

Pilot action final report

Port of Ploče Authority

D.4.2.9

06 2022

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1. Ex-ante situation – Background of the pilot action

The pilot action that Port of Ploče Authority carried out within the PROMARES project aims to find a solution to the challenges and solve problems that hinder the full development of the maritime and multimodal transport sector. This is mainly caused by the unbalanced development of the multimodal transport options and ICT solutions, especially regarding the solutions which exists in port of Ploče area.

The digitalization of port logistics and the implementation of the Port Community System has made it possible to give greater inputs to the activities streamlining the processes for ships, terminal cargo manipulations, trucks organization and administrative Custom and port authorities' procedures.



Figure 1 Port of Ploče

Within the PROMARES project Port of Ploče Authority has upgraded the Port Community System (PCS) Ploče as a ICT platform for message exchange and port operations. PCS represent the intelligent and secure platform for exchange of information between public and private entities of the maritime-port cluster with aim to optimize, manage and automate port and logistic services. Usage of this kind of systems are based on process optimization by reducing procedure times and minimizing the use of paper documents

PCS Ploče monitors the entire port process in real time and provides information on the status of port operations, departure, and arrival times of ships through the tracking function, cargo manipulation and monitoring truck announcement and cargo transport.

Port of Ploče Authority PCS system will be integrated with the national Croatian Integrated Maritime Information System (CIMIS) with the aim of exchanging information in maritime business. Integration is based on defined provisions and standards agreed within the Project of the National Port Information System (nPCS) development. NPCIS system will be used in all Croatian ports. Information exchanged between PCS and CIMIS will be further exchanged at the local level with existing systems and subsystems used by users in the Port of Ploče. Based on defined provisions and standards during the development of nPCS for Croatian ports, within the PROMARES project pilot actions have been implemented.

1 Pilot action description

The PROMARES project provided wider scope of possibilities to Port of Ploče Authority regarding the needed digitalization of the port operations and security in the Port of Ploče area. It has enabled to implement targeted interventions capable of improving and strengthening IT security, in relation to:

- **Perimeter security and cyber security:**

Strengthening the technological safeguards for the protection of networks and their perimeters with the aim of increasing the ability to optimize and balance the network traffic with the aim for optimizing data exchange in the port area and resolving bottlenecks of transport flows of goods while using PCS systems

- **Backup and Disaster Recovery:**

Port of Ploče Authority has upgraded the virtualization platform with the aim of ensuring better management of transport flows in port areas which can guarantee the continuity and operational availability of the PCS Ploče, and its rapid recovery following serious damage caused by cyber-attacks, accidental events, sabotage, natural disasters, or other problems.

Through project Port of Ploče Authority implemented PCS pilot related system upgrade and development services and development of the integration API-s, in relation to better exchange of data in the port area and resolving bottlenecks of transport flows of goods:

- Integration of PCS system and module for truck announcements with other control access subsystems and systems from other terminal operators. PCS system was for example integrated with truck cargo scale management system from terminal operator and data regarding cargo and truck weight have been exchanged to PCS truck announcement module. Based on PCS Truck announcements truck and cargo data have been exchanged to terminal operating system for the truck and cargo scale management.
- Integration of PCS module general cargoes, Customs with the system of TOS main concessionaires
- The Port Authority of Ploče is a user of the ERP system, which needed to be integrated with PCS system to exchange the necessary data and automate procedures. The integration of the system affects the port entrance procedures. Based on incidental situations in the maritime part, and the monitoring of the maritime aspect through the PCS system, based on the announcement of ships, truck and operational procedures, financial documents have been issued through ERP system and PCS system. With a aim of automating procedures and improving and optimising them, it is necessary to develop data exchange services and interfaces in the data receipt/transmission system in order to avoid unnecessary data overtaking.

