

PORT OF BEIRUT



إدارة واستثمار
مرفأ بيروت
Gestion et Exploitation du
PORT DE BEYROUTH

Competition Entry for 2015 IAPH Information Technology (IT) Award

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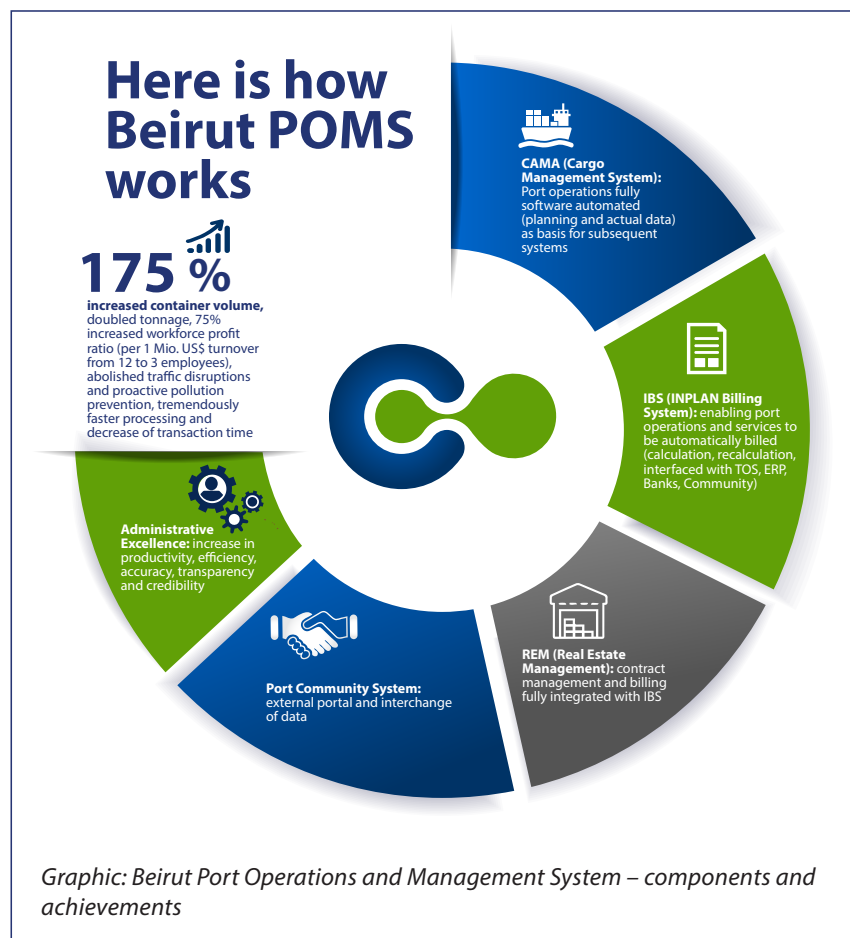
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Highlights of the entry:

Port of Beirut, mediterranean port and catalyst of the regional economies, experienced a strong and enduring upswing in tonnage (4,5 to 8,3 Mio. t) and container volume (0,4 to 1,1 Mio. TEU) between 2005 and 2013. Simultaneously, accompanied by very unstable political situation, the port was challenged by significantly increased number of operations, storage capacity and traffic, doubling of the terminal area, introducing of new equipment, implementing reorganizations and restructurings and a 48% decrease in the number of employees (945 to 486). Both, growth and the new port strategy, made extensive introduction of sustainable IT infrastructure and port management software urgently necessary for the driving factors shaping the port. As a logical consequence, the Port of Beirut Operations and Management system (POMS) was designed. International tenders were invited and the POMS has become operational step by step since mid-2012. The development of the POMS follows the strategy to implement efficient and integrated processes for the port authority and port operations first, followed by its extension to additional fields of business, processes and cooperation with further partners of the port community. As results Port of Beirut created administrative excellence, traffic disruptions were cleared, waiting times and pollution decreased significantly, presence of customers to the port counters was no longer necessary, the turnover ratio (employees per 1 Mio. USD) decreased 75%, operational profit increased 55% and the port contributes tremendous yearly transfers to treasury. In line with its long-term strategy, Port of Beirut keeps investing in continuous development of its excellence in software automation.



