European Research Studies
Vol. II, Iss. (1-4), 1999, pp. 91-103

The Need For A New Philosophy of Port Management And Organisation: Effective Responses to Contemporary Challenges

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Abstract

The application of new technologies and the emergence of 'new' transport systems prompt significant and irreversible changes on the structure of the port industry. Analysing the characteristics of this transformation, the paper suggests that new forms of port organisation and management are essential. In this vein, the paper emphasises the increasing importance of flexible specialisation of port services production, and argues that the development of intra-port competition, the presence of employment patterns advancing the utilisation of specialised labour, and the application of total quality management, evolve as integral and complementary characteristics of a contemporary competitive port.

1. Introduction

The development of a new, more complex, and less predictable operating environment as well as the rapid application of innovative concepts prompt irreversible changes on the production of port services. They result in the selection of capital-intensive processes embodying technological developments, and demand the adoption of less concentrated forms of port business organisation. The role of those employed by the port industry is also redefined. Within the new context, non-qualified port-workers, who were strictly involved to the execution of specific services, are replaced by 'active participants' in the various stages of the process, who have a high degree of specialised knowledge and involved in numerous activities. The era of specialised 'clever' services - based less in materials and more on innovation, knowledge, informatics, decentralised planning, and intra-industry support – implicates the replacement of the 'conventional' Fordist mass-production model that characterised the organisation of the port industry post-war Europe.

Concurrently, the competition between ports for the same consignments intensifies. Foremost, it is expressed through an uninterrupted modernisation in terms of technology, human resources, product innovation and process reorgani-

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sation. Port authorities and port operators develop continuously the quality of the services they supply and, in several cases, employ price cutting schemes aiming to minimise the costs of the supplied services to the ports users.

These developments demand a better understanding of the necessary port management and organisation changes, in order to achieve more effective operations. Through the examination of the characteristics of the industry that are in transformation, this paper concludes on which of emerging patterns of port management and organisation turn to mere irregularities of the era of modernisation and which of them will evolve as integral complementary (or main) forms of organisation of the contemporary competitive ports.

2. The Conventional Pattern of Port Organisation

Until the late 1970s the organisation and management of most world ports was governed by the principles of the Fordist mass-production paradigm of industrial development. During this conventional era, port was characterised by: ***(a)*** the inflexibility (stability) of the methods of cargo handling; ***(b)*** the relatively 'low' land demands for the satisfaction of relative slow rhythms of freight handling and distribution; ***(c)*** a small optimum size of ships; and ***(d)*** a close, precisely defined, internal port area.

Within this homogeneous system it was relatively easy for those planning the development of the port industry to determine the demand, and increase of port capacity and satisfy, via this unbroken increase of the latter, the continuous expansion of the demand for transport services. The dominance of this system was a result of the conscious and strategic considerations of ports were a force of regional and industrial development, i.e. via the creation of 'axes of development' and 'investment polarisation' (Vanhove and Klaasen, 1987), and creators of jobs fulfilling the demands of salaried employment, dominated by Fordist characteristics.

The application of the Fordist mass-production pattern in the case of the port industry should not be understood in terms of simplistic references to size and efficiency. Rather than that, it has been a system of markets, technologies and scientific management, designed to stabilise and sustain demand. Thus, the creation of the large, vertically integrated, hierarchical corporation has been the outcome of strategies to balance supply and demand in the mass production port industry.

As regards technologies, it has been based on substantial investments in highly specialised equipment and specialised labour. It incorporates the combination of scientific management (Taylorism) with two additional characteristics:

- The linear production of port services, which requires the combination of specific operations and the harmonisation of the rhythms of various industrial operations (the 'assembly line');
- The standardisation of port services, which enables specialised terminals to supply a mass production of services and create economies of scale, in turn allowing a significant decrease of the production cost per service.

The application of this pattern in the port industry has taken two forms. First, that of a continuous mass production of services, i.e. port terminals which

operate 24 hours per day. Second, the form of a process that incorporates the technical apportionment of labour, i.e. the case of specialised terminals - particularly container-terminals. In this context, the production of port services is constantly directed towards the creation of internal economies of scale, via the advanced standardisation of the production process within the port, as well as via the 'routinisation' of the labour process, mainly through the sharpening of the division between manual and intellectual labour and the de-specialisation of the former. Thus, there is an endogenous trend of the system to drive both the size of the production and the productivity per employee to a continual increase (Boyer & Coriat, 1986).

