Smart Contract)



## 5.1 Components and benefits

**Logistic international corridors** aiming to create **port to port chains** involving all the actors (ports, inland terminals, logistic actors and shippers)

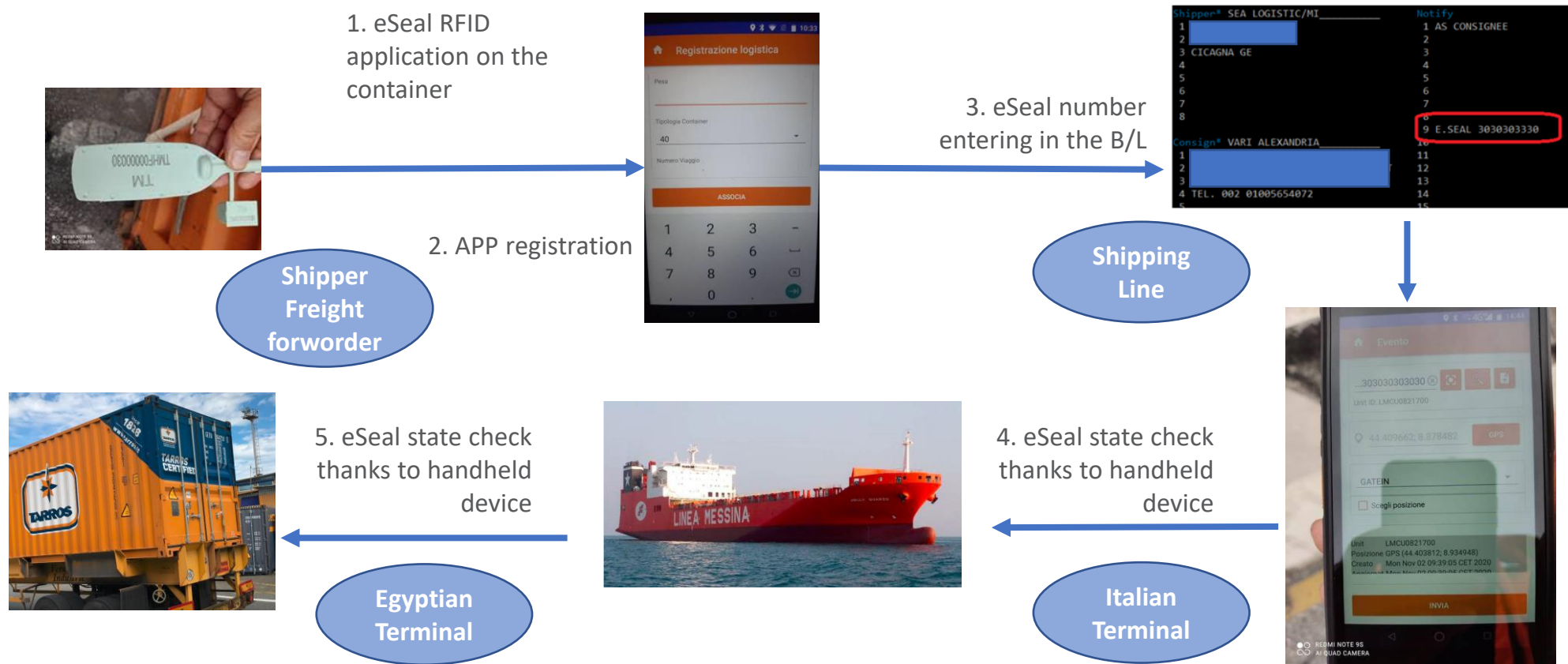
Integrated with the use of **Internet of Things (IoT)** and **Blockchain platforms** thanks to custom and automation objects:



### BENEFITS

- **Full visibility of goods**, reduction of manual errors and speed for shared documentation
- **Security** guarantees
- Exploitation of simplified **customs procedures** by exchanging information with and between customs administrations
- Automation, speed up of operations and **reduction of the risk** of not broken containers

