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Simplification and Information Systems in the Maritime and Port Sector

Why the need for simplification and e-commerce in the maritime and port sector.

As still today 80% of international trade is sea-borne traffic it is perceivable how the maritime and port sector has been subject to constant pressure for the increase of competitiveness. The amazing growth rate of international exchange in post-World War II, in particular, demanded a worthy answer from this sector.

It is agreed that the most important technical transformation consisted in the unitisation of cargoes, but parallel to this, one should underline the specialisation of the ships, the increase in dimension, the construction of specialised quays with means for loading and unloading of considerably high productivity. All these effects encompass the transport of both general cargo and bulk.

However, maritime transport is still characterised as a very complex activity. This is due to: the existence of a large number of partners (many clients, various economic agents and a significant number of logistics authorities); the fact of transporting large volumes of cargo; to the breach in transport modes; the need of defining precisely each partner's responsibility; the need of maintaining the information confidential; and finally the existence of delicate safety matters. The fact that it is an old transport mode and therefore still retaining practices, which no longer make sense, contributes to the complexity known to the activity. There is a multiplicity of information exchanged amongst different partners (the clearance of commodities at a port requires around 50 documents).

All this helps explain the paradox, which determines that in spite of the current sophisticated technological resources it is much easier and many times quicker to transport and handle cargo than its respective documentation.

There is, thus, a broad scope to obtain productivity earnings resulting from the reduction of administrative costs.

However this is not a concern only for the ports. It is known that the creation of an open market, which allows for an optimal allocation of resources, is a condition for promoting development. To achieve this a key factor is the implementation of measures designed to facilitate the transactions.

According to international bodies' estimates, the over costs due to unnecessary bureaucratic procedures in the international trade reach some 2% to 10% of the total product costs, this being a true obstacle to the smooth flow of trade. Small and Medium Enterprises, seen as a

key for economic growth, are those where these over costs have a greater impact, because they are not in a position to benefit from economy of scale and also due to lack of expertise.

A reengineering of all procedures, based on a previous identification of the present situation, and aligned with the principles of simplification, normalisation and harmonisation with best international practices, together with the automation, is an unavoidable issue. This allow for pre-arrival processing, for improving risk assessment methods, for reducing evasion levels and for increasing fraud control, conducting to a more prompt and greater tax and duty collection.

The final result is a happy conjunction of private interests, due to efficiency gains, with the public interests, due to the creation of conditions to economic growth and to the increase in fiscal revenues. To achieve this target a strong political commitment is needed together with a partnership between public and private sectors.

In spite of the broad interest of this objective, because of the reasons above referred, is understandable that this is a key issue for the ports and hence for port authorities. They understand it, while integrators of port community interests, as a component of their commercial action.

In each particular port the best conditions offered will decide whether it will attract, or not, some type of traffic. Hence, note that when one analyses cost/benefit concerning the introduction of developments in the conditions offered by a port, namely related to the introduction, or not, of an information system which will assist the port's business, the reference situation should not be taken as 100, this is the current situation, but an inferior value, because the loss of cargo will happen naturally by the deviation to more competitive ports. A clear awareness of this situation explains why port authorities are the first to boost the introduction of e-commerce in ports.

In order to deviate traffic to maritime transport it is necessary to meet the requirements of clients in an efficient and economic manner. A profound knowledge of the supply chain in order to allow for the design of logistic solutions, which can offer advantages relative to road transport, is then required. This is especially true for the short sea shipping where the competition between modes is more aggressive.

In this respect the intermodalism, comprehended as the integrated management of the logistics chain, will always be a key issue for the increasing of the maritime transport competitiveness. But the feasibility of this objective is only possible with smooth bureaucratic processes assisted by sophisticated information systems, which will allow a hasty circulation amongst the various intervenients. The transport sector is compelled to deliver goods in due time, and to provide information concerning the commodities even when they are still in transit.