Project summary:

Port of Beirut, mediterranean port and catalyst of regional economies, experienced a strong and enduring upswing in tonnage (4,5 to 8,3 Mio. t) and container volume (0,4 to 1,1 Mio. TEU) between 2005 and 2013. Simultaneously, accompanied by very unstable political situation, the port was challenged by significantly increased number of operations, storage capacity and traffic, doubling the terminal area, introducing of new equipment, implementing reorganizations and restructurings and a 48% decrease in the number of employees to 486.

The daily problems led to fear a collapse of the operational capability in near future. Tremendous negative effects increased: Enormous traffic disruptions and pollution were accompanied by long transaction and waiting times due to the need of customer presence; overload in paperwork, lacks of reliability on accurate clearing and billing of goods, credibility in business relations and transparency of workflows for all stakeholders of the port community. Therefore, the management team took the decision for a new long-term strategy for the port.

Both, growth and the new port strategy, made extensive introduction of sustainable IT infrastructure and port management software necessary for the driving factors shaping the port. As logical consequence, the Port of Beirut Operations and Management system (POMS) was designed. International tenders were invited and the POMS is realized by Germany-based INPLAN GmbH. The system has become operational stepwise since mid-2012. The development of the POMS follows the strategy to implement efficient and integrated processes for the port authority and port operations first, followed by its extension to additional fields of business, processes and cooperation with further partners of the port community.

As first step of POMS, a Cargo Management System (CAMA) was implemented to handle vessel and berth management and the management of general cargo, equipment, warehouses and port services. The IBS billing system was implemented as second step and extension by a Real Estate Management module was implemented in step three to integrate all fields of business.

As results Port of Beirut created administrative excellence, presence of customers to the port counters was no longer necessary, traffic disruptions were cleared, waiting times and pollution decreased significantly, the turnover ratio of employees per 1 Mio. USD decreased 75%, operational profit increased 55%, informal costs were practically eliminated and the port contributes tremendous yearly transfers to treasury. In line with its long-term strategy, Port of Beirut keeps investing in continuous development of its excellence in software automation.

Port of Beirut Transfers to Treasury			
Year	Profit in LBP	Transfers in LBP (payment on account)	in Mio. US\$ (per Nov. 2014)
2005	21,743,156,782.00	33,000,000,000.00	21.8
2006	17,783,579,866.00	25,000,000,000.00	16.5
2007	33,788,327,799.00	30,000,000,000.00	19.8
2008	52,922,573,286.00	40,000,000,000.00	26.4
2009	72,079,770,470.00	30,000,000,000.00	19.8
2010	85,658,652,977.00	65,000,000,000.00	43.0
2011	65,456,482,829.00	48,000,000,000.00	31.7
2012	77,800,560,711.00	30,000,000,000.00	19.8
2013	82,968,874,341.00	50,000,000,000.00	33.0
2014	tbd	32,000,000,000.00	21.1

Table: POB Profit and Transfers to Treasury

Results achieved:

The full scale port operations' computerization is a core goal of and priority for the management. Up to this moment the main improvements by implementing the POMS are significantly:

- Reduced paperwork (*terminal operations 100% paperless, invoices reduced by 3,000 pages/day*)
- Increased speed / time savings in core workflows
- Improved staff efficiency
- Reduced waiting times
- No need of customer presence
- Abolished traffic disruptions and pollution
- Accuracy and prevention of manual interferences in transaction processing
- Improved credibility
- Online collaboration / transparency for the port community
- Conformance with international standards (e.g. ISPS, ISO 9001)

Software automation by stepwise introducing the POMS was main reason for the above-mentioned improvements:

Step 1: Cargo Management System CAMA

With CAMA all port operations are enabled to be processed by using only the new software. CAMA provides the following major functions, with several sub-functions for each.