# 5.2 Pilot projects – Egypt, Morocco, Turkey export flow from EU and to Italy

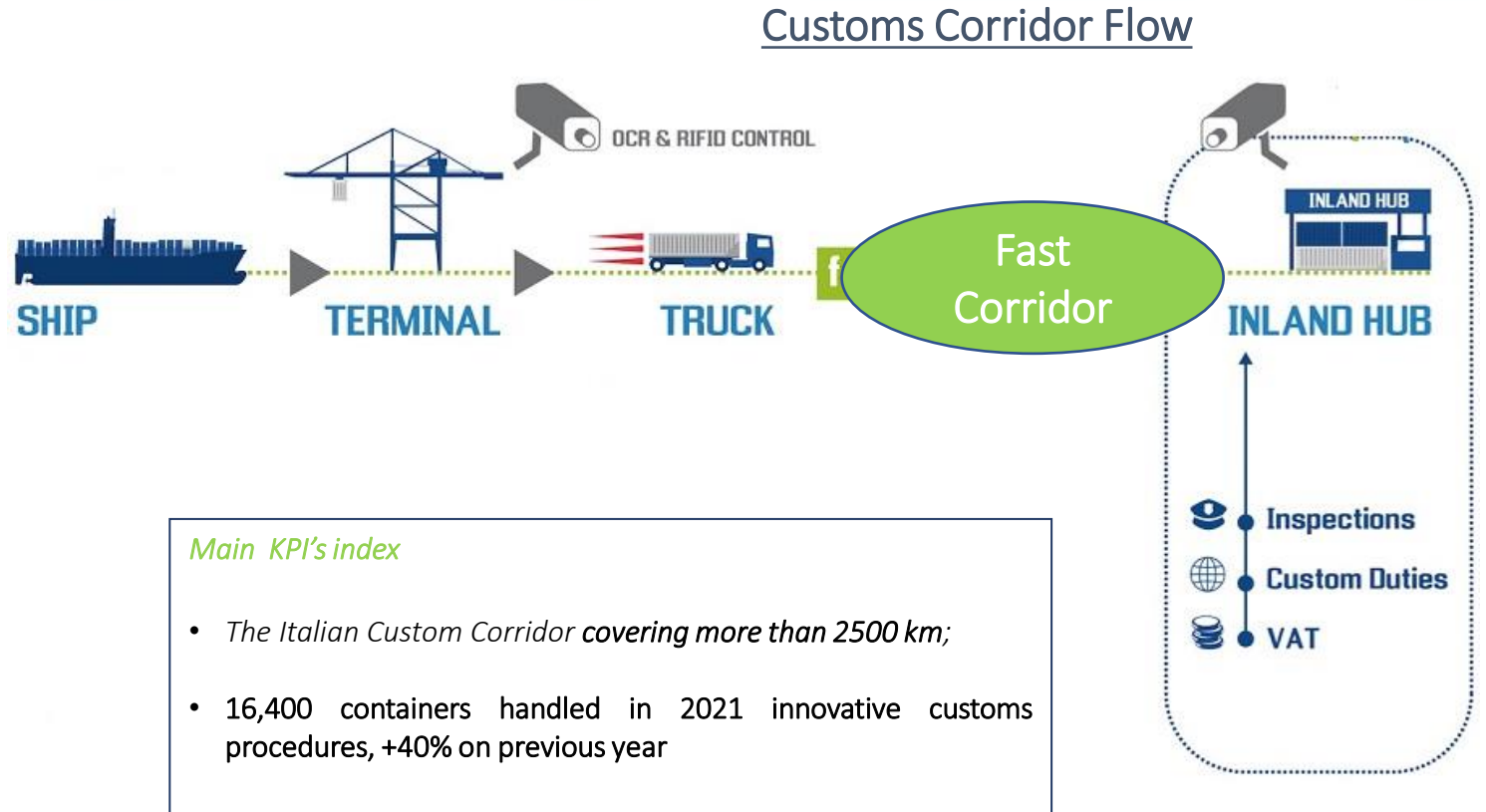


## 6. Customs innovative procedures: the (EU) Italian case of Fast Corridor

The concept of **Custom Corridors** (named *Fast Corridor in Italy*) was born to decrease the costs relate the import / export cycle converging towards the complete traceability of the goods forwarded in the multimodal logistics chain. *The containers are moved between the ports and places of destination (always under the control of customs agency offices) where are complete the custom clearance procedures.*

### The Benefits

- Decrease the **permanence of goods in the ports berth and storage area**;
- Increase **receptivity**;
- Reduce **almost resetting them, the costs relating to the stationing of goods**.

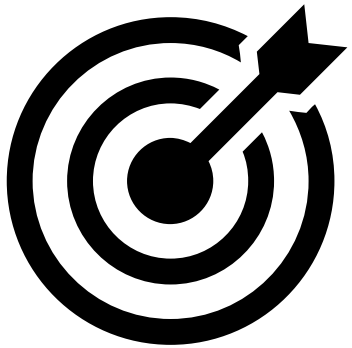


Circle has contributed to the **implementation and the data management** of 17 italian customs corridors.

## 6.1 Customs innovative procedures for Airlines

The air transport of goods, by its nature, requires speed and time certainly for each of its phases. For this reason, any innovation that can guarantee **speed and efficiency** in air transport is welcomed by operators involved. Therefore, it was deemed essential to extend the institution of **customs corridors**, already provided for in the maritime sector, to the air sector as well.

