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COMPUTERIZATION OF MARITIME PORTS, E-COMMERCE PLATFORMS AND LOGISTICS COMMUNITIES

In the past few years there has been a clear trend of attaching increasing importance to "infostructures", or the capacity of ports to process the information that accompanies foreign trade flows, so that the processing becomes a facilitating factor for trade, rather than an obstacle.

This led to development of the concept of a port community system, which is a computerized system that interconnects all the members of a logistics community, making the exchange of documentation as effective as possible, reducing the volume of data to be re-entered in different systems and ultimately improving the whole process of monitoring an operation until its completion. Computerization of communications between all the actors at the ports facilitates integration of the community, while it also assists interaction between ports, thus forming logistics corridors.

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Background

As document transactions account for approximately 7% of the total costs of international trade operations, countries would clearly benefit if this amount could be reduced by a few percentage points. Such costs are frequently higher than the import tariff, and of the same order of magnitude as the maritime freight charges.

Each port is a vital link in the complex logistics chain that at its extremes connects importers and exporters and which facilitates the constant expansion of world trade. If we wish to have a strong chain, then, we must think in terms of strong links and an excellent level of integration among them.

Traditionally, the most significant factors for port activities in terms of competitiveness have been related to infrastructure: loading, unloading and storage facilities, land access, physical

security, quays and others. These have historically been the determining factors for most of the investments made in order to reduce costs and processing times, and encourage port location.

Today, however, increasing importance is attached to "infostructures", or the capacity of ports to process the information that accompanies foreign trade flows, so that the processing becomes a facilitating factor for trade, rather than an obstacle: what use is it to have a port with the best technological facilities for merchandise processing, if the documents associated with these procedures always arrive late, causing delays and increasing the costs of clearance? There are examples of trucks entering the quays and being unable to load or unload because the relevant documents (dispatch, invoices, gate pass, etc.) have not arrived, and the whole logistics chain has been delayed.

Quite apart from whether the documentation arrives on time, there is an invisible cost associated with the paperwork which is created among the economic agents involved and which is ultimately paid by the final consumer and/or deducted from the exporter's profits.

For the above reasons, the concept of a port community system was developed, which is a computerized system to interconnect all the members of a logistics community, making the exchange of documentation as effective as possible, reducing the volume of data to be re-entered in different systems and ultimately improving the entire follow-up of an operation until its completion with its associated fund movements: this, today, constitutes an e-commerce platform.

Port authorities need to be aware of the important role they have, not merely as administrators, but as true promoters and initiators of economic development, and need to launch a series of initiatives that as a whole are oriented to:

- consolidating the leadership of the port at the regional level; and
- converting the port into a source of new opportunities for business, with constant generation of added value and job creation.

The largest ports in the world have taken advantage of the constant development of information technologies in order to significantly reduce both the costs of managing documentation for international trade operations, and the times needed for dispatch of merchandise, and have optimized the process for monitoring each transaction for the final consignees (importers and exporters) and all the agents involved in this process, including the supervisory authorities. This has been made possible by a joint and coordinated effort of all the members of the logistics chain.

The Argentine experience

In Argentina work in this area has begun in the Port of Buenos Aires, with the idea of subsequently extending it to the rest of the country's maritime, river and dry ports, airports and other logistics communities.

All the exchanges of documents involved in importation, exportation and vessel movements were identified in a detailed survey. The results brought an estimate of 18,500,000 documents for the year 2000 moving through the area of the Port of Buenos Aires.

In order to reach this figure, each of the documents involved in foreign trade was considered: the issuer, the receiver and the number of copies. Not only the documents delivered manually were

considered, but also faxes, emails, telexes, the customs information system screens and telephone communications.

The quantification, based on a rotation matrix, brought the following overall results:

Table 1: Number of paperwork transactions, Port of Buenos Aires, Argentina, 2000

Participant	Issues	Receives
General Port Administration	0	20.302
Customs	2.091.167	6.312.515
Maritime Agency	1.433.997	665.930
Operator	195.113	5.519
Ship	5.098	7.647
Client/Exporter	1.142.377	421.205
Consignee	745.072	186.268
Fiscal deposit	1.007.313	1.065.474
Customs agent	6.006.482	3.853.625
Forwarder	983.343	448.880
Immigration service	2.549	7.647
Other	0	7.647
Harbour pilots	0	5.098
Prefecture	0	19.523
Health department	0	10.196
Terminal	4.541.478	3.991.513
Transport	534.574	1.659.574
Total	18.688.563	18.688.563

This platform, if implemented, will allow the electronic sending of documents required for foreign trade operations, eliminating paperwork and reducing expenses.