Management of:

- vessels and berths,
- general cargo,
- equipment and warehouses,
- port services;
- administrative support,
- public portal (port community)

Step 2: IBS INPLAN Billing System

IBS ensures that all fees and services completed at the port are captured and accurately billed. The system overhauled the previous manual billing process. Results were automated, quick processing and distribution of billing and payment information to all stakeholders involved and ultimately generated revenue growth. Main elements of the system are the following:

- Centralized workflow
- Pooling of all relevant data
- Automated and upon-request clearing and billing (self-clearing)
- Partly automated online distribution of bills and billing information
- External payment facilities (online / bank)
- Control procedures with 0% fraud margins
- External portal for customers
- Full integration with ERP and CAMA
- Statistics and reporting

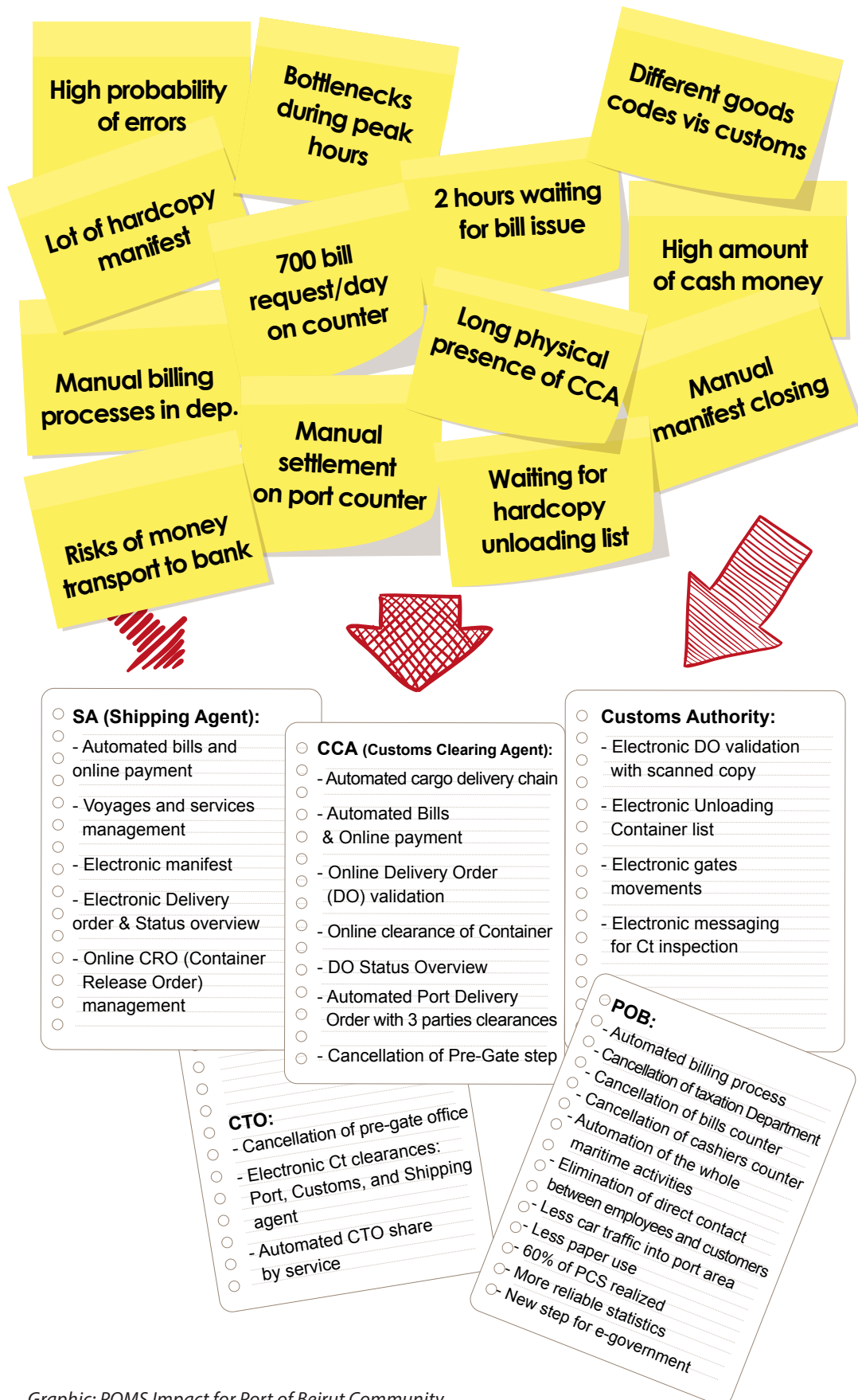
Port of Beirut authority bills a number of up to 1.500 bills per working day in peak times. The total number of users connected to the billing system is 900.

