



# Future Challenges for the Port and Shipping Sector

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this context is the appropriate level of government to make the decisions. Should this co-ordination effort be assigned to each port authority or should it build in a more complex institutional arrangement with a board at which all ports have representation? Should that “super” port authority be at the regional, national or supranational level?

The management of the institutional adjustments of PAs may be the most complex of all. In many countries, new transport laws aimed at the promotion of inter-modality and imposing that mandate on all key actors may be needed. Those new laws which will impact PAs will probably have to be complemented by international co-operation agreements. It is likely that a fair share of the accountability for making things happen will be assigned to PAs.

Finally, a major adjustment that will have to take place is the definition of the specific regulatory responsibility of PAs whatever their legal format, mandate or size. The transport sector in general and the port sector are not regulated like any other infrastructure sector. There is very little monitoring of the financial performance of ports in general and even less of their economic and social performance. Although the sector does not generate large amounts of public money as compared to roads or rail, annual investment and operations and maintenance requirements represent a non-trivial value—in the order of 0.2% of GDP on average in developing countries. This is probably only a small share of the rent generated by the dependency of shippers on shipping companies. Very few these resources are actually monitored and this may have to change. The main issue however, is that the performance of the port authorities is itself a reason for the rent. They are in a blurred commercial and regulatory relationship with shipping companies who tend to control a fairly large share of the market.<sup>15</sup> This type of self-regulation has been in place for a long time. It may need to be revisited as part of the redesign of the port sector, which is likely to happen in the next 20 to 25 years.

## 6. THE FUTURE LOOK OF PAs

What PAs will look like in the future is obviously anybody’s guess. But futurologists tend to have a strong impact on the definition of the visions needed to discuss reform or business strategies.

From the discussion so far, it seems clear that global changes will force PAs to be more technologically driven and supportive of increased standardisation of technical and administrative processes. It is very likely that the efficient PAs of tomorrow will also have to have much more focused (and hence narrow) policy and strategic responsibilities. They will, however, have a much broader role as facilitators of inter-modal co-ordination and of logistics integration.

15. The top seven container lines of the world own 50% of all slots; over 80% is shared by 25 companies. This should get worse as mergers continue in the business.



To do this, they will have to be much more integrated into regional (national or supranational) ports. Many countries may simply decide to integrate the PAs into regional transport agencies, simply to ensure that inter-modality is much better internalised in policy decisions than it currently is currently the case in many countries.

PAs, within transport agencies and independently, will have a mandate to support multiple ports within a region or across a port range. Effective space management will become an essential dimension of the effective management of traffic in an environment in which local land scarcity and transaction costs are likely to be the two major catalysts of increased travel costs for people and good. The politics of this evolution are not going to be easy. Port competition is often driven by inter-country competition (e.g., the Le Havre–Hamburg range or the Buenos-Aires–Sao Paulo range). Within countries, competition is often also fierce across ports (e.g., in Spain or Brazil). Getting ports to co-operate will indeed be a major challenge for the new PAs. However, it can be done (e.g., witness Hong-Kong and Southern China).<sup>16</sup>

PAs should indeed have a very important role in managing the transaction costs associated with security and in deciding how this will influence the degree and type of specialisation. Security clearance is likely to be one of the drivers of port specialisation within port ranges or regions, since a spatial unbundling-cum-specialisation of security may emerge as a solution to the high time costs imposed by these concerns.

The new PAs should also cost the users more and the taxpayers less, hence they should hence enjoy more financial autonomy. The degree of this autonomy will be driven by the size of the markets they can generate. In many instances, markets sizes will be larger because PAs will have regional mandates over a port range rather than over a single port.

The situation will, of course, often be different in countries with single ports, particularly the poorest countries or small islands. Here the market size and nature may be too narrow to allow specialisation. In some cases, financial autonomy may be harder to achieve and taxpayers' money may continue to be significant.