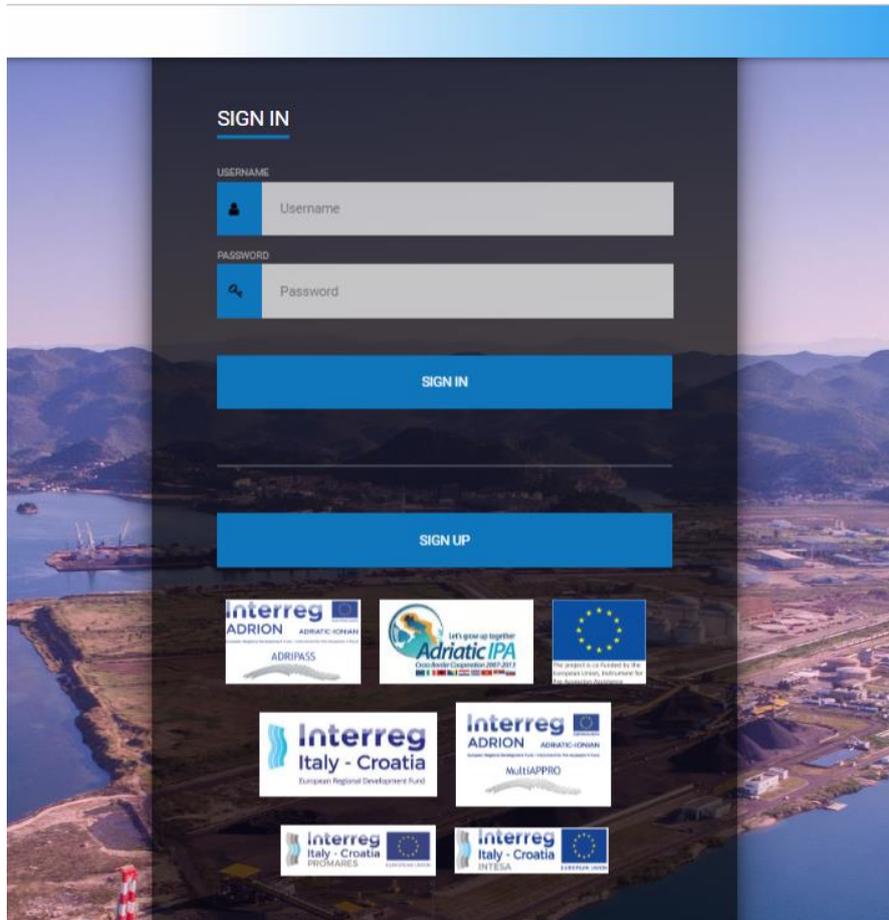
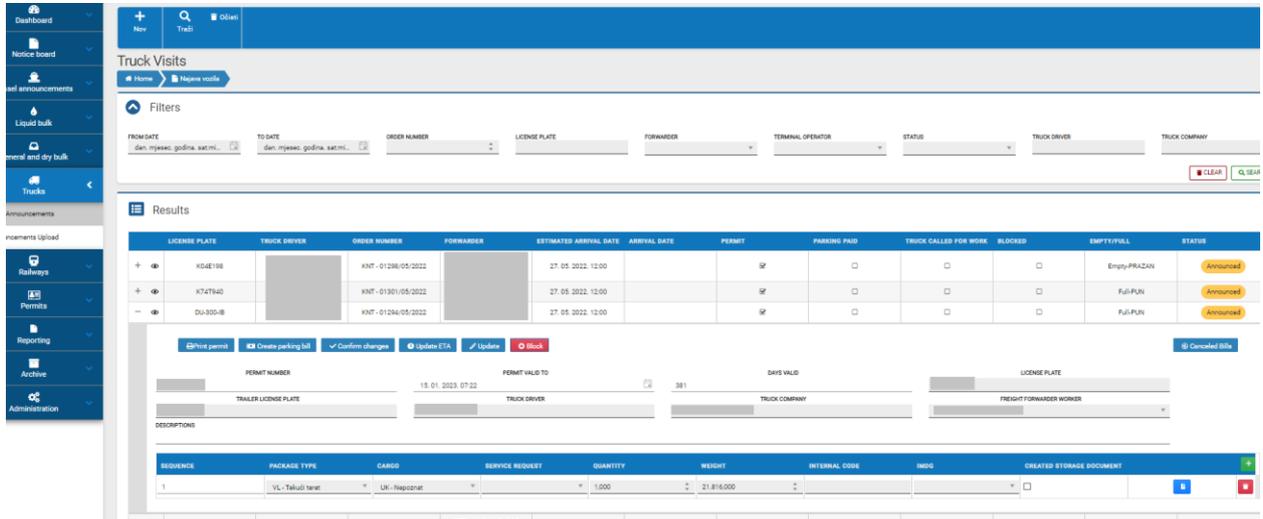


