



# Test Bed Specifications and Pilot Deployment



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## 1 Introduction

This deliverable describes in detail the specifications and requirements that are needed for the deployment of each Port pilot. These specifications were classified in three sections, more specifically, required *hardware and software specifications*, *a plan of the required training* and the *time plans* for the execution of the pilot deployments.

## 2 Overview of the pilot architecture

The architecture of the system meets the needs of a port with increased demands on reliability, integration with existing systems, communication with external users such as passengers, regular communication with clients such as shipping agents, security, maintenance of national and international rules and regulations, future extensions, etc. The system features modular design and all communications between applications are made through Web Service interfaces and through shared access to the database.

The use of standards included in the solution is the only way for the seamless integration of the subsystems and their collaboration with other future or existing systems. More precisely, the standards followed are:

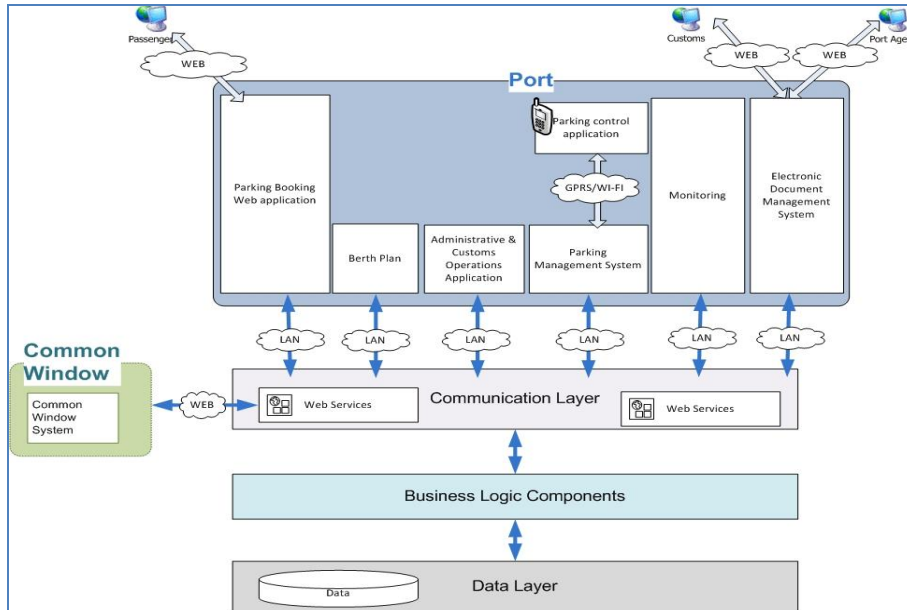
- OpenGIS for the management and exchange of spatial data
- XML / SOAP & WSDL to exchange other data
- Open Database Connectivity (ODBC) to interface with the database system

These ensure easy and simplified interconnection of the various subsystems with any external system logic in an open architecture, further enabling the future expansion of the platform.

The main application of the system is "**Electronic Document Management System**". Both harbor and external users have access to the system. Users depending on their rights have access to corresponding electronic documents or part of them. The application supports the ability to fill in web forms of messages, supporting XML or EDI messages.

External users (drivers) use the "**Parking Booking Web application**" to reserve parking space for the vehicle through an online application.