These industrial characteristics have been based on the existence of huge and stable markets. The latter should be large enough to satisfy the demand for massive quantities of standardised services and, moreover, to generate sufficient returns to the substantial investments in ports in order to achieve the steady employment of the production factors. The creation of such markets has represented the main justification for the creation of an institutional mechanism, which frames the application of fordism in ports. The presence of large port enterprise, the control of the markets through (national, bilateral or international) and the collective agreements with trade unions, have been used to achieve the uninterrupted operation of the system.

The adopted regulatory and economic measures were aiming to:

- generate economic development in periods of depression and decrease the levels of unemployment through public expenses, direct and indirect (but also: transparent and hidden) subsidies to those users who would choose to approach the specific port;
- maintain social peace through re-distributive measures (i.e. unemployment and social security benefits, training programmes targeting the qualification of the unqualified worker or the redirection of labour to new professions)

In short, Fordism has been a production pattern supported and complemented at the institutional level by a comprehensive code of social ethics and economic regulations capable enough to ensure the synchronisation and the cooperation of the massive production of port services with the demands of port users.

3. Ports and Contemporary Transport Systems

Throughout the last two-decade period fundamental modifications in the production and distribution of goods, have upgraded the importance of transport services as an economic activity with substantial impact on the final cost of a product/service. Especially since the early 1990s, the impressive progress of informatics and telecommunications has challenged the respectability of the preceded industrial production pattern. The demands of the contemporary economic developments cannot be served within the context of the system that had traditionally been used to achieve the optimal organisation and management of the port industry.

The creation of functionally comprehensive 'industrial networks' and the implementation of logistics - that is, the management of physical and informational

flows into, through, and out of a business - result in structural changes in the production and distribution of goods. By introducing a new trading context, logistics alter the industry-transport relationship. Transport services are developing to an integral part of production and marketing strategies, as an efficient industrial functioning is endangered whenever bottlenecks and delays are caused by the transport system (cf. ECMT, 1996).

Consequently, there is a changing practice of shipowners, who attempt to adjust to the demand for just-in-time and door-to-door services. Given the intensification of competition between transport modes - as the general cargo figures and in particular the most profitable unitised part represent commodities exposed to sharp modal competition (cf. MDS, 194)- vessel operators attempt to adjust through vertical and horizontal integration. Shipowners gradually expand their business in a wide spectrum of market activities targeting the control of the complete transport process. The outcome is the increasing application of transportation chains and the expansion of the feeding traffic: shipping lines move steadily to larger vessels, calls are progressively reduced to one port in each trading area; hence, a stronger intra-European feeder trade to and from the outports develops. A substantial part of the containerised trade that reaches Europe arrives at a European port and then is transhipped to another.

On the other hand, shippers demand 'new' services, hence the declining importance of the traditional port selection criteria. Port competition is not anymore a direct outcome of price competition, or the geographical proximity of a port. Rather than that it relates to other criteria as well (Peters, 1993). This is because within the new context loading and reloading are neither the sole services demanded, nor do they sustain as the sole sources of a port's income. The presences of warehousing, technological infrastructure and facilities that guarantee uninterrupted multimodal transportation have turn to substantial income generators. Port productivity relates to the improvement of the total transport chain, rather than maritime transport alone. Subsequently, port competitiveness depends on the other elements of the transport network (i.e. railroads, road transport). Port planning has to be part of a holistic planning of this network. Still, productivity rests on the industry itself. Its improvement can be achieved via the presence of modern infrastructure and superstructure, but also via the adoption of operating methods that satisfy the contemporary necessities of both the suppliers of the services and those of the port users.

As a result, ports handling, almost exclusively, conventional cargoes have developed to ports involved in the transhipment of unitised and containerised commodities. To give an example, with containers handled in European ports and ro/ro traffic being the most expanded market niches the current split according to loading categories are general cargo 52%, liquid bulk 38% and dry bulk 10% (Zachcial, 1996). Besides, because of the impressive expansion of the demand for transport services, ports - as well as the rest of the maritime transport system - are, in terms of private and social costs, the environmental friendly alternative to the congested roads and the increasingly saturated air transportation.

