



Research note

Ports and logistics: resilience, sustainability and new centrality in the post-pandemic perspective for Italy and EU Med ports

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Abstract: This article is part of the Economic Geography studies and deals with aspects related to intermodal logistics with particular reference to maritime transport of containers. Ports are historically one of the key infrastructures for the Italian economy. In recent decades, along with many industrial sectors that were once driving forces for the national economy, due to the lack of adequate strategic planning, it has failed to keep pace with the rapid changes imposed on all sectors involved in the process of globalization of the economic world, losing ground and competitiveness with respect to many competing realities, both in Northern Europe and in the Mediterranean basin itself [1]. Most of the other states of Mediterranean Europe are in similar conditions, but Italy is probably the one that has lost the most ground. In this situation of strong economic and social imbalance, the covid-19 epidemic has hit Italy before and dramatically and if it had not turned into a pandemic, hitting the rest of Europe and the planet and forcing the European institutions to launch, for the first time, concrete support measures for all, would probably have represented a fatal shock for the Italian economy. By elaborating the information on statistical data and projections available in numerous international publications on the transport economy and more specifically on logistics, taking into account the reasons for the successes and failures of similar realities to the Italian one, the study offers food for thought on what to do immediately and in the future, taking advantage of the unique and unrepeatable opportunity constituted by the economic initiatives for the post-pandemic recovery, to remedy the lost ground by returning an adequate role to our world of maritime and port transport which can also be a driving force for the territory behind, avoiding ending up on the edge of the evolved world.

Keywords: globalisation; intermodality; logistics; naval gigantism; ports

Abbreviations: 1GP: First generation ports; 2GP: Second generation ports; 3GP: Third generation ports; 4GP: Fourth generation ports; 5GP: Fifth generation ports; 6GP: Sixth generation ports; CMA CGM: Compagnie Maritime d’Affrètement et Compagnie Générale Maritime S.A.; COSCO: China Ocean Shipping Company Ltd.; IBM: International Business Machines Corp.; ISO: International Organization for Standardization—from the Greek word isos (ἴσος); MGT: Millions of Tons of Gross Tonnage; MSC: Mediterranean Shipping Company S.A.; ONE: Ocean Network Express Pte. Ltd.; OOCL: Orient Overseas Container Line Ltd.; RORO: Roll On-Roll Off; TEU: Twenty-foot Equivalent Unit; ULCV: Ultra Large Container Vessels

1. Introduction

The Covid-19 pandemic crisis caused a severe economic and social shock in the West as well as in the Far East, as a result of the distancing and segregation measures imposed on the population. Even the system of values of liberal capitalism considered to be indisputable up to now have undergone a rethinking, having to foresee huge public interventions to restore entire sectors of the economy that otherwise would have no possibility of overcoming the crisis.

All sectors related to transport and the mobility of people have been among the most affected and only at the cost of enormous sacrifices has it been possible to avoid the collapse of the logistics chain that allows the global market to function. In this last sector of particular importance is maritime transport with container ships, the prime mover of production transportation from the Far East to Western markets.

This study starts from the pre-pandemic situation when the main players in the shipping and integrated logistics sectors were preparing to divide the market among those who had managed to survive over a decade of bitter commercial battles fought in a period of severe economic crisis. Even then in many Western countries it was perceived that the choice of the world economic system to create a globalized market, transferring production to the emerging areas of the Far East to exploit the supply of cheap labour, was producing a social desertification in Western industrial economies. In these areas the population had not found alternatives to the loss of employment caused by the relocation of the industrial sector with a rapid reduction in the level of well-being and consequent enormous social impact. These choices have, in fact, caused serious levels of unemployment in the working class and the strong impoverishment of the intermediate classes with such a high number of new poor as not to be justified by the interest of the industrial and economic lobbies which risk, moreover, to find themselves having obtained the classic victory of Pyrrhus following the sharp reduction in purchasing capacity.