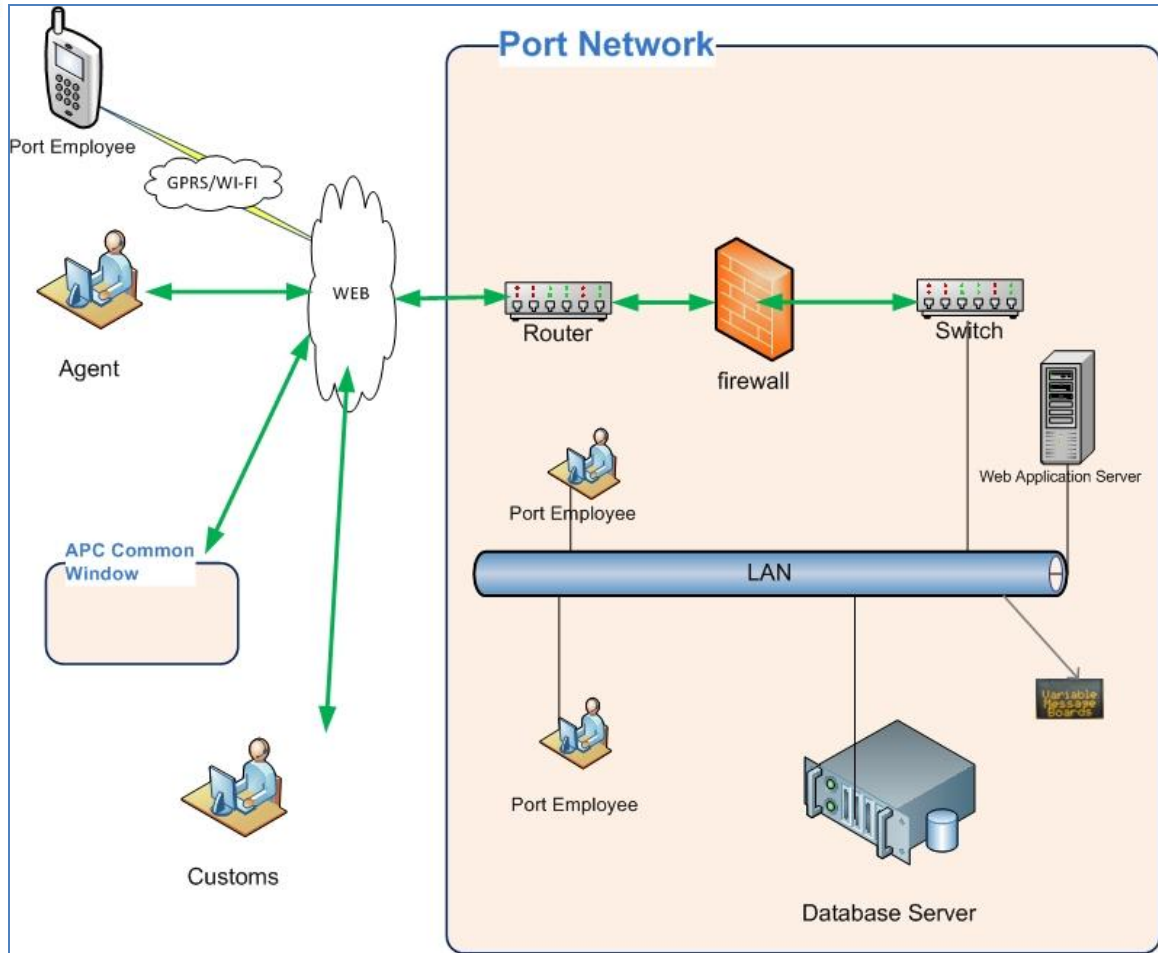
The «**Berth Management System**» is an integrated information system that supports the entire process of Ship berthing. The system receives messages from the ship arrival announcement through the "**Electronic Document Management System**" using Web Service interfaces. The user is able to choose a berthing position or make use of the one proposed by the system (through historical records). The berth position can be communicated to other applications via a respective Web Service. Using this information *the "Parking Position Management System"* is capable of providing to vehicles the best parking space close to the berthing position of the ship.



The **"Parking Position Management System"** has the responsibility of managing parking spaces within the port.

### 3 Physical Architecture - Used infrastructure

The figure below presents the physical architecture of the system and the minimum equipment required for the operation of the pilot.



The detailed specifications for the hardware and software used are presented in the chapter below.