Figure 2 PCS Ploce system login screen



Truck Visits

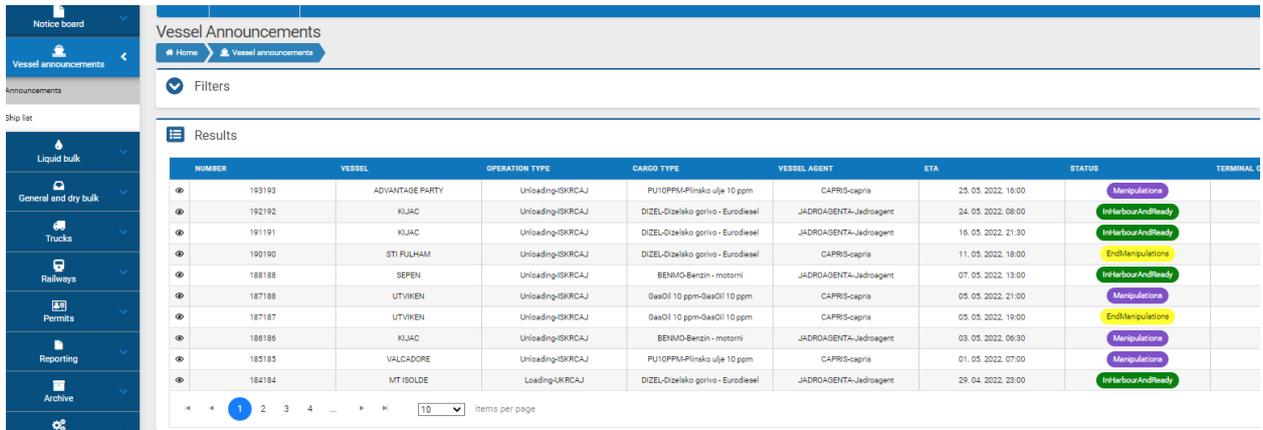
Filters: FROM DATE, TO DATE, ORDER NUMBER, LICENSE PLATE, FORWARDER, TERMINAL OPERATOR, STATUS, TRUCK DRIVER, TRUCK COMPANY

LICENSE PLATE	TRUCK DRIVER	ORDER NUMBER	FORWARDER	ESTIMATED ARRIVAL DATE	ARRIVAL DATE	PERMIT	PARKING PAID	TRUCK CALLED FOR WORK	BLOCKED	EMPTY/FULL	STATUS
K02E108		KNT-01204/05/2022		27.05.2022. 12:00		IF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Empty/PRAZAN	Announced
K747840		KNT-01301/05/2022		27.05.2022. 12:00		IF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Full-FULN	Announced
DU-300-IB		KNT-01204/05/2022		27.05.2022. 12:00		IF	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Full-FULN	Announced

PERMIT NUMBER: 15.01.2023. 07:22, PERMIT VALID TO: 361, DAYS VALID, LICENSE PLATE, TRAILER LICENSE PLATE, TRUCK DRIVER, TRUCK COMPANY, FREIGHT FORWARDER WORKER

SEQUENCE	PACKAGE TYPE	CARGO	SERVICE REQUEST	QUANTITY	WEIGHT	INTERNAL CODE	IMDC	CREATED STORAGE DOCUMENT
1	VL - Tekući teret	UK - Neopoprat		1.000	21.816.000		<input type="checkbox"/>	