In Italy, Circle collaborates with Agenzia dei Monopoli e delle Dogane (ADM) and Sogei to develop Air Customs Corridors and pursue objectives in terms of:



- **Speeding up and simplifying** the logistics operations of the entire supply chain
- **Decongestion** of airport areas
- Increase in **security**, thanks to the combination of documentary controls and physical monitoring of the flow of goods
- **Digitalization** of the entire process
- **Entire visibility** of information and **completed interoperability** between the actors
- Future developments include the **pre-clearance procedure** also in the air sector

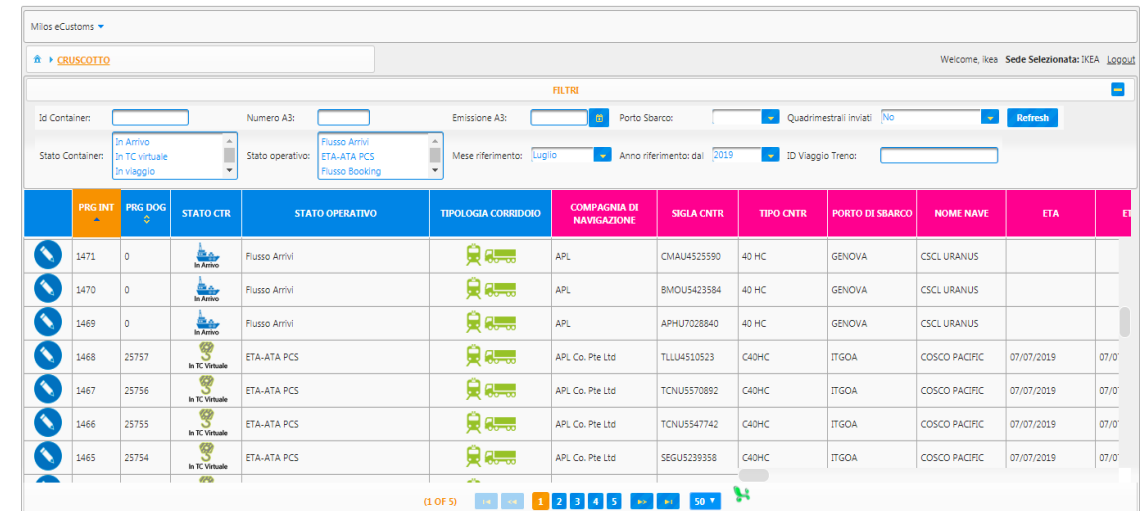
**Challenge:** Ikea has a logistics hub in Piacenza (Italy), from which goods arrive from all over the world: these goods are destined for stores not only in Italy, but also in North Med and Middle East. The problem was that the process of customs clearance of goods coming from Extra EU countries started when the container was discharged at the port and this heavily affected the arrival's time of goods at the logistics hub of Piacenza;



## **Solution:**

Circle developed “**MILOS**”, an innovative modular software that thanks to his connectors dialogues with port, custom and national logistic platform, in order to have **real time information** about **logistic** and **technical aspects** (status and the positioning of goods/containers), integrated with **Customs information** (Authorities Import and Export) and **Port Security information**: this overall view of the shipment is available and visible on a dashboard. Moreover, thanks to **FAST CORRIDOR** which allows the digitalisation of custom procedures:

- In import: the goods (container) are customs cleared directly at the logistic hub, without having to wait at the port;
- In export: the goods (container) receive the authorization for customs procedures before arriving at the port;



	PRG INT	PRG DOG	STATO CTR	STATO OPERATIVO	TIPOLOGIA CORRIDORO	COMPAGNIA DI NAVIGAZIONE	SIGLA CNTR	TIPO CNTR	PORTO DI SBARCO	NOME NAVE	ETA	ET
1471	0		In Arrivo	Flusso Arrivi		APL	CMAU4525590	40 HC	GENOVA	CSCCL URANUS		
1470	0		In Arrivo	Flusso Arrivi		APL	BMOU5423584	40 HC	GENOVA	CSCCL URANUS		
1469	0		In Arrivo	Flusso Arrivi		APL	APHU7028840	40 HC	GENOVA	CSCCL URANUS		
1468	25757		In TC Virtuale	ETA-ATA PCS		APL Co. Pte Ltd	TLLU4510523	C40HC	ITGOA	COSCO PACIFIC	07/07/2019	07/07
1467	25756		In TC Virtuale	ETA-ATA PCS		APL Co. Pte Ltd	TCNU5570892	C40HC	ITGOA	COSCO PACIFIC	07/07/2019	07/07
1466	25755		In TC Virtuale	ETA-ATA PCS		APL Co. Pte Ltd	TCNU5547742	C40HC	ITGOA	COSCO PACIFIC	07/07/2019	07/07
1465	25754		In TC Virtuale	ETA-ATA PCS		APL Co. Pte Ltd	SEGU5239358	C40HC	ITGOA	COSCO PACIFIC	07/07/2019	07/07