## 4 Hardware and Software Specifications

### 4.1 Servers

The main servers will include:

- i) Two (2) Database Server (one of them will be the Live while the other will be a mirror). The server hardware must support the following:
  - Rack mounted type layout
  - Intel Xeon technology processors with at least 2,66 GHz of frequency.
  - Front side bus frequency (FSB) of at least 1333 MHz.
  - Level 2 Memory Cache of at least 8MBs
  - DDR3 RAM with a capacity of at least 8 GBs scalable to at least 16 GB
  - At least 4 PCI / PCI Express Ports
  - At least 5 USB 2.0 Ports, 1 serial Port, 1 Port for the mouse
  - At least 2 Ethernet Network Ports 10/100/1000
  - SAS type Hard Drive Controller with RAID 0/1/0+1/5 support
  - Hot-plug hard drives, hot-plug redundant power supplies
  - At least 600 GBs of total hard drive storage capacity
  - DVD RW unit
  - 15" Monitor
  - 3 years of Next Business Day guarantee
- ii) Two (2) Web Servers. The server hardware must support the following:
  - Rack mounted type layout
  - Intel Xeon technology processors with at least 2,66 GHz operational frequency and at least 4 cores.
  - Front side bus frequency (FSB) of at least 1333 MHz
  - Level 2 Memory Cache of at least 8MBs
  - DDR3 RAM with a capacity of at least 8 GBs scalable to at least 16 GB

- At least 4 PCI / PCI Express ports
- At least USB 2.0 ports, 1 serial port, 1 port for a mouse
- At least 2 Ethernet Network Ports 10/100/1000
- SAS type Hard Drive Controller with RAID 0/1/0+1/5 support
- Hot-plug hard drives, hot-plug redundant power supplies
- At least 600 GBs of total hard drive storage capacity
- DVD RW unit
- 15" monitor
- 3 years of Next Business Day guarantee

## 4.2 Work Stations (Personal Computers)

The work stations of the systems will include:

1. Work stations for internal usage
  - 2 personal computers (PC's) for the "**Administrative & Customs Operations Application**"
  - 1 personal computer (PC) for the "**Berth Management System**"»
  - 1 personal computer (PC) for the "**Parking Booking Web application**" and "**Parking control application**"
  - 1 personal computer (PC) for the Electronic Document Management System
2. Work stations to be operated by personnel on site
  - 1 handheld PDA unit for the gate area
  - 1 handheld PDA unit for the ship loading area

The hardware for the internal working stations must support the following:

- Intel Core i7 technology processors with an operational frequency of at least 2,8 GHz

- DDR3 RAM with a frequency of 1333MHz of at least 4GB of memory scalable to at least 8GB
- At least 5 USB ports and at least 1 USB 3.0 port
- At least 2 Ethernet Network Ports 10/100/1000
- At least 500GBs of total hard drive storage capacity
- DVD unit
- 21" Monitor

The hardware for the external working stations is found in the chapter PDA found below.

### **4.3 PDA**

The handheld PDA's fulfill the specifications below.

Windows® CE 5.0 Operating System or greater

WWAN radio with available built-in GPS

Ultra-rugged IP-67, 6' drop, Class I Div II approved

802.11 b/g and a/b/g WLAN radio options plus Bluetooth

#### **KEYBOARD**

Backlit keys

38-key numeric-alpha or 62-key alpha-numeric

10 dedicated function keys + user defined keys

Fully keyboard mapping support

Durable, in-mold design

#### **DISPLAY**

- 3.7" (94 mm) color QVGA

- Outdoor readable, transreflective

- Resistive touch screen with stylus

#### **BAR CODE READER**

- Standard range laser

- 2D Imager

- Full symbology support

- Image capture, VGA

#### **INTERFACES**

- USB Host & Client



- Powered RS-232
- Ethernet
- In-terminal charging
- Microphone
- Speaker with adjustable volume control
- Large scan status LEDs & power status

#### **4.4 Printers**

For the printable supporting directions to the parking spots throughout the port, 2 thermal printers are required in the gate area with their specifications found below:

- Printing width, 60 or 80 mm
- Printing speed > 220mm/sec.

#### **4.5 Wi-Fi Networking Requirements**

- Already installed in OLIG

## **4.6 Software Requirements**

The required software that will be installed and used is presented below.

### **4.6.1 Operating Systems**

- A. Windows 2008 r2 Server, 4 User Licences.
- B. Windows 7 Professional 64 bit 7 User Licences.

### **4.6.2 Database Management System**

The Database Management System must be the:

Sql Server 2008 R2 Enterprise Edition

### **4.6.3 GIS Software**

For the GIS support the freeware MapServer will be used, which can be downloaded through the link: <http://mapserver.org>.