Figure 3 Truck announcements integrated with TOS



Vessel Announcements

Filters: NUMBER, VESSEL, OPERATION TYPE, CARGO TYPE, VESSEL AGENT, ETA, STATUS, TERMINAL

NUMBER	VESSEL	OPERATION TYPE	CARGO TYPE	VESSEL AGENT	ETA	STATUS	TERMINAL
193193	ADVANTAGE PARTY	Unloading-SKRCAJ	PUI(OPFM)-Plinsko ulje 10 ppm	CAPRS-capria	23.05.2022. 16:00	Manipulations	
192192	KLJAC	Unloading-SKRCAJ	DIZEL-Dizelsko gorivo - Eurodiesel	JADROAGENTA-Jadroagent	24.05.2022. 08:00	InHarbourAndReady	
191191	KLJAC	Unloading-SKRCAJ	DIZEL-Dizelsko gorivo - Eurodiesel	JADROAGENTA-Jadroagent	16.05.2022. 21:30	InHarbourAndReady	
190190	STI FULHAM	Unloading-SKRCAJ	DIZEL-Dizelsko gorivo - Eurodiesel	CAPRS-capria	11.05.2022. 18:00	EndManipulations	
188188	SEPEN	Unloading-SKRCAJ	BENMO-Benzin - motori	JADROAGENTA-Jadroagent	07.05.2022. 13:00	InHarbourAndReady	
187188	UTWIKEN	Unloading-SKRCAJ	GasOil 10 ppm-GasOil 10 ppm	CAPRS-capria	05.05.2022. 21:00	Manipulations	
187187	UTWIKEN	Unloading-SKRCAJ	GasOil 10 ppm-GasOil 10 ppm	CAPRS-capria	05.05.2022. 19:00	EndManipulations	
186186	KLJAC	Unloading-SKRCAJ	BENMO-Benzin - motori	JADROAGENTA-Jadroagent	03.05.2022. 06:30	Manipulations	
185185	VALCADOIRE	Unloading-SKRCAJ	PUI(OPFM)-Plinsko ulje 10 ppm	CAPRS-capria	01.05.2022. 07:00	Manipulations	
184184	MT ISOLDE	Loading-UKRCAJ	DIZEL-Dizelsko gorivo - Eurodiesel	JADROAGENTA-Jadroagent	29.04.2022. 23:00	InHarbourAndReady	