The pandemic crisis has reshuffled the cards on the table forcing everyone to re-evaluate principles that seemed anti-historical such as public interest and human rights on par with, if not before, the values of capitalism, but it has also raised serious doubts about the reliability and sustainability of undisputed principles underlying globalization: the axiomatic trust in the availability of unlimited production and transport resources at low costs. Analysing the results of some studies recently conducted by economic analysts to understand what kind of world we should expect after this pandemic crisis, the study aims to draw useful insights on what to do in the immediate and near future to restore equilibrium conditions in the world of transport maritime and ports of the northern Mediterranean area and in particular of Italy, directing the choices of those called to plan the next decade avoiding choices, sometimes dictated by “populism”, which can have catastrophic economic and social consequences on a global level . The unique opportunity represented by the huge public

funds for the post-pandemic recovery is not to be wasted. Considering that from a crisis of this magnitude either we exit in masse or we do not exit at all, it will be a question of taking all the necessary initiatives in the direction of greater economic and social resilience of our markets, providing our populations with an offer of alternative activities to those no longer available in traditional industry, limiting the use of solutions such as citizenship income to the emergency period only, which if badly managed can have a devastating effect on the labour market.

Making our own the words of Pope Francis to the participants in “The Economy of Francesco” 2020 meeting, we must all understand that it is intolerable for us to privilege sectoral interests to the detriment of the common good [2]. Even if a sharp turnaround will not be possible to abandon globalization, it is nevertheless important to recognize on a global level that a course correction is indispensable. To achieve this goal, however, it is necessary to restore dignity and role to national and supranational political institutions so that they make respect for the fundamental rights of peoples to well-being and social dignity compatible with that, equally relevant, of world economic lobbies, by moderating their influence in the choices of an economic nature with a significant social impact.

2. The transport of goods in a globalized market

Market globalization means producing where costs are lowest, moving away from sources of raw materials and semi-finished products, as well as from those of consumer markets. To do this, it is necessary to have an efficient transport and distribution network. The strong contraction of production costs allowed by globalization and the consequent collapse of consumer prices has increased the demand for goods and services exponentially and with this the volume of transport. Maritime transport, compared to road and rail transport, has the undoubted socio/economic advantage of a considerably lower social cost (private cost + external cost: direct transport costs, travel time, accidents, emissions, noise and congestion), especially for large quantities and long distances, so it has been the preferred transport system for intercontinental trade. More specifically, with the same amount of goods (but also passengers) transported on long distances, the higher external cost of using the road compared to maritime mode is 575% approximately. The railway has higher external costs than the ship of about 233% approximately [3]. Containers, also known as intermodal containers, have become almost synonymous with logistics and multimodal transport thanks to their suitability for door-to-door delivery with maximum efficiency. This is due to the adoption of a standard ISO design optimised for intermodal freight transport with different modes. Thanks to their sturdy square metal structure and twist lock fastening/hooks system, the containers can be gripped from above, below or from the side and transported on ships, trains and trucks, deposited in storage areas by stacking up to ten units, transferred between the different modes with no need for any intermediate opening or unpacking. The volume/capacity of a container is expressed in TEU, or sometimes teu, short for twenty-foot equivalent units, corresponding to 33.1 cu m (1,169 cu ft). The maximum gross weight is 30,000 kg (66,139 lb) while the maximum payload is 27,800 kg (61,289 lb). In 2019, 90% of containerized goods were transported by sea.

3. The shipping in 2019 and today

The growth in demand has led to a strong development of the offer with strong competition between carriers. The hardest battle was that for domination over the seas, reaching very high levels

of efficiency thanks to ever greater economies of scale. In the last twenty years the number and size of ships, thanks also to the favourable conditions of the financial markets, have grown faster than the demand for transport, increasing the size and capacity of the largest container ships, to be used on intercontinental routes, from Sovereign Maersk's 350 m × 43 m and 6,600 TEUs in 1997 to MSC Gülsün's 400 m × 62 m and around 24,000 TEUs in 2019: ULCV growth seems unstoppable.

Table 1. World container fleet carrying capacity growth (2011–2021).

Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross Tonnage in thousands	158.2	170.4	179.5	188.7	200.2	215.3	217.2	225.1	237.3	246.0	252.6
Percentage growth	0.0%	7.7%	13.5%	19.3%	26.5%	36.1%	37.3%	42.3%	50.0%	55.5%	59.7%

Source: Processing on UNCTAD statistical data [4].