## 5 Training

### 5.1 Organisation of training

The required technological expertise the staff of the IPA has to acquire is a vital factor for the full exploitation of the system. The overall philosophy, the terminology and the processes it introduces must be fully understood by all actors involved, so they can be used for the quality upgrade of the services the IPA provides.

The user categories are specified below:

- **Group A:** Simple Users – Operational Users
- **Group B:** Critical Users – Higher/Management Level
- **Group C:** System Administrators

Over the next paragraphs the Training Curriculum is presented as specified in the specifications of the IPA and in the proposals of the actors involved.

## 5.2 Training Curriculum

Seminar Code	Description – Seminar Title	Seminar Duration	Number of Teams	Total hours
TS1	Use of the Parking Control Application	5	2	10
TS2	Use of the Electronic Document Management Application	5	2	10
TS3	Use of the Berth Management System Application	5	2	10
TS4	Use of the Administrative & Customs Operations Application	5	2	10
TS5	Use of the Parking Booking Web Application	5	2	10
TS6	Overall System Philosophy, Information System Processes	5	1	5
TS7	System and Application Architecture	5	1	5
TS8	Applications Database Management System	5	1	5
TS9	System Security Procedures – Connecting with Third Party systems and the Common Window	5	1	5
TS10	Overall Use of the Applications Included in the Information System	5	1	5
TS11	Administration of the Parking Input / Output	5	1	5

	Control Application			
TS12	Administration of the Electronic Document Management Application	5	1	5
TS13	Administration of the Berth Management System Application	5	1	5
TS14	Administration of the Administrative & Customs Operations Application	5	1	5
TS15	Administration of the Parking Booking Web Application	5	1	5

### 5.3 Training Sessions

TS Code	TS1
Description	Use of the Parking Control Application
Users	Group A
<p><b>TS Goal</b></p> <p>Operational Use of the application.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Parking Space management</li> <li>• Usage of the application for Controls at the Gate</li> <li>• Cooperation with Electronic documents management system</li> <li>• Reporting</li> <li>• Usage of handheld terminals to report on vehicle loading on vessel and parking space release</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS2
Description	Use of the Electronic Document Management Application
Users	Group A
<p><b>TS Goal</b></p> <p>Operational Use of the application.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Usage of the application to manage electronic documents</li> <li>• Cooperation with Parking Space Management application</li> <li>• Electronic messages check and acceptance</li> <li>• Message forwarding to involved stakeholders</li> <li>• Cooperation with Berth Management System</li> <li>• Usage of the application in cooperation with the Common Window</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS3
Description	Use of the Berth Management System Application
Users	Group A
<p><b>TS Goal</b></p> <p>Operational Use of the application.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Usage of the application regarding the assignment of berths</li> <li>• Cooperation with other applications of the overall system</li> <li>• Control and management of the assigned berths by configuring specific parameters of the vessel</li> <li>• Use of the GIS to monitor berth status</li> <li>• Historical data related to approaching vessels</li> <li>• Usage of the application in cooperation with the Common Window</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	





TS Code	TS4
Description	Use of the Administrative & Customs Operations Application
Users	Group A
<p><b>TS Goal</b></p> <p>Operational Use of the application.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Usage of the application regarding the control and management of customs in/out operations</li> <li>• Cooperation with other applications of the overall system</li> <li>• Cargo vehicle control and acceptance</li> <li>• Monitor the status of the cargoes and the vehicles</li> <li>• Reporting</li> <li>• Usage of the application in cooperation with the Common Window</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	