10 items per page

Figure 4 Vessel announcement regarding Custom data

Eccos-PSC					
Vanski parking izlaz Card / Badge data Person: Mladenić, Mladen Event Text: Prolazak dozvoljen Log date: 26.5.2022, 15:01:39 CardNR: 910634 Reader: Vanski parking izlaz GORE Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:ExternaParkingEnter CargoCode: DIZEL HasPerm: True LicensePlate: A37E241/K75T249 PermitValidTo: 26.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: AS COMPANYANY s.d.o.o. TruckDriver: MLADEN MIJATOVIĆ No ANPR/ADR Ramp: <input checked="" type="checkbox"/> Message: <input checked="" type="checkbox"/>	Vanski parking ulaz LJEVO Card / Badge data Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:ExternaParkingEnter CargoCode: DIZEL HasPerm: True LicensePlate: A37E241/K75T249 PermitValidTo: 26.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: AS COMPANYANY s.d.o.o. TruckDriver: MLADEN MIJATOVIĆ ANPR/ADR: 172.16.178.230.2 ANPR: DU552JD ADR: 375256 LogID: 172.16.178.230 Name: 172.16.178.230 Time: 26.5.2022, 11:29:10 Ramp: <input checked="" type="checkbox"/> Message: <input checked="" type="checkbox"/> Nema podataka o najavi	Vanski parking ulaz DESNO Card / Badge data Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:ExternaParkingEnter CargoCode: DIZEL HasPerm: True LicensePlate: K58J013/E34K844 PermitValidTo: 1.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: ALMY TruckDriver: ZAHID IMAMOVIĆ ANPR/ADR: 172.16.178.229.1 ANPR: K58J013 ADR: 375459 LogID: 172.16.178.229 Name: 172.16.178.229 Time: 26.5.2022, 14:48:04 Ramp: <input checked="" type="checkbox"/> Message: <input checked="" type="checkbox"/>	Interni parking ulaz Card / Badge data Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:InternaParkingEnter CargoCode: DIZEL HasPerm: True LicensePlate: K58J013/E34K844 PermitValidTo: 1.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: ALMY TruckDriver: ZAHID IMAMOVIĆ No ANPR/ADR Ramp: ... Message: ...	Interni parking izlaz Card / Badge data Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:InternaParkingExit CargoCode: DIZEL HasPerm: True LicensePlate: K58J013/E34K844 PermitValidTo: 1.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: ALMY TruckDriver: ZAHID IMAMOVIĆ No ANPR/ADR Ramp: ... Message: ...	Glavni Ulaz/Izlaz [RP08] - ulaz Card / Badge data Person: Mladenić, Mladen Event Text: Prolazak dozvoljen Log date: 26.5.2022, 15:03:22 CardNR: 910634 Reader: 19_Glavni Ulaz [RP08] - ulaz vozila GORE Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:PortEnter CargoCode: DIZEL HasPerm: True LicensePlate: A37E241/K75T249 PermitValidTo: 26.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: ... TruckDriver: ... ANPR/ADR: 172.16.178.232.4 ANPR: JA089FV ADR: 375476 LogID: 172.16.178.232 Name: 172.16.178.232 Time: 26.5.2022, 15:03:42 Ramp: <input checked="" type="checkbox"/> Message: <input checked="" type="checkbox"/>
Glavni Ulaz/Izlaz [RP09] - ulaz do vage Card / Badge data Person: ... Event Text: Prolazak dozvoljen Log date: 26.5.2022, 15:04:43 CardNR: 910774 Reader: 19_Subaš Glavni Izlaz [RP10] - izlaz S vage Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:PortEnter CargoCode: DIZEL HasPerm: True LicensePlate: A40E346/T19M338 PermitValidTo: 26.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: TROJTRANS-IMK D.O.O. TruckDriver: MILENKO SARENAC ANPR/ADR: 172.16.178.231.3 Ramp: <input checked="" type="checkbox"/> Message: ...	Glavni Ulaz/Izlaz [RP10] - izlaz S vage Card / Badge data Person: ... Event Text: Prolazak dozvoljen Log date: 26.5.2022, 15:04:43 CardNR: 910774 Reader: 20_Subaš [RP11] - izlaz NA vage GORE Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:PortExit CargoCode: DIZEL HasPerm: True LicensePlate: A40E346/T19M338 PermitValidTo: 26.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: TROJTRANS-IMK D.O.O. TruckDriver: MILENKO SARENAC No ANPR/ADR Ramp: <input checked="" type="checkbox"/> Message: <input checked="" type="checkbox"/>	Glavni Ulaz/Izlaz [RP11] - izlaz do vage Card / Badge data Person: ... Event Text: Prolazak dozvoljen Log date: 26.5.2022, 14:52:45 CardNR: 911220 Reader: 20_Subaš [RP11] - izlaz NA vage GORE Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:PortExit CargoCode: UK HasPerm: True LicensePlate: T56J396 PermitValidTo: 11.10.2022, 22:00:00 TerminalOperator: LRGT TruckCompany: MENO D.O.O TruckDriver: PAVO KARANTIC ANPR/ADR: 172.16.178.233.5 ANPR: A0E846 ADR: 375472 LogID: 172.16.178.233 Name: 172.16.178.233 Time: 26.5.2022, 14:58:34 Ramp: <input checked="" type="checkbox"/> Message: <input checked="" type="checkbox"/>	Glavni Ulaz/Izlaz [RP12] - izlaz vozila Card / Badge data Person: ... Event Text: Prolazak dozvoljen Log date: 26.5.2022, 14:33:32 CardNR: 911252 Reader: 21_Subaš Izlaz [RP12] - izlaz vozila GORE Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:PortExit CargoCode: DIZEL HasPerm: True LicensePlate: B51821HS/ABB47JA PermitValidTo: 26.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: ANOX DOO TruckDriver: MOMICLO KUSMIK ANPR/ADR: 172.16.178.234.6 ANPR: DU587HB ADR: 375459 LogID: 172.16.178.234 Name: 172.16.178.234 Time: 26.5.2022, 14:54:45 Ramp: <input checked="" type="checkbox"/> Message: <input checked="" type="checkbox"/>	Glavni Ulaz/Izlaz [RP13] - ulaz S vage Card / Badge data Last visit end action Person full name: <input type="text"/> Card/Badge Nr: <input type="text"/> End time: <input type="text"/> Announcement: ToStatus:PortExit CargoCode: DIZEL HasPerm: True LicensePlate: B51821HS/ABB47JA PermitValidTo: 26.5.2022, 22:00:00 TerminalOperator: NTF TruckCompany: ANOX DOO TruckDriver: MOMICLO KUSMIK No ANPR/ADR Ramp: ... Message: ...	