The carrying capacity of container ships in the period 2011–2021 grew by 59.7% from 158 MGT to 252 MGT while the volume of goods transported in the same period grew by 27.7% [5], resulting in a strong oversupply of transport compared to the demand, triggering strong competition between the major players in maritime transport. The major shipping companies [6], thanks to the enormous economies of scale obtained by dramatically increasing the number of containers transported by a single ship, have led to the collapse of container tariffs (Shanghai to US West coast 400 USD/TEU in March 2016 compared to 4,000 USD/TEU in July 2021) [7] to unsustainable levels for most operators with a consequent reduction in their number with horizontal integration through global acquisition. As often happens in the post war period, the winners signed a temporary truce based on the de facto distribution of the world market, establishing commercial alliances between the survivors of the freight war, once bitter rivals on the same routes, in order to optimize travel costs for each single ship, regardless of ownership, by calibrating the volumes available on board and thus establishing the prerequisite for a return of tariffs to higher levels of profitability. The three main alliances, 2M (Maersk, MSC), Ocean Alliance (COSCO, OOCL, CMA CGM, Evergreen) and THE Alliance (Hapag-Lloyd, ONE, Yang Ming), alone cover 84% of the market [8]. Despite this natural selection, the market continues to oversupply due to the significant number of ships available and their larger size. The ULCV, due to the dimensions reached, the volumes and the type of goods transported and to amortize the very high investment costs, must avoid any waste of time; they generally carry out “pendulum” trips between two huge “hub” ports dedicated to very high productivity and adequate port facilities, where they will remain on the quay only for the time strictly necessary for loading and unloading operations and then leave for the return journey, following routes specific short. Many of these port facilities, container terminals or entire hub ports, are managed by terminal operators who guarantee the reliability and efficiency required by shipping companies by entering into multi-year contracts with them or by establishing direct business relationships of participation or control with a specific company or with one of the great alliances. The economic strength and investment capacity of these colossal global entities, in addition to favouring naval gigantism, has allowed them to achieve a very strong political influence, very often influencing the strategies in logistic planning. The governments of the nations of the world are competing to propose their ports as a key reference for their lines, snatching them from neighbouring states, even if this means guaranteeing their carriers the exclusive use of docks and areas once of

public use, with ten-year concessions in exchange for investments in port equipment which, although expensive, have the intrinsic characteristic of being removable and repositionable elsewhere as soon as market conditions suggest it. In this way, competition has moved from the maritime segment, where the shipping market remains saturated, to the land one, both to try to provide an integrated service that is more responsive to the efficiency and reliability needs of the new global market, and to gain a competitive advantage. compared to competitors by physically occupying the most attractive and efficient loading and unloading points.

4. The ports

The ports have followed the evolution of maritime traffic and shipping over time, adapting dimensions and services to the needs of a logistics segment that has imposed itself and therefore increasingly required efficiency. What seemed adequate only a few decades ago has become insufficient with the increase in the size of ships and the volumes of goods to be handled in ever shorter times. Naval gigantism, especially in the container sector, has imposed such service parameters to satisfy which it was often more convenient to design and build new structures rather than adapt existing ones. Throughout the first half of the last century, the 1GP were essentially required to maintain the accessibility levels and service standards imposed by steam navigation at the turn of the century, acting as an interface between sea and land transport, with limits and functions outlined with respect to the surrounding area [9]. Then, with the development of post-war heavy industry, it was convenient to bring plants and storage places closer to the sea to reduce the movement by land of large quantities of raw materials and semi-finished products to be imported, transformed and exported. We have moved on to 2GP which, achieving greater integration with the areas of residence of the workforce, combine the transport function with the industrial and commercial one. In the Eighties the first effects of globalization began with the emergence of container traffic and with the birth of 3GP specialized for rapid import/export, often intercontinental, with ships calling in port according to a well-defined planning of sea routes. The main difference between 2GP and 3GP was the investment in the optimization of the control procedures of commercial flows (on ships and cargo), trying to make the authorities involved (Port Authority, Coast Guard, Customs, Port Health, etc.) understand that their function must be considered not as a self-referential exercise of power but as an efficient and well-sized service to proactively facilitate regular and lawful traffic without hindering its flow, targeting only those irregular or illegal through preventive intelligence actions and not only with obstructive and slowing controls. When the flow of container ships and RORO traffic becomes so significant as to be hindered by other forms of port traffic, the need was felt to improve the efficiency of the service that the ports could give to the logistic chain through the closest coordination between distant ports with different specializations according to their specificity. In case of availability at low cost and socio-environmental impact of spaces and depths adequate to build and equip the massive infrastructures necessary to serve the new mega-ships, “hub” ports have been created. These deal with the unloading of containers from “mother” ships, temporary stocking in marshalling areas for subsequent loading onto “block trains” or smaller “feeder” ships for transfer to regional ports or interports closer to the final destination. The operational management in the “hub” ports and in the ports and terminals of destination are closely coordinated, from a contractual point of view or sometimes by the same ownership. This type of port organization is named 4GP [10]. The correct management of the significant traffic flows of very