TS Code	TS5
Description	Use of the Parking Booking Web Application
Users	Group A
<p><b>TS Goal</b></p> <p>Operational Use of the application.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Reservation of space through web application</li> <li>• Space management</li> <li>• Reporting</li> <li>• Cooperation with Parking Control application</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS6
Description	Overall System Philosophy, Information System Processes
Users	Group B
<p><b>TS Goal</b></p> <p>The philosophy of the overall system and overview of the functionality. Main management, administration and usage capabilities.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Functional architecture of the overall system</li> <li>• Single window concepts and Port Community Systems</li> <li>• Overview of functionalities</li> <li>• New procedures</li> <li>• Main management, administration and usage capabilities.</li> <li>• Security aspects</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS7
Description	System and Application Architecture
Users	Group B
<p><b>TS Goal</b></p> <p>The philosophy of the overall system and overview of the functionality.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• General principles on Operational, Integration and deployment procedures</li> <li>• Development technologies</li> <li>• Overview of development and deployment methodologies</li> <li>• Presentation of the different Views (4+1) of the system <ul style="list-style-type: none"> <li>Logical View</li> <li>Process View</li> <li>Implementation View</li> <li>Deployment View</li> <li>Use Case</li> </ul> </li> <li>• User interfaces</li> <li>• Integration with Common Window</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS8
Description	Database Management System
Users	Group B
<p><b>TS Goal</b></p> <p>Database management on critical user level.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Architectural elements</li> <li>• Creation of a new database</li> <li>• Database administrator roles</li> <li>• Management of Tablespaces and Datafiles</li> <li>• Managing indexes</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS9
Description	Security Procedures – Connecting with Third Party systems and the Common Window
Users	Group B
<p><b>TS Goal</b></p> <p>Database management on critical user level.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• System Security organization regarding roles and responsibilities</li> <li>• Security of the overall system and the individual applications</li> <li>• Integration with third party applications or existing systems</li> <li>• Interface to Common Window and security of data</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	



TS Code	TS10
Description	Overall Usage of the Applications Included in the Information System
Users	Group B
<p><b>TS Goal</b></p> <p>Overall Usage of the Applications.</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Overall presentation of the system regarding its installation and management</li> <li>• User accounts creation and access rights</li> <li>• Access to files</li> <li>• Monitoring of system messages, event logs</li> <li>• Creation of reports</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS11
Description	Administration of the Parking Control Application
Users	Group C
<p><b>TS Goal</b></p> <p>Administration of the application. Database management</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Application administration</li> <li>• User accounts creation and access rights</li> <li>• Access to files</li> <li>• Monitoring of system messages, event logs</li> <li>• Creation of reports</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS12
Description	Administration of the Electronic Document Management Application
Users	Group C
<p><b>TS Goal</b></p> <p>Administration of the application. Database management</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Application administration</li> <li>• User accounts creation and access rights</li> <li>• Access to files</li> <li>• Monitoring of system messages, event logs</li> <li>• Creation of reports</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS13
Description	Administration of the Berth Management System Application
Users	Group C
<p><b>TS Goal</b></p> <p>Administration of the application. Database management</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Application administration</li> <li>• User accounts creation and access rights</li> <li>• Access to files</li> <li>• Monitoring of system messages, event logs</li> <li>• Creation of reports</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS14
Description	Administration of the Administrative & Customs Operations Application
Users	Group C
<p><b>TS Goal</b></p> <p>Administration of the application. Database management</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Application administration</li> <li>• User accounts creation and access rights</li> <li>• Access to files</li> <li>• Monitoring of system messages, event logs</li> <li>• Creation of reports</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

TS Code	TS15
Description	Administration of the Parking Booking Web Application
Users	Group C
<p><b>TS Goal</b></p> <p>Administration of the application. Database management</p> <p><b>TS Contents</b></p> <ul style="list-style-type: none"> <li>• Application administration</li> <li>• User accounts creation and access rights</li> <li>• Access to files</li> <li>• Monitoring of system messages, event logs</li> <li>• Creation of reports</li> </ul> <p><b>TS material</b></p> <p>The training material will be in Greek.</p> <p>The training material will be used and handed over to participant in the sessions while all training material will be incorporated into platform manual (complete platform manual is a deliverable of WP7).</p> <p><b>TS premises</b></p> <p>Local Port premises</p>	

## 6 Pilot Time Plan

The following table presents the timeplan for the pilot in Igoumenitsa Port Authority.