Figure 5 PCS System Ploče Integration with Control Access system and LPR recognition system

Sačuvaj Poništi Back

Nov VehiclePermit

Naslovnica Vehicle permits Vehicle permit edit

Dnevna Dozvola za vozilo

TIP VOZILA: TRUCK - KAMION

VRSTA MANIPULACIJE: Unloading - Unloading

REGISTARSKA OZNAKA: K40T552

TVRTKA: ŠARAC PROMET DOO

VRHJEDI OD: 12. 09. 2022.

VRHJEDI DO: 13. 09. 2022.

Povijest

DATUM STVARANJA: 12. 09. 2022.

IZMJENJENO DANA: dan. mjesec. godina.

PRIVITCI

Figure 6 Creating new vehicle permit from truck announcement and invoicing – vehicle permit and parking fee

Broj Parkinga i Dozvole

Naslovnica Broj parkinga i dozvole

Pretraživanje

Rezultati

BRJ	VRSTA	NAČIN PLAĆANJA	CIJENA	REGISTARSKA TABLICA	PLAĆEN	PONIŠTENO	RAČUN ZA PARKIRANJE
143793	Parking	CASH	50,00 kn	R17662.J/25.0216.F2	0		
100704804	Dnevna	CASH	47,00 kn	R17662.J/25.0216.F2	1		
143792	Parking	CASH	50,00 kn	K38-A-976/E61-0-431	1		
143791	Parking	CASH	50,00 kn	E74K080/T54K952	1		
143790	Parking	CASH	50,00 kn	E040733/E9117183	1		
143789	Parking	CASH	50,00 kn	051-E-185/K93-0-182	1		
143788	Parking	CASH	50,00 kn	082-E-881/513-T239	1		
143787	Parking	CASH	100,00 kn	J52-T-554/J94-T271	1		
100703641	Dnevna	CASH	47,00 kn	J52-T-554/J94-T271	1		
143786	Parking	CARD - Visa	50,00 kn	Z04532B/Z0254118	1		
100703640	Dnevna	CARD - Visa	47,00 kn	Z04532B/Z0254118	1		
143785	Parking	CASH	100,00 kn	J940295/M317734	1		
100703639	Dnevna	CASH	47,00 kn	J940295/M317734	1		
143784	Parking	CASH	50,00 kn	A076-070/A91-A8-566	1		

Figure 7 PCS System Ploče invoice summary

2 Stakeholders

Among the stakeholders involved in the project are the public bodies Ministry of Finance (Customs), Ministry of the Sea, transport and Infrastructure, Port of Ploče Authority, Security Guards, port operators and companies in the logistics sector (freight forwarders, transport companies). The PCS system allows the implementation of numerous services, and it is a tool for the public and private stakeholders which can facilitate and speeding up the operations to be carried out within the port.