large ships and consequent enormous volumes of goods to be unloaded, stored, distributed and re-embarked, which the nascent globalization has led to foresee, has required the availability of much longer mooring quays, much more water depth and storage areas much larger than those available in the port cities of origin. With a “Greenfield” approach, adopted with sites that have not been built on before, often rural or countryside areas, the industrial port activities were so relocated to new areas without landscape and urban constraints. The most striking example is Rotterdam, in the Netherlands, where the distance between the city centre (where the historic port was located) and Maaslakte 2 (the heart of the new commercial port) is just over fifty kilometres. In this new port organization, very often, the same large maritime operators have started to focus on the vertical integration to grab the management and exclusive use of port facilities, aiming to evolve from shipowners and ship operators to integrated logistics specialists, also acquiring the hinterland segment up to the last mile: ports, rear port areas, interports with rail and road connections. The integration process covers also the auxiliary services sector and the shipping companies are now participating to tenders for the assignment of concessions for services traditionally covered by independent specialist operators who are unable to withstand the competition of those who, from a dominant position and given the complementary function and weight of these activities with respect to the core business, can afford to produce them even at a loss. This evolution of the market, with the birth of a small number of very powerful private world operators who are obviously led to favour the profit to repay the huge investments in infrastructures, must necessarily be regulated by a supranational regulatory framework, even before a national one, which must guarantee the legitimacy and sustainability of conduct and respect for the principles of competition, avoiding the abuse of dominant positions, as well as the environmental, economic and social protection of the territories subject to competition. 5GP are recent history, where the ability to develop integrated and multimodal logistics counts more than services to the ship. To do this, the focus is on customers but also on the territory, sharing action and development priorities to favour tangible and intangible flows between port and hinterland [11]. Today we have come to design 6GP or Smart Ports to serve the traffic that is imagined to exist in the next decades and which, to serve ships that are expected to have more than double the capacity of the current ULCV (50,000 TEU and 20m of draft) [12], require infrastructure for cargo handling able to move it quickly and without the risk of errors and will therefore have to make extensive use of robotics with systems that will communicate with the ship’s systems even before its arrival, probably even before its departure, and downstream with the automatic systems of land carriers or feeder vessels. This scheme is already in an advanced design phase and two large companies such as Maersk and IBM [13] have formed an alliance between shipping and High-Tech for the development of systems and protocols on blockchain technology for intermodal container transport operations, the others will follow soon. Obviously, the dimensions of these new mega-ships will require that the 6GP have adequate port structures with dimensions that will have a decisive impact on the territory, which requires the involvement of public institutions to support the colossal costs of their construction but also, and above all, for the control of the environmental impact as well as to ensure that the port activity is not exclusively for the benefit of the concessionaire of the port but also of the local community.

5. The Italian ports

The Mediterranean basin has been the cradle of many civilizations that for millennia have crossed it far and wide to trade and often to fight each other. The Italian peninsula, positioned at its