3.1. Implications for the Port Industry

The preceded contemporary elements of the transport systems generate the necessity for a different perception and behaviour in the organisation and scope of port businesses and, not least, the policies to gain cargoes. Port authorities and operators need to adjust their organisation, infrastructure, administrative procedures, and daily function, in short most of their present characteristics. Their strategies should aim to integrate the port into a production-transport-distribution chain and the transportation of the necessary quantities of final, but also intermediate, goods via a process that uses the minimum human resources, port infrastructure and superstructure. In a similar vein, but contrasting the 'traditional' concept that ignored the relationship of the maritime mode with the other transport modes, the modern theorisation of the industry can be rational only if it is part of a strategy targeting a high speed distribution network that serves a variety of economic activities irrespective of their geographical proximity to the port.

By developing to a 'service oriented' economic activity, the port industry has entered in a post-industrial era. New technologies have been the means for this transformation. Through their application the port gate, which offers loading, reloading, and custom services in order to facilitate the realisation of a continuous flow, is replaced by the operation of a logistics platform. The latter provides complementary added value operations and develops to the 'brain' of a wider transport and communication network aiming to integrate intermodal traffic (Pesquera & De La Hoz, 1992). Along with conventional services, it provides logistics and distribution services - including integrated management systems and Electronic Data Interchanges (EDI) linking port authorities, shippers, stevedores, and shipowners, and stimulating multimodal transportation within the just-in-time requirements.

Another vital consequence of the preceded structural changes is the expansion of the port area. Apart from the 'internal' geographical area, it involves cargo and passenger corridors determined by the necessities of the inland parts of the transport chain. As value added services can be supplied from production units located in wider geographical areas and integrated through communication networks, two types of activities develop: ***(a)*** port specific activities, essential for the daily operation of the port and offered by production units located within the 'internal' port area; and ***(b)*** port related activities, essential for the transportation of goods through the use of the port but their efficient supply is not conditioned by their provision within the port area. As new types of port services are supplied, the decentralisation of the production units involved, so that congestion is avoided, and the effective connection of the port with other semi-autonomous (in relation to the port) areas develop to parameter which influence the competitive position of a port. In several European ports (i.e., Rotterdam, Hamburg, Bremen, Marseilles, Le Havre) a number of complementary services is already supplied by enterprises located in the hinterland (BCI, 1996). All these services have to integrate through communication networks that allow, inter alia, the essential administration and operation flexibility.

Beyond these, the new context has contributed to the alteration of the relationship between the public and private sectors as regards port ownership and operation In many European ports new regulatory frameworks promote the development of joint ventures and partnerships between the private and the public sector, the main target being the enhancement of the quality of the services and the inducement of a new dynamic as regards the users' selection of the port to approach.

For long, the public sector was involved in the planning, construction and operation of the services and infrastructure used by general cargo vessels involved in transatlantic trade was provided. The provision of such services and infrastructure facilities was considered as a 'public good', thus the sole responsibility of central governments or municipal authorities. However, as the demand for specialised services and infrastructure capacity - to satisfy a particular type of vessel or trade - increases, these facilities are considered as 'private' or 'merit' goods (De Monie, 1996). The risk of providing essential but specialised investment is considered as the responsibility of the port user, rather than the public sector. Those users who demand the provision of a specialised terminal, and expect benefits by its operation, have to contribute financially to its construction. Moreover, given the experience observed in Europe since the early 1980s (Chlomoudis & Pallis, 1996), it is questionable whether the public sector would have been able to respond to the substantial amounts of capital that specialised port modernisation demands - not least because of the very substantial time lag between the start of capital formation and the beginning of financial returns constraint the devotion of substantial public funds to such projects.

The result has been long-term agreements - the length of which relates to the level of the required/planned investment - hiring the port terminals to its users. The users have the right to build the particular infrastructure and superstructure that match their requirements, whilst they pay rent to the port authorities as a percentage of the value of the port area that they utilise. In many cases, i.e. Rotterdam, Hamburg, more than simply covering financially aspects, private enterprises have also assumed part of the business risks associated with the production of port services previously undertaken by the port authorities. The presence of partnerships that transfers the responsibility and the risks of huge capital investments and daily port operation to the user himself further the need for restructuring the organisational model of the industry. In this context, the emphasis of modern port management and organisation should be on: ***(a)*** the fundamental re-engineering and redesign of port operation, in order to simplify the process of port services production; ***(b)*** the progressive replacement of some port activities by the supply of value added services; ***(c)*** the rapid application of telematics and other advanced technologies; ***(d)*** the internalisation of the external costs.