Step 3: Real Estate Management

The application administers since mid-2014 all port's real estate, sites and rental units and allows rapid and flexible handling of all work allocated. It offers the best practice functionality through graphical user interface and is fully integrated with IBS and CAMA. Main functionalities are:

- Contract management
- Automated follow-up
- Automated renewals
- Price management
- Graphical user interface (visualization)
- Statistics and reporting

The future goal of the port's IT department and management is to fully integrate all remaining systems and to join all stakeholders by further POMS development towards a Community system. Once this is done, a single maritime interface in Lebanon will have arisen.



Graphic: POMS Impact for Port of Beirut Community

Obstacles overcome:

The tremendous growth spilled over the inherent port organization characterized by manual labor and long-standing local conventions. Introducing POMS, many obstacles were foreseen and new findings came up during the implementation and were overcome.

Tight cooperation of the well-established team of management, employees and unions, external experts and the software company were main drivers to overcome upcoming obstacles. No step was carried out when the step before was not finished.

The lacks of capacities for organizational development, experience in process analysis and design, developing and enrollment of software were countered by further qualification on all workforce levels, forming project teams, finding best practice in port management software and forming good cooperation with the software company experienced by more than 35 port management installations.

An inadequate equipment of IT, network and devices was overcome by a long-term investment program (software, hardware and training costs: US\$ 7 million over a 3 years period). As precondition for automation, a highly efficient, high-capacity and performant infrastructure was implemented in parallel with software development.

Further obstacles were workforce resistances to change of accepted practices, acceptance of reorganized structures and workflows, denouncing of overload of work and of decrease in headcount. From beginning, a very trusting and transparent communication between management and representatives, supplemented by the software company about the fair value of the project was established.

Obstacles in using the software were reduced by designing strict separation of operational and administrative role concept in the software itself. Doubts in using were circumvented by separating individual processing steps and automation within the software.

From beginning, the irreversibility of the implementation was made very clear by all decisive stakeholders without exception. The software design implied avoiding obstacles or bypassing edited functions. Additional intensive project management and broad trainings allowed Port of Beirut to implement successfully the POMS.