In the Port of Buenos Aires, Argentina, alone, the cost of services for container management amounts to an annual US\$ 600 million. Seven percent of this figure is US\$ 42 million, and if half of this amount could be saved owing to good computerized management, this would mean an economy of around US\$ 20 million, a figure which could be increased significantly if general cargo and bulk solids and liquids are taken into account.

Buenos Aires Logistics Community Group

In order to plan the implementation of this system, the Buenos Aires Logistics Community Group (COLOBA) was formed:

- Secretariat of National Transport
- Subsecretariat of Water and Port Transport
- General Customs Bureau

- General Port Administration
- Centre for Customs Agents of the Argentine Republic
- Navigation Centre of the Argentine Republic
- Port terminals
- Fiscal deposit
- Argentine Association of International Trade Agents
- External consultant, an expert on port activity processes

This initial core was enriched by contributions from all the other state and private organizations involved in logistics activity that would also benefit from this arrangement: the Argentine Naval Prefecture, the National Agricultural Quality and Health Service, the immigration service, import and export chambers, land transport companies, ship operators, other inspection agencies, etc.

A plenary group was established and three process reengineering groups.

There are two stages to the project:

(1) Master plan. This stage is already completed and all of the studies and tasks required prior to implementation have been completed. Specialists in port, customs, maritime and logistics activities, inter alia, took part in this stage.

(2) Implementation. This stage involves the application of hardware, software and integration of the logistics community operators. The software will facilitate the exchange of documents and administration of the large database. The messages have inviolable security, with encryption and digital signatures. In Argentina, Law 25.506 on digital signatures has already been approved, and therefore sending and receipt are protected. If a country does not have an equivalent law, other legal arrangements are possible.

The emergence of different standards of international (telematic) records such as electronic data interchange (commonly known by the abbreviation EDI), and the work carried out by the United Nations on standardization and adoption of a unique standard such as UN/EDIFACT, have made valuable contributions to facilitating data interchange.

Use of the platform would produce savings on clear and specific costs: for example a maritime agent who has to send various notarized statements, in order to moor a ship, at present has to print two copies of the declaration, send a messenger to each of the five offices involved (travel, travelling expenses, paper, wages...). Using the platform, and with just one click at the computer keyboard, he can send this information to other operators in the community who need it. At present there is a cost of about US\$ 5 per transaction. The computerized transaction would cost US\$ 1 or less (the cost depends on the complexity of the document). This is an example of a higher cost saving.

The trucks onto which containers are loaded from a terminal or fiscal deposit are another

example. At present, a truck enters the terminal gate, goes through the formalities that require documents which usually arrive later than the truck, picks up its load and then leaves the terminal. If this process was computerized, the truck would spend only half as much time going through it. This means cost savings for the terminal, the transporter and the other actors involved.

At present, although great progress has been made with regard to design, the project is still not yet in a concrete implementation phase. It is expected that implementation will begin at some point, either on the basis of a private-sector or State initiative or, ideally, as a joint effort.

The COLOBA Group has its web page with background information and news at: www.coloba.org.ar.

Guidelines to be taken into account for telematic projects

Rather than imposing a predetermined platform, the goal is to make a technological proposal that is based on a careful analysis of the current situation in the given context, in order to meet the stated needs.

The first step is an extensive survey of the port community, the roles of each member and the document flows that now occur, in order to reengineer the latter by identifying priorities in accordance with the desired objectives: reduction of processing times, costs, and other aspects.

The specific investments made so far by the members of the logistics community are taken into account in the survey of the current state of information technology. The efforts and initiatives that have already taken place are acknowledged and incorporated to the extent possible, so that the users do not have to make changes to their systems.

The concept of e-commerce covers all stages of the business cycle, including the final stage of the transactions with their economic impact (associated fund flows).

The project considers all of the aspects necessary for ensuring its successful functioning: legal background, financing, management model, business plan, and certification of suppliers.

Such e-commerce platforms offer services for all users, without any discrimination with regard to size, type of equipment or economic potential.

Conclusions

The e-commerce platform project offers benefits for the entire port community:

- ✓ Reduction of manual documentation
- ✓ Automatic data entry and control processes
- ✓ Fast operations and clearance of merchandise
- ✓ Greater transparency in monitoring integrated logistics management
- ✓ In view of the large flow of information, the control agencies are assisted in their tasks of oversight and inspection

- ✓ Savings in macroeconomic variables
- ✓ A database that offers international trade operators other services such as statistics, track & trace of merchandise inside and outside the country, etc.
- ✓ Integration of the logistics community.

In our opinion, the community as a whole can benefit if a solution is developed with the participation of all the actors involved in the flow of international trade, with clear identification of their role in the business processes, the nature of the document flows and the degree of progress made with regard to information technologies.

Once the platform is implemented it will be possible to "dialogue" with other platforms in other countries. These interactions create "logistics corridors".