4. The Problems of the Fordism Paradigm

As presented in the previous section, ports face increasing levels of competition whose qualitative characteristics are entirely new to the industry. The challenges posed by the new competition have direct implications both to the organ-

isational structure of an individual port and to the management of the productive activities. When earlier organisational forms become obsolete or need adjustments, it is necessary to discuss the potential nature of the port management and organisation. This is not least because «the port product may be regarded as a chain of interlinking functions, while the port, as a whole, is in turn a link in the overall logistics chain» and «within the port itself, the respective significance of the constituting links has clearly changed in the course of time» (Suykens & Van de Voorde, 1998:252).

Given the aforementioned 'new' reality, and its implication to the industry, the Fordist mass-production model of port management and organisation is already challenged. Among the manifestations of the crisis is the saturation of the markets due to the supply of similar services in the same regions. This model has lead to over-investments that do not respond to the demand (the so-called «prestige investments»); the stagnation of the demand for specific traditional port services; the increase of the unemployment in the areas of large, comprehensive, and centralised ports; the difficulty to efface the substantial funds invested in infrastructure; the intensification of competition between ports; and the decrease of the levels of productivity in a series of port activities. The social disputes, the stagnation of the productivity, and the irrational from a social point of view distribution of public investments in port infrastructure (Chlomoudis & Pallis, 1997), generate the need to reconsider -and research - the technical and social limits of the Fordist model.

The major problems of the model can be attributed to endogenous, rather than temporary, trends. Firstly, this system suffers from an inflexibility and incapability to adjust to the structural changes of the demand. This is because the system is characterised by an endogenous trend towards the homogenisation of the market and the standardisation of the produced port services.

Second, in the case of a complex network of port services, like those increasingly demanded in the context of multimodal transportation, it is difficult to synchronise the flow of the various components of the process in a way which would prevent congestion. The importance of this problem exacerbates as the co-ordination of the component services perplexes due to the expanding geographical disparity of the production function (quay, warehouse, distribution centre, etc.). Then, in order to ensure the best possible function of the massive linear production, there is a requirement for the maintenance of the port infrastructure and superstructure, the storage of large quantities of equipment, and the permanent presence of provisional port areas that would satisfy an increasing demand. Whilst all these reserves are necessary for the optimal function of the fordist port, they also result in substantial costs that are ultimately transferred to the price of the produced services.

The absence of qualitative control represents the most significant problem. In a period of uncertainty and increasing competition, the costs of dysfunctional (i.e. slow and non-competitive) operations, and/or the costs of port accidents are of critical importance. This is not only because these phenomena induce an increase of the required equipment stock, but also because problems of 'quality' in terms of process organisation, services produced and employment conditions lead to industrial actions with negative impacts on the levels of production, and

ultimately on the competitive position of the port. Last, but not least, the impersonal and distant relationships of the port administrators with the equipment providers, generate delays in delivering, and minimises the quality control of the working assets. In several cases these problems exacerbate the incapability of a port for rapid adjustments to the changing feature of the transport markets.

5. Towards Post-Fordism and Intra-Port Competition

Nevertheless, as there are few empirical developments to justify such claim, the probability that Fordism will fail and ultimately abandoned solely because of its own endogenous problems seems remote (Limberaki, 1991). Notwithstanding this durability, port services production move steadily towards a post-fordist phase of, in essence a development of Fordism incorporating the concept of flexible specialisation and elements of quality management. Post-fordism is a process dominated by economies of scope, focused manufacturing of specific parts with earlier steps conducted by outside suppliers, and the integration of production and distribution through information technologies (for a reader: Amin, 1994).

Applied in the port industry, this pattern is characterised by:

- The division of labour in specialised and potentially autonomous production units, in a way that each of these units is able to achieve its own economy of scale whilst it generates the conditions for further services specialisation and the continuous supply of services within a specifically defined area;
- The reverse of Fordism as regards the role of those employed by the industry at the various stages of the production process. Post-fordism incorporates a steady move from the non-qualified worker towards qualified skilled workforce. The latter have a greater participation in the attempts to generate an operating framework that supplies quality services. Moreover, he has a greater contribution in the flow of ideas, as his technocratic skills become essential for the achievement of the targets of specific production units, as well as for the capability of these units to rapidly adjust to different conditions in different points of time;
- The organisational decentralisation of the control of productivity, in order to minimise the isolation of the worker and create the framework for his greater participation and responsibility in services production; and
- The changing role of the new technologies. Contemporary technological developments are now related to multiple stages of the production function of a port, rather than reproducing the previously observed pattern where they were related solely to a particular operation. In addition, there is a transformation in the relationship between the machine and the port-worker: rather than replacing the unqualified worker, machines are tools effectively used by the skilled worker.