Figure: Ikea Dashboard

### BENEFITS

Thanks to digitalisation it's possible to provide a complete view of the supply chain, simplifying operations, reducing transit costs and operating / customs / security costs, by implementing:

- ✓ Full digital platform able to share end-to-end data and documents from various stakeholders;
- ✓ “Certified Information” arising from the use of IoT devices applied on vehicles (trucks) for monitoring the transport

### Main KPI's index – IKEA

- ✓ Direct cost reduction x teu: – 30%;
- ✓ Paper reduction: - 100%;
- ✓ Shipped container's volume increased over 80% thanks to Fast Corridor;

### Main KPI's index – Supply Chain Involved:

- ✓ transit time reduction port – dry port: up to 35%;
- ✓ dwell time reduction (due to various aspects, among which customs): up to 80%;

*“Our partner Circle support us with expertise, perseverance and competence in the project “Banchina Lughissima” in three main fields: organization and process facilitation, digitalization and integration (with once and full digital approach), compliance”*

*Milena Benzi, IKEA Customs Manager*

- MILOS for Manufacturing & Distributions

1. Booking info & Data
2. Tracking & Trace
3. ERP Integration & KPI dashboard
4. IoT devices & Blockchain
5. International Fast & Secure Trade Lane
6. Customs Innovative Procedures

- Crosswise & added value services – MILOS Federative Services

- Key Differentiation points & Awards
- Ongoing aspects and future project



Milos® Federative & Customs Services (Customs Registers, e-Manifest etc.) is a set of tools and services enabling easy and up-to-date interoperability among different actors of the logistic chain and customs processes.

These services allow to share customs information between the parties involved in the import/export process, guaranteeing data security and reliability. The integration with the latest services provided by national Customs (consistent with EU e-Customs 2025 Plan) makes the most advanced tools available to Shippers, Freight Forwarders, Carriers and MTOs.



## BENEFITS

- Overall *control of data and information*
- Improvement of the logistic process in terms of *service quality and security level* (avoiding frauds and manual errors)
- *Security and operative costs reduction*
- *Transit and dwell time reduction*
- *Environmental positive impacts*









## Digital transformation is rapidly changing the global supply chain

- Every day Transport and Logistics operators need to adapt their operations connecting their systems with an everchanging number of actors and solutions.
- Circle Group Federative Services enable quick and simple interoperability between existing intermodal supply chain platforms, improving decision-making efficiency and operational optimisation.
- By using customised connectors, the legacy systems can easily and automatically dialogue with the surrounding logistics environment, effectively integrating the information made available by the connected third parties' systems.
  - **Cost and time reduction**
  - **Reliable, secure and updated data**, avoiding manual errors
  - **Positive environmental impacts**
  - Availability of “**smart systems**” with proactive decision-making support (i.e. notarisation)
  - **Compliance with data management policies**



- Available services
- Ongoing development

TARGETS				
F E D E R A T I V E  S E R V. I C E	Manufacturing & Distributions 	Multimodal Transport Operators and Rail Companies 	Freight Forwarders and Customs Operators 	Port and Inland Terminals 
	<ul style="list-style-type: none"> <li>Rail Track &amp; Trace</li> </ul>	<ul style="list-style-type: none"> <li>Edifact / Ediges engine</li> </ul>	<ul style="list-style-type: none"> <li>Booking regarding intermodal rail transport</li> </ul>	<ul style="list-style-type: none"> <li>Interchange Notarization</li> </ul>
	<ul style="list-style-type: none"> <li>International Fast &amp; Secure Trade Lane</li> </ul>	<ul style="list-style-type: none"> <li>International Fast &amp; Secure Trade Lane</li> </ul>		
		<ul style="list-style-type: none"> <li>Notarisation train wagon LDV</li> </ul>		<ul style="list-style-type: none"> <li>Notarisation train wagon LDV</li> </ul>
		<ul style="list-style-type: none"> <li>Asset tracking</li> </ul>	<ul style="list-style-type: none"> <li>Notarization - customs security document for SUDOCO</li> <li>Semantic digital process automation</li> </ul>	<ul style="list-style-type: none"> <li>IOT for terminal gate automation</li> </ul>
		<ul style="list-style-type: none"> <li>Rail &amp; Intermodal connector</li> <li>Best trucker selection</li> <li>Truck last mile &amp; intermodal triangulation</li> </ul>	<ul style="list-style-type: none"> <li>Green report</li> <li>Truck smart gate</li> <li>Federative Services: list &amp; target</li> <li>International Fast &amp; Secure Trade Lane</li> <li>Edifact / Ediges engine</li> <li>Asset tracking</li> <li>H30 / intermodal pre announcement / inland</li> </ul>	