Finally, in the future, PAs will have to be much more accountable to both direct and indirect users (on management and costs) and taxpayers (on costs and subsidies).<sup>17</sup> Although the costs associated with PA's services are not likely to increase enough to represent a major share of the total transport costs, they could be significant enough to get shipping lines to spend more time negotiating strategic pricing deals. Negotiated prices tend to be inconsistent with the increased accountability demanded by users and taxpayers. This should fuel the debate on the level and type of regulation that is needed in a sector in which the shipping companies have such a significant market power.

16. Song (2003).

17. This vision is consistent with the implicit vision found in many of the policy discussions of the future of ports. Notteboom and Rodrigue (2005) may be the closest one to the vision offered here.

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In the future, PAs may lose a lot of their regulatory power to strengthened competition agencies if their regulatory role cannot become more accountable.

At the institutional level, there are some basic features which are likely to have to be addressed by any country looking at the likely evolution of its ports. The margins of evolution include ownership, management type, degree of centralisation, narrowness of mandate and degree of financing autonomy.

On ownership the tendency is clearly towards an increased private model whether through corporatisation or through actual change in ownership. For ports or regions with limited market size, this is likely to be the most common model. The opportunities for increased privatisations will come from the narrowing of the mandate of PAs. A somewhat related margin is the management type. Should ports be owner-managed or user-managed? The answer to that question clearly depends on the mandate of the PAs. A PA responsible for multiple ports should probably be user-managed (e.g., the philosophy that prevails for power pools in electricity). It forces co-ordination at the core of the central agency. For individual ports, the risks of a conflict of interest are likely to grow with the increased concentration of the shipping industry, and also in some segments of the logistics business. User-management may be a risky model in that context.

If the regional/range model is to prevail, the question is whether it should be centralised or decentralised, at least for the larger countries. Within countries, deciding the appropriate level of government is also essential. Should there be a PA for both Amsterdam and Rotterdam, or should they merge? For smaller countries supported by good land infrastructures, but competing for market shares, should the PAs join users and authorities of multiple countries or should they be national? For example, should a regional PA include users from Antwerp, Amsterdam, Rotterdam and Hamburg?

To a large extent the choice between these margins will have to depend on the mandate of the PAs. If it is too political, it is unlikely to be international. If it is too technical, there is no need to change today's model. Once more, anything is possible and the final model will be ultimately driven by national concerns. But a lot of homework is needed to define internally consistent visions of PAs in view of the multiplicity of the global forces that are trying to influence the demand for port services.

## 7. CONCLUSION

The literature on the port industry is replete with analysis by port specialists who are understandably concerned with the effectiveness of the port industry. Today this means a concern for a smooth integration with the supply chain. One of the main yardsticks against which the performance of any transport activity is measured is time, and the performance indicators tend to focus on that dimension. This is clearly correct. But it should not be the only one. Due



to its control of essential facilities, the port sector is also a major source of rent. If this is not controlled, users or taxpayers will eventually pay too much. This in return will distort trade, further hurting the consumers.

This is a central part of the debate port specialists are starting to have. The growing literature on port governance is a good indication that there is no obvious optimal governance structure, hence there is no optimal design for a PA. However, there are indications of where the demand side of the business is pushing the supply side—including the PAs. The indications are, however, partial. The best that can be done is to imagine the future of PAs as part of the future of ports and of the overall transport sector.

Trying too hard at this stage to define the PA of the future is not totally rational, but this exercise in futurology has its merits. Recognising that many of the assumptions relied on for the forthcoming global changes may be impacted by events as big as 11 September, it is essential to start dreaming the future now. Unless there is collective thought about what is coming, the associated risks and the necessary adjustments, change will be too slow. Ultimately, the effects of any failure to adjust will be on the users and the taxpayers, not the service providers!

The prominent position of some port players (e.g., forwarders in the case of Antwerp) in part determines the character of a port. On this basis, one can draw up a typology that distinguishes between, for example, forwarder-driven, agent-driven and trans-shipment-driven ports.