This model incorporates the concept of *flexible specialisation*. That is the adoption of new principles of productivity, based on specialised production units focused on the production of specific services, decentralised management, the

presence of various forms of employment and the employment of new technologies.

Moreover, it enables the existence of *intra-port competition*, the competition between similar or complementary production units, which provide same services in the context of the same port. When the demand for specialised types of port services - which frequently represent only a small component of the total of the services that a contemporary port supplies - is profound, the application of a post-fordist framework empowers the development of intra-port competition between Small Medium Enterprises (SMEs). In essence a more flexible form of organisation of the production units, such competition contributes decisively to the increase of port traffic - as it creates the potential to match rapidly, innovative and effectively the demands of its current and potential users - and transforms the port to a competitive one.

The post-fordist pattern of port organisation is a model in development; hence, it is not easy to be precisely described. Still, whilst this is not necessarily a new model, it incorporates some elements, which appeared and developed within the fordist development of the port industry but had been considered as paradoxes - even though they have assisted the fordist pattern to overcome some of its problems. The presence of SMEs is one of them.

The most common criterion for the characterisation of an enterprise as 'small, 'medium', or 'large', is the number of its employees. As regards the port industry, businesses employing 1-50 workers can be defined as 'small', those employing 51-200 workers as 'medium', and those employing over 200 employees as 'large'. This categorisation is acceptable, though limited exceptions (and, thus, reservations) are probable, if the significance of the employed capital is taken for granted. The latter assumption should not be underestimated as the level of the capital that may be employed by a small number of workers can be of a scale that would create substantial reservations for the universality of the suggested criterion. In addition, the increase of the employed capital by a port enterprise does not implicate an analogous increase of the number of the employees; advanced technology high cost equipment that may increase the return of port businesses does not demand a respective increase of the employees by the specific production unit. The future of numerous SMEs within the age of flexible specialisation is particularly significant.

Although they lack internal economies of scale, and do not control the market and the cost of the services, SMEs operated within the era of mass linear production of port services. The importance of their presence however – though still as parts of a wider chain of port services production process - increases. SMEs tend to employ a relative higher percentage of qualified labour. Labour specialisation in these enterprises tends to allow for each worker to be involved in the execution of more than one type of services. They also allow for the supply of specialised services in various stages of the process satisfying the 'new' demand. Then, they can serve parts of the markets having particular characteristics. Not least, they can flexible adjust in order to improve the quality of the provided services.

These forms of port production units can provide services integrated within a wider cohesive programme of port planning, whilst the responsibility for the

effectively supply of the services remain to the executives of these units. Aiming to improve their competitive position these units will act with greater autonomy and demonstrate the essential entrepreneurship and creativity. In this context, the role of the central port authority is to control the rules of competition between production units offering the same but also multiple port activities. Different activities, like those of ship-repairing, the production of new types of services through the utilisation of informatics, i.e. EDI, can be expected to be supplied in different terminals by relative autonomous operators, while several of the port related activities might be offered by enterprises located in the hinterland. Apparently, the role of SMEs is not complementary but vital for the establishment of a post-fordist organisation governed by the principles of flexible specialisation.

On the other hand, the wider cohesive programme of port planning may deal with the development of various types of networks, that is the setting of selected and explicit linkages between partners of complementary assets and market relationships, having as major goal the reduction of static and dynamic uncertainty. In this vein, the development of *strategic networks*, defined as «long-term, purposeful arrangement among distinct but related for-profit organisations that allows those firms in them to gain or sustain a competitive advantage vis-à-vis their competitors outside the network» (Jarillo, 1988:32), and/or regional networks, «made up of small and medium-sized firms embedded in an industrial district.» (Sydow, 1992:115), might be particularly helpful.

Changes in the patterns of employment are also necessary. Precisely as the production and supply of port services do so, the production factor 'labour' becomes more flexible. The pending technological revolution has a substantial contribution to this evolution as it ultimately leads to the minimal use of labour for the completion of a specific port services. At the same time, new technologies modify the demand for this production factor: their application increases the demand for specialised skilled, thus flexible labour, at the expense of the demand for non-qualified workers (Haralambidis & Veenstra, 1997).