When we speak of information systems we are in fact referring to e-commerce. It is important to underline that the use of EDI, does not signify the existence of e-commerce for it can be understood in the limited perspective of communication. One may then run the risk of introducing accidentally a more expensive tool, which will merely substitute faxes and documents printed on paper, and in many cases doubling the sources of information. EDI should act as support to e-commerce through its integration in each one's business system and

integrating as well the partner's business, reorganising the global business process in view of an increase in productivity. In e-commerce systems the messages not only transport information but trigger actions.

An example of a correct and clear vision of e-commerce is the transformation of the supplier in an extension of the assembly line. Another example, pertaining to ports is the possible effects obtained in the clearance of goods. If the customs office receives the information before, it can then carry out its mission in a more effective manner and can simultaneously shorten drastically the cargo and ship clearance period (the clearance can go from 3 to 4 days down to some hours).

The introduction of e-commerce requires previous reflection about the procedures, this is, on the way the business is being done leading to the necessary reengineering, to use a current cliché, or simplification, to be more down to earth. In this simplification, information systems or e-commerce is an acceleration factor but also shaped the simplification itself.

However, it is useful to keep in mind that the idea of simplification has three underlying concepts:

- Simplification, which consists in the elimination of all elements of formality, unnecessary procedures and proceedings, and the avoidance of their multiplication (for example to combine various administrative documents into one and to provide the same information to one authority only, who will be responsible for its transmission to other entities who need it)
- Harmonisation implies the alignment of proceedings, of operations, of documents and national or port formalities with conventions, norms and international practices.
- And, finally, normalisation, which consists in the adoption of international formats for practices, proceedings, documents and information.

It's widely known that the outcome of the introduction of e-commerce on maritime-port activity has positive effects on the maritime and port sector, which are commonly referred. One must however add that besides the objective advantages of the common use of information systems in maritime transport it will also figure as a decisive contribution for the introduction of a trustworthy, predictable and modern image. As the common perception on this transport mode is that it is obsolete and outdated this last attribute is of great importance.

The information systems in the port of Lisbon.

The port of Lisbon, a port with a decisive role at the start of globalisation, could not fall behind at a time when globalisation enters a phase of accelerated development stimulated by the progress in communications and new information technologies.

In 1997, APL had an information system supported by technology characterised as inflexible, redundant and far from responding in due time to the short-term challenges encountered such as: the Y2K bug; the change of tariffs; the anticipated retirements; the change to an

incorporated company; the Euro; the change from a mixed model where it still held the functions of tool port to that of a landlord port.

To meet these challenges a strategic plan for information systems was developed, which implementation started in late 1996. At the beginning of 1997 the plan was consolidated through international benchmarking with the aim of identifying better practices at ports specially in the field of the port's core business, the ship and cargo. APL's participation in MARNET, through EUROMAR, contributed remarkably to this research for it allowed the contact between our experts and those of other ports. This experience allowed them to conceive in a more rigorous manner that which was being undertaken in these areas.

This work is the basis for the layout of the project, internally designated as GCP (Gestão Comercial Portuária – Port Commercial Management) and whose main goal is to get the Lisbon Port Authority and its partners to elaborate e-commerce.

As a consequence of the accomplishment of the strategic plan one can say that APL today has the information highways built. All work posts are linked by a 100 *Mbits*- architecture, in Ethernet architecture, category 5.

In what concerns the e-commerce, its primary aim was the accomplishment of the electronic clearance of ships and cargo, the question was whether it should integrate Customs in the clearance of the cargo. This doubt didn't arise for the ship's clearance as there was already the experience accumulated over the years with SINAVE (an application which linked the various partners of the ship's clearance on-line) so, it merely needed to be substituted by a more advanced platform, which would allow the EDI. The institutional entities (Customs, Harbour Master, Border Authority and Maritime Health Authority) are in the new system linked to APL in a customer-server environment. But concerning cargo clearance, despite never having doubted the advantage of integrating Customs, due to the complexity of the project, it was feared that the partnership of this institution could pose an obstacle to the development of the project by delaying it. The alternative would be to restrict the cargo clearance to the necessities of the port authority, hampering, this way, the possibilities of the project, knowing however that its accomplishment and even the news of its development would be a pressure factor for the entry of Customs.