The different tasks are categorised according to different activities in:

- The deployment tasks where the needed infrastructure (in terms of hardware and software presented in Chapter 2 above) will be procured and deployed
- The training tasks where all the training will take place and is also partially in parallel with the pilot operations to be performed from mid of March to mid of April.

		Mar 2013	Apr 2013	May 2013	Jun 2013
Deployment Tasks	Hardware/software specs – procurement				
	Hardware/Software Installations/configuration				
Training Tasks	Training Plan				
	Training Material Preparation				
	Training Execution				
Pilot/Testing	Test Cases Creation				
	Pilot Operation - Testing				

In that way the pilot will be operational for a full month which is an adequate period for establishing a good operational status for the overall system and perform also integration tests on Global level with the Common Window.

### 6.1 Training time plan

The table below presents the involved departments or stakeholders that are involved in the training sessions as well as the overall training plan for Port of Igoumenitsa. The plan is based on the availability of users as well as the possible sequence of the training sessions.

Seminar Code	Description – Seminar Title	Group	Number of Teams	Involved Departments /Stakeholders
TS1	Use of the Parking Control Application	A	2	Coast Guard Harbor's master
TS2	Use of the Electronic Document Management Application	A	2	Shipping Lines Harbor's master OLIG Development Department
TS3	Use of the Berth Management System Application	A	2	VTS Harbor's Master
TS4	Use of the Administrative & Customs Operations Application	A	2	Customs Authority
TS5	Use of the Parking Booking Web Application	A	2	Shipping Lines OLIG Development Department
TS6	Overall System Philosophy, Information System Processes	B	1	OLIG Development Department
TS7	System and Application Architecture	B	1	OLIG IT department OLIG Development Department
TS8	Applications Database Management System	B	1	OLIG IT department
TS9	System security Procedures – Connecting with Third Party systems and the Common Window	B	1	OLIG IT department
TS10	Overall Use of the Applications Included in the Information System	B	1	OLIG IT department OLIG Development Department
TS11	Administration of the Parking Input / Output Control Application	C	1	OLIG IT department
TS12	Administration of the Electronic Document Management Application	C	1	OLIG IT department
TS13	Administration of the Berth Management System Application	C	1	OLIG IT department
TS14	Administration of the Administrative & Customs Operations Application	C	1	OLIG IT department
TS15	Administration of the Parking Booking Web Application	C	1	OLIG IT department



Seminar Code	Description – Seminar Title	Involved Departments /Stakeholders	Mar 2013	Apr 2013	May 2013	Jun 2013
TS1	Use of the Parking Control Application	Coast Guard		✘		
		Harbor's master		✘		
TS2	Use of the Electronic Document Management Application	Shipping Lines		✘		
		Harbor's master			✘	
		OLIG Development Department		✘		
TS3	Use of the Berth Management System Application	VTS Harbor's Master	✘			
TS4	Use of the Administrative & Customs Operations Application	Customs Authority	✘			
TS5	Use of the Parking Booking Web Application	Shipping Lines		✘		
		OLIG Development Department		✘		
TS6	Overall System Philosophy, Information System Processes	OLIG Development Department	✘			
TS7	System and Application Architecture	OLIG IT department	✘			
		OLIG Development Department	✘			
TS8	Applications Database Management System	OLIG IT department			✘	
TS9	System security Procedures – Connecting with Third Party systems and the Common Window	OLIG IT department		✘		
TS10	Overall Use of the Applications Included in the Information System	OLIG IT department	✘			
		OLIG Development Department	✘			
TS11	Administration of the Parking Input / Output Control Application	OLIG IT department				✘
TS12	Administration of the Electronic Document Management Application	OLIG IT department				✘
TS13	Administration of the Berth Management System Application	OLIG IT department				✘
TS14	Administration of the Administrative & Customs Operations Application	OLIG IT department				✘
TS15	Administration of the Parking Booking Web Application	OLIG IT department				✘

## **7 Conclusions**

The deliverable presented the overall preparation activities for the pilot in Port of Igoumenitsa. A precise description of the needed infrastructure was given along with the training needs and overall plan for the execution of the pilot.

The plan addresses both the developments performed for the local Port Community System and the integration activities with the Common Window.