An illustrative example is the quantitative decrease and the structural modification of the qualitative characteristics of those employed in the Port of Piraeus, even though there has not been any substantial modification of the port traffic and the characteristics of the new reality have not yet incorporated in port planning (UPRC, 1998). Chains of 'generalists' are progressively replaced by chains of 'specialists'. The latter involve personnel skilled enough to operate new technologies, i.e. front office PCs, and equipped with Management Information and Decision Support systems. Front office employees have access to information that enables them to complete most parts of the services' production process. As regards the administration of this process, the importance of the flexible co-operation of the personnel upgrades, at the expense of the importance of the traditional hierarchical administrative structure.

Of the recent phenomena is also the advancement of the importance of the 'personal creativity' deployed by labour within the production process. This develops to a factor leading the production function to a greater efficiency, even at a greater degree than that which might be attributed to the 'conventional' productivity of labour. When the creativity of administrative executives and skilled

employees influences decisively the fluctuations of the produced port services on which the determination of other economic decisions (i.e. price schemes) is based, it is inevitable that in both theoretical and practical levels, those involved in the decision-making process should consider ***(a)*** the maximisation of personal satisfaction and ***(b)*** the increase of the personal creativity, as prime criteria for their economic behaviour and decisions.

When compared to the total of the activities of the fordist mass industrial production, the intensity of the 'creative' activities of the employees was minimal. Thus, they were considered as a curious paradox of the production process. In nowadays, those employed in ports need the capability to effectively respond to changing and specialised demand, rapidly control the unfavourable conditions that may appear during the process, and, not least, contribute to port planning. To attract efficient, in terms of quality, levels of skilled labour, which will serve the contemporary demands, the profession of the port-worker demands a social status incorporating both the personal pride for the specific job and the need to increase the overall productivity of the system.

Within this framework the importance of Total Quality Management and Marketing principles (see: Goetsch *et al*, 1999) upgrades and demands respective adjustments. The implementations of policies in line with these principles in the production process but also in other organisational functions that take place in the context of a port, are vital. Until recently, the dominant concept was that the port authority represented the sole decision-centre. Taking into account however the changing framework, the need for flexible specialisation, the changing characteristics of the employed labour, it can be concluded that a port authority can administrate more effectively the adjustment process through a restructuring of the decision making process - in the context of a total quality management policy - towards the inclusion of the small production units/enterprises and those employed by them in port planning and management. The prospects of this participation are considerable, as the contemporary quality characteristics of the employees are favourable and the flexible forms of port organisation demand greater decentralisation but also integrated operations.

6. Concluding Remarks

The applications of numerous innovations in the transport process direct the port industry in the selection of capital-intensive procedures, which integrate the contemporary technological developments. Among the products of these developments is the accelerating demand for new organisational and administrative port structures in order to effectively redefine the role and the characteristics and, prioritise the supply of quality and new types of port services. Within the contemporary environment of intense port competition, and the altered private/publilc sector relationship, those ports that will not proceed to the adjustment of both their production process and the supplied services will not manage to remain competitive. Such adjustments can be effectively achieved through the introduction of regulatory and economic frameworks that advance intra-port competition creating, thus, more flexible patterns of port services' production.

The structure of the port production as well as the thoughts regarding the effective administrative models are transformed, allowing the prediction that, sooner than later, competitive ports will be economic organisations functioning within a post-fordist pattern of services production. Fordism, which sustained for several decades as the dominant pattern of ports organisation and employment, enters in a new phase dominated by more flexible and less concentrated patterns. Therein, components of the system - whether SMEs or relatively independent production units - and those employed in them will operate with a higher degree of autonomy, remaining however parts of a wider group of enterprises having common aims and targets. Therefore, within the new organisational forms in development, the importance of total quality management and marketing for the port industry upgrades and demands respective adjustments.

Still, changes should be expected to be anything but homogeneous. This is because world ports do not comprise a homogenous industry. On the contrary, a port may differ from another in terms of size; capacity of handling goods; geographical location; importance of the port at national, regional, even world level; the level of the existing technical specialisation; ownership; operational traditions; and employment practices (Pallis, 1997). This has several implications at the institutional and the operational level along with other market developments (Langen, 1999). As the markets on which each port depends are structurally different and characterised by divergent financial substance, the organisational strategy formulation for any particular port has to be supplemented by a specific analysis for this port and its competitive position. Therefore variations should be expected as the adjustment of the port industry to the new reality progresses.

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