Port of Ploče Authority PCS system will be integrated with the national Croatian Integrated Maritime Information System (CIMIS) with the aim of exchanging information in maritime business. Project of Integration is based on defined provisions and standards agreed within the Project of the National Port Information System (nPCS) development. This project supervised under the Ministry of Finance (Customs), Ministry of the Sea, transport and Infrastructure and nPCS system will be used in all Croatian ports.

Information exchanged between PCS and CIMIS will be further exchanged at the local level with existing systems and subsystems used by users in the Port of Ploče.

3 Impacts and replicability

The PROMARES project has made it possible to develop intelligent solutions and a general management model that make it possible to exploit innovative technologies in favour of ports and related services.

The digitalization of port logistics and the implementation of the Port Community System has made it possible to give greater inputs to the activities streamlining the processes for ships, terminal cargo manipulations, trucks organization and administrative Custom and port authorities' procedures. PCS system Ploče represent the intelligent and secure platform for exchange of information between public and private entities of the maritime-port cluster with aim to optimize, manage and automate port and logistic services. Usage of this kind of systems are based on process optimization by reducing procedure times and minimizing the use of paper documents.

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Information exchanged between PCS and CIMIS will be further exchanged at the local level with existing systems and subsystems used by users in the Port of Ploče.

The PCS system allows the implementation of numerous services, and it is a tool for the public and private stakeholders which can facilitate and speeding up the operations to be carried out within the port. It monitors the entire port process in real time and provides information on the status of porta operations, departure, and arrival times of ships through the tracking function, cargo manipulation and monitoring truck announcement and cargo transport.

PCS System in port environment will improve many parts of the processes in the port:

- Reporting to authorities is simplified. Information is distributed to the respective authorities in compliance with effective directives (very important because supply chain performance is increasingly driven by governmental regulations).
- Coordination of operations is enhanced at the physical, information, and financial layer. This means that cooperating and competing firms are bound together. PCSs enhance the efficiency and effectiveness of interactions between port community members and thus help to reduce processing costs by providing a central information network which increases visibility and data quality.
- Better data quality:
 - The intrinsic category of data quality is related to data accuracy, objectivity, and reputation. PCSs enhance the accuracy of information by checking for input mistakes.
 - Data accessibility is enhanced by centralizing community information as much as possible. The structured approach of information exchange via PCSs is better than information exchange through informal information channels. Information is detached from personal communication and thus made available on a 24/7 basis. PCSs also ensure data security by managing access rights and tracing unauthorized access

attempts. Information is only made available to authorized members of the port community.

- The contextual category of data quality comprises the dimensions of data relevancy, timeliness, completeness, and data complexity. Besides assuring accuracy, input validations performed by PCSs also enhance data relevancy and completeness. PCSs also help to reduce data complexity by capturing information once and reusing it for different applications, so the need to re-type data can be avoided (“single submission”). Information also becomes more transparent because changes can be traced back to individual organizations or users. Regarding data processing, PCSs can enhance the automation of core workflows and processes based on captured information.
- Representational data quality. Its main dimensions are data interpretability, ease of understanding, concise presentation, and consistent representation. PCSs standardize the message exchange among port community members. All companies involved use the same language in terms of data formats and transmitting services.
- Possibility to launch alert messages/status reports.
- Possibility to implement collaborative planning.
- Higher efficiency and speed regarding port processes for all parties involved.
- Reduction of paperwork. In this way, PCSs contribute to sustainable transport logistics and support the ambitions to meet global carbon reduction requirements.
- Using electronic data exchange, the PCS is an effective real-time information system; fast, focused, flexible and multi-faceted, it aims to improve efficiency at all stages of the process of manifesting, through vessel discharge and loading, Customs clearance, port health formalities and delivery in and out of the terminal. PCS offers also improved security, cost reduction and potentially more competitiveness for each user.