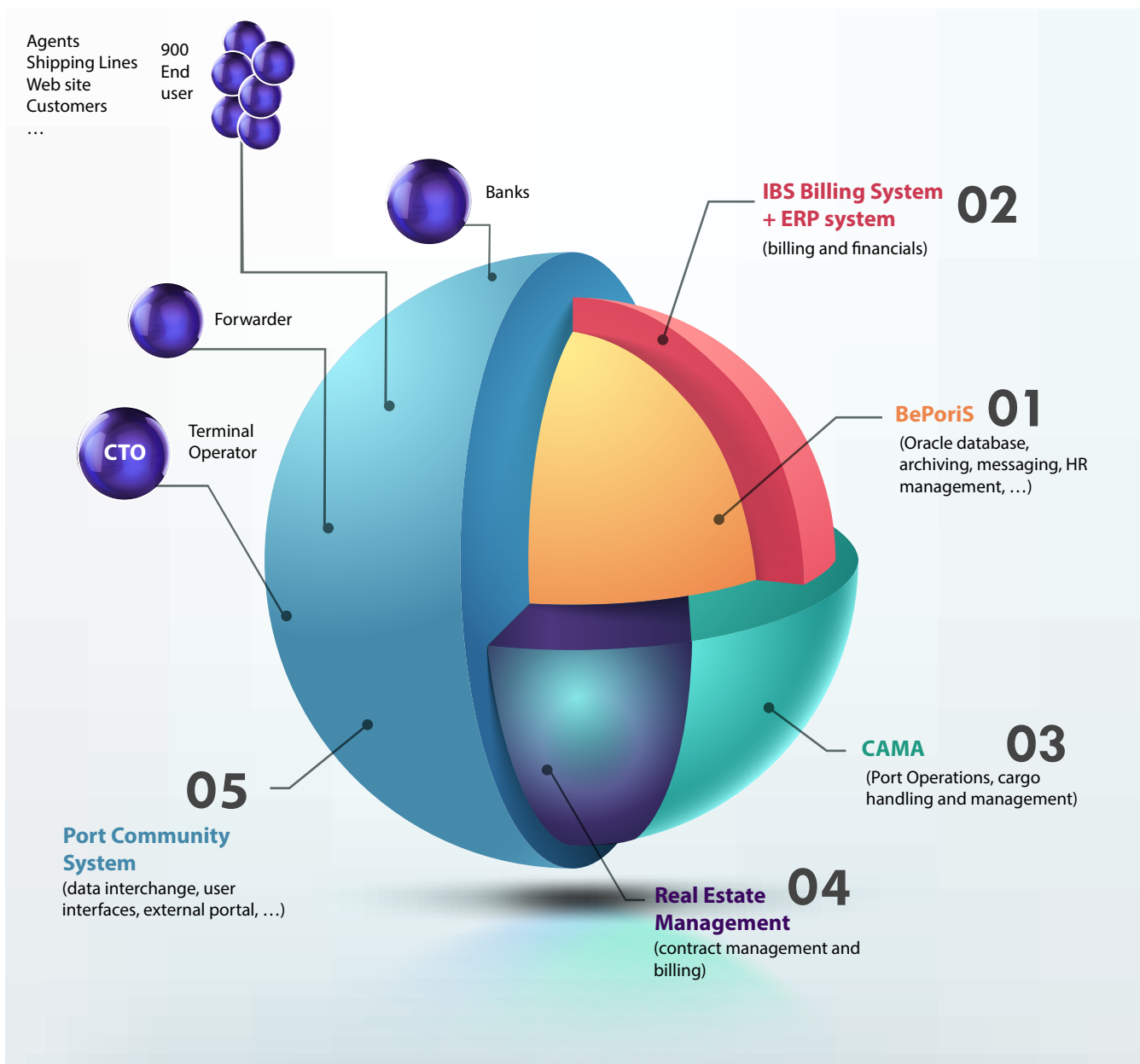
Technology base:

The inherent IT and software infrastructure was characterized by use of single workstations, low networked and low degree of automation. At first, a full revamping of the data center was completed in 2012 and new equipment to improve safety for 24 hour production was procured. The data network was not available at all needed spots and hardware performance needed substantial improvement. Optimizations in hardware and network were completed by installation of warning systems, Overseeing applications, new workflows for maintaining and updating, new identity management, managing data protection and backup and a user help desk.

As basis for all the software systems within the port, BePoriS was created, a strong Oracle database for a group of core systems of administrative applications and for the surrounding new POMS. External access is also included as linking-up to third party systems, mainly by interfaces to the container Terminal Operating System (TOS), major local banks, public authorities, the harbor master, agents, forwarders, clients and the website underline the strategy towards a Port Community System. Today POMS is in operational use of 900 users.

The POMS was designed closely together between the port's IT department and INPLAN GmbH, a specialized port management software company based in Germany. The software takes into account not only keeping up with workflow processing, but also integrates enhanced opportunities of business intelligence and automated functions to manage the business actively. Also real-time collaboration with members of the port community on data level and role-based access vice-versa was implemented. POMS is a web-based system providing complete, real-time access to all operational activities, past, present and future.

For database, web server and workstations standard business requirements are considered to allow ease of use and avoiding high investment costs. POMS is multitenant and multilingual, contains authorization, archiving, document handling and visualization modules.



Graphic: POMS System Architecture