centre and endowed with a long and indented coast with numerous natural inlets, was naturally chosen, as a landing place and therefore as a commercial or military settlement, by many of these peoples who, in mutual autonomy, laid the foundations for our current port system. These, even in more recent centuries, have preserved their original characteristic of independence, preferring competition between them rather than synergy. The Maritime Republics are the clearest example of this and, although their origins go back to the Middle Ages, the influence of their history continues to be felt, preventing even today from being able to give our country a true port strategy of national scope. As a consequence of this history, Italian ports are created to meet the needs of connection of the population and industry present in the hinterland of reference and tend to be “multi-purpose” rather than specialized in a specific activity. The more recent ports are an exception, aimed at serving heavy industries such as the petrochemical or steel industry. The morphology of the Italian territory, characterized by a very harsh orography, has conditioned over time the possibility of growth of our residential and industrial settlements which have a strong distribution on the territory with connections that are not always easy between them. This is particularly valid for our port cities for which, often, the port is a hybrid between an industrial and a residential area with problems of balance between efficient economic-productive development and the need to ensure a pleasant image of the city waterfront, accessible and available to the population [14]. The current situation of Italian port cities, for the historical reasons mentioned above and for a congenital difficulty of national administrations to develop real urban plans that are not simple maintenance or restyling of the existing, has instead seen the classic example of approach “brownfield”, usually adopted for sites that have been built on before (associated with urban areas), a unique case among almost all European coastal nations. The strong anthropization of our main maritime cities finally, it made any urban redesign extremely difficult, making compatibility between the development of connections and the sustainability of the territory extremely difficult. Despite the effort to give a more adequate regulatory framework to our port facilities with Law N.84 of 28.01.1994 “Reorganization of port legislation” [15] which led in 2018 to the birth of the Port System Authorities, any industrial efficiency initiative in port area, not only of transformation but also of simple maintenance such as dredging, the lengthening or consolidation of a quay, the change of destination of an area to be adopted for new traffic, sees the need to agree with so many different authorities and satisfy many requirements for landscape, environment, ecology, urban and administrative aspects that often the cycle of authorizations, construction and delivery either never ends or, when it succeeds, produces outdated and obsolete results. Emblematic is the story of the port of Gioia Tauro in Calabria region whose construction was decided in the early 70s, for reasons more of a social than economic nature, to establish the fifth Italian steel centre but whose construction was finished when the steel market conditions were totally changed leading to the decision to block its completion. Subsequently it was assumed that a large coal-fired thermoelectric power plant was installed but also this work was never built due to the changing conditions of the market, leaving it an unfinished work until it was thought of specializing it for container traffic, first and perhaps the only Italian port of transshipment, having no hinterland to serve and not having adequate rail or road connections to the territory. Despite these administrative and managerial difficulties, ports still represent a precious economic resource for Italy to import and export goods and connect the territory efficiently and sustainably. From the employment point of view, the Italian port system currently employs around 54,300 people, of which 31,700 for freight services and 22,600 for ships (including shipbuilding) and if we consider the induced, the employed become about 102,000 [16].

6. Risk assessment considerations

The maritime transport in containers, having reached a high level of optimization and an extreme attention to economic efficiency, has seen safety margins reduced due to the combined effect of the increase in traffic with mega-ships that simultaneously transport enormous quantities of goods of all kinds, including dangerous ones, and the significant reduction of redundancies. The risk of a serious accident is therefore high both for direct consequences (damage to third parties and the environment) and indirect consequences (interruptions or blocking of the supply chain) [17]. For this reason, although accidents in the maritime field have always existed, not surprisingly, in recent times accidents classified as catastrophic or potentially catastrophic are occurring with greater frequency: MSC ZOE—January 2019—Loss of 342 containers—North Sea (Netherlands) [18]; GRANDE AMERICA—March 2019—Fire and sinking—Cape Finistère (France) [19]; ONE APUS—December 2020—Loss of 1,900 containers (40 dangerous goods) —Hawaii (USA) [20]; EVER GIVEN—March 2021—Grounding—Suez Canal (Egypt) [21]. A single accident can have unimaginable consequences until a few years ago, both from an economic point of view and from an environmental impact point of view: billions of damages only for the blocking of the regular transit of ships for less than one week, even in the absence of a real impact on the environment or for the vehicles and infrastructures involved, incalculable damage to the environment due to the loss of containers at sea with polluting or toxic substances or which remain semi-submerged constituting a high danger for the navigation of smaller boats, without having to get to the tragedy that occurred in the port of Beirut (Lebanon) in January 2020 with the death of about 200 people and the wounding of almost 5,000 due to the devastating explosion of 2,750 tons of ammonium nitrate from the cargo of the RHOSUS, an old ship seized a few years earlier due to technical problems that prevented its navigability [22]. Ships have grown so fast in size that they exceeded capacity of the existing ground logistics organization that has become a bottleneck. Even the main hub ports dedicated to the new ULCV, despite the new powerful handling and distribution systems, have a hard time getting off their workload on time and the risk of congestion is increasingly topical. It is now clear that a more careful direction is essential to avoid the catastrophic consequences for the whole chain that errors due to underestimation of risk and an excess of concentration of power in the hands of subjects released from public responsibility it could cause to the economy and the environment in large areas of our planet. In countries such as Italy, which suffer from a severe delay in infrastructural adaptation, regulatory actions and public investments that have been delayed for too long are now urgent and cannot be deferred to avoid the risk of remaining on the margins of the logistics chain and therefore of the economy.

7. The covid-19 pandemic

Shortly before the pandemic also hit Europe, the lockdown in some regions of China had caused the shutdown of factories with the consequent suspension of production indefinitely and the blocking of the entire flow of goods for Western consumer markets. Suddenly companies of all sizes, providers of essential public or