Once that insight has been acquired into the principal players in a port, it also becomes easier to understand why some companies are takeover targets for larger players, such as shipping companies and terminal operating companies, as they strive to acquire a dominant position within the port. After all, they may be able to achieve a tighter grip on the logistics chains by, for example, the acquisition of smaller, yet strategically significant players. This has consequences for the various forms of co-operation and integration in the port. Integration will also become more flexible than used to be the case. Shipping companies tend to strive for vertical integration through alliances rather than through mergers, while horizontal co-operation with terminal operators will tend to consist of joint ventures and dedicated handling.

One must not underestimate the significance of non-port groups or even non-transport groups who have gained control over seaport activities, whereby the focus is much more on short-term financial gains than on long-term sustainability of activities. In this sense, activities are incorporated selectively into the portfolios of the financial groups concerned, on the basis of an assessment of the risk, the potential for profit, and the extent to which they generate additional value that may be capitalised.

## 6. ACCESSIBILITY OF THE HINTERLAND

Connecting services and land-side accessibility are a sensitive issue in the logistics chain approach to port operations. After all, a productive port and the shipping companies and terminal operators that use it cannot allow inadequate hinterland connections to neutralise all benefits generated elsewhere along the chain. And yet this can be a real danger. Port congestion is often linked with land-side bottlenecks. This explains the constant focus on improving connecting services between ports and their hinterland and on eliminating existing bottlenecks.

The most important problem is, however, that port and maritime players have hardly any power of decision as far as the organisation, co-ordination and efficiency of hinterland connections is concerned. In this context, Macario and Viegas (2008) assert that “transport infrastructure can be considered as a production function for a region or a country and it is difficult to take into account the network properties, or the lack of, in the production function. Not less important is the spatial spill-over effect caused by the infrastructure’s impact that always transcends the spatial boundaries of its implementation”.

It is clear to see that an improvement in the transport infrastructure in the hinterland will improve capacity and create an opportunity for benefits of scale



and density. This will in turn affect, not only the direct cost, but also the routing choices of forwarders, including the port of call, the mode of transport and the location of distribution centres. In sum, it will impact on the entire logistics strategy. The degree of development of the transport system in the hinterland therefore profoundly influences the competitive position of a port. Better accessibility implies lower generalised costs, so that the captive hinterland becomes larger. In this sense, land-side accessibility has, somewhat paradoxically, become one of the most important factors in the success of ports.

An important consequence of this observation is that future strategies in seaport development will focus not only on the aspect of maritime accessibility, but also, primarily perhaps, on land-side connections.

According to Macario and Viegas (2008), the port community shall become more closely involved in regional development in the broad sense. Hence, it speaks for itself that the strategic objectives of a port and the long-term goals for the territorial development of the port's hinterland should be properly aligned. It is important for the functioning of a port that investments should be made in the infrastructure stock with a view to eliminating bottlenecks and time loss to optimise the production and distribution systems while taking due account of prevailing environmental restrictions.

Determining which new infrastructure investments in the hinterland should be given priority must happen on the basis of a methodologically consistent assessment tool (e.g., cost-benefit analysis). For each proposed investment, a minimum return threshold needs to be attained. This prioritisation exercise must unfold within the limits of the prevailing investment budget and take due account of the impact of the implied investment on the rest of the logistics chain.

An important aspect in the planning of investments in hinterland connections is that potential bottlenecks must be identified on time. This can be achieved by setting up an information system that allows continuous monitoring of the market and the hinterland to determine *ex ante* whether bottlenecks might arise and how serious they might be.

## 7. GROWTH AND FUNDING REQUIREMENTS

Increasing vessel and port capacity requires enormous investments. Shipping companies that invest in new-build ships expose themselves to enormous risks, but financiers proceed on the assumption that vessels are mobile and consequently remain sellable. That is not the case though with investment in port infrastructure by the PAs or government: locks or docks or terminals are immovable and, as far as investment goes, usually irrecoverable. Consequently they *de facto* constitute a sunk cost. Hence a distinction needs to be made between investment in vessels and investment in ports.