Aim of **digitizing the Interchange** (document that certifies the goods entering / leaving the terminal and related informations).

The **notarization** process is linked to the **Blockchain** technology which guarantees **trust** and the **reliability** of the interchange document without the need for an intermediary to act as guarantor.

Each transaction recorded on the Blockchain guarantees the **authenticity** of the transaction itself.

## Advantages:

- prevent forgery and avoid fraud
- intrinsically **safe technology**
- **authenticity**, origin and integrity of the document





## The Challenge

The objective is to support the process of “validation and certification” of documents with a customs and security value throughout the entire logistic process, following the industry needs concerning also the Customs 2020 - 2025 evolutive procedures. This aim is achievable using “notarisation” and new technologies based on distributed registers.

## Solution

The **Notarisation & Blockchain applied to eCustoms** is the solution for the complete management of documentary flows in “ONCE” approach for the subsequent phases of customs verification. It is integrated within Milos® Global Supply Chain Visibility Suite which allows the entire handling process to be coordinated among private players and along the international chains (maritime, port and intermodal logistics).

## Pilot Project

- Interchange Notarisation
- International Fast & Secure Trade Lane (with IoT)
- Rail Cargo document / CIM notarisation (with Blockchain)



- MILOS for Manufacturing & Distributions
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  - Key Differentiation points & Award
  - Ongoing developments

In recent years, many international companies concentrated on the study of innovative solutions related to **international maritime & customs procedures**. However, what characterizes the innovative solutions are the specific approach and positioning:



1) The "customs clearance" is **completely digital** and **anticipated**;



2) The possibility to exploit **IoT technologies**;

3) The focus on Europe:



- These procedures are **completely compliant with the European Customs Code**;
- The possibility to apply the procedures to traffic in Med, Black Sea, Middle East and Far East (E.g. **Italian Fast Corridor**) and (following) to similar procedures inside Baltic Area.

4) To support the process of "validation / certification" of documents with "customs & security" value, along the whole process;

5) Structurally ahead of schedule, roadmap 2020-2025 for maritime formalities and customs procedures

- In November 2019 Circle was cited in the Supply Chain Vendor Guide of Gartner with the suite Milos® Global Supply Chain Visibility integrated with MasterSped. This will allow us to further enhance our presence on the market.



## Supply Chain Operational Visibility Vendor Guide

**Published:** 7 November 2019 **ID:** G00387970

**Analyst(s):** Christian Titze, Bart De Muynck

This research provides a compendium of the operational visibility solutions categories and providers that Gartner covers. Supply chain technology leaders can use this research to help develop a comprehensive supply chain visibility technology portfolio strategy.



Circle (Milos)	<a href="http://www.circletouch.eu">www.circletouch.eu</a>	Modular solution for the transport optimization of containers, trailers, cars and general cargo through the logistic intermodal chain; focus on automated port logistics and customs procedures
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- Thanks to the acquisition in 2019 of the software house Progetto Adele, Circle Group has expanded the portfolio of solutions offered with a focus dedicated in particular to **Freight Forwarders**. The integration between the solutions, allows to offer customers **innovative products** in terms of **tracking, internet of things and intermodal transport**, which contribute to a **huge recovery of efficiency, cost reduction and performance increase**, as required by large international importers and exporters in view of supply chain visibility.



- Moreover, Circle Group has been committed for years to the challenge of **simplifying customs procedures** thanks to its services, which allow to completely **digitalize information and documental flows** for all the actors of the supply chain. In this way, the company accompanies its customers on a constant **path of innovation**, offering added value in terms of **quality of service, security and better customs management**. The goal is to create a supply chain that is increasingly usable, smart green, federative and that uses intermodal components able to reduce costs, pollution and energy consumption



- Thanks to the Joint Venture with the partner Log@Sea and Optimeasy, Circle Group is looking for develop an internal line of business specifically dedicated to the development of **optimization** tools for the port and logistics sectors as a whole and the benefits arising from the implementation of **Digital Twin**



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# *Thank you*

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Project Management



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Circle



Circle