One needed to equally take into account the low technological level of the partners, mainly of the shipping agencies. Within a pragmatic approach, but without lowering the level of demand pertaining to normalisation and adhesion percentage of the agencies, the following principles were defined:

- non-exclusion of partners, which was solved by the implementation of various forms of data exchange between agencies and APL, according to the technological level of the agencies, their dimension and business volume (data-entry, flat-file, EDIFACT);
- normalisation, through the adoption of EDIFACT messages and procedures (definition of EDIFACT messages, adoption of nomenclatures, the redefinition of rules and procedures, promotion and training).

In order to adopt the first principle, a need to develop a low cost solution for small companies was pointed out. This would endow them with a solution on computer that would allow communication with the GCP (Port Commercial Management) system.

Identified as a solution that is already being explored within the Spanish ports, developed by Portel, it was analysed upon availability of Portel. A project was created together with Portel, for the implementation of the necessary changes to adapt the solution to the port of Lisbon reality concerning mainly port-call but also the manifest.

The main advantage is the reduction of implementation time (greater with a development from scratch), linked to the reutilization of the data-entry application and a vaster knowledge of the messages used in Spain which we wish to follow as closely as possible.

The strategy pursued, agreed by APL's main partners in the project, the shipping agents, revealed itself as correct, enhancing still that:

- all shipping agents can send manifests of bulks and, in what concerns the manifests of containers and breakbulk, the main shipping agents are already sending them electronically or are in an advanced testing phase;
- the Government has, in the meantime, created a commission which includes representatives from ports and Customs, to simplify procedures;
- Customs created an internal work group for the development of electronic clearance of cargo, which is working closely with APL in order to make the most of the experience acquired within the development of the GCP (Port Commercial Management);
- an agreement will be signed to set out a unique manifest guide to port authorities and Customs and to send the manifest received electronically by Port of Lisbon Authority to Customs;
- the commission for simplification will be open to other institutional entities with responsibility in ship and good clearance;
- at each port new local commissions will be institutionalised; these, will be constituted by representatives of port communities and institutional entities with responsibility in the clearance of ships and cargo; they will have periodic meetings and their main goal will be to encourage simplification at a local level, to solve problems and report to the national commission on how the simplification process is undergoing and the obstacles encountered of national scope;
- within each local commission there will be sub-commissions, whose constitution will vary according to the development phases aiming at the development of e-commerce in the maritime-port sector; the first phase will consist of the electronic clearance of ships and cargo.

As to the future, firstly, APL aims at attaining its goals in global terms, i.e., to become an e-business and give partners the possibility of participating in the Lisbon Port Community system. For this it is important:

- to have a vision of partnership, transmitting the idea that the system is not only intended to serve one entity, but the all partners;
- to increase the creation of valuable solutions, with greater investment in safety in order to assure confidentiality and maintain and gain the confidence of more entities who compete amongst each other but share the same interests;
- to trust information technologies as they will be the most strategic tools of the company in the next century and to believe that this evolution must be a natural one and cannot be imposed.

We also intend to extend this project, which APL has led and is the main investor of, to other partners of the local port community. This will only be possible with the co-operation of other entities. These entities have to be internally prepared and must show availability to turn to the outside facing the investments in this area as a competitive advantage and not as an obligation (an investment of 2% to 4% of the invoicing in information systems is considered an average investment of evolution).

Finally, we aim at connecting the link between the Lisbon port community and the logistics chain creating one only link (the link of all links) with all the respective advantages similar to the Internet.

In summary and besides the aforementioned advantages the following aspects can be attributed to the project:

- to have prepared the path for the quick entry of customs in the clearance of cargo;
- to have introduced discipline in business, through the uniformity of the language which arises from the agreement on the format and content of messages amongst partners;
- to have contributed to the increase in the technological level of the different partners.

The last two aspects will facilitate and will actually be a pressure factor of the extension of our partners' e-commerce to the logistics chain.

The ideas that I intended to transmit can be summarised into one well-known sentence: "we have not spoken about e-business we have spoken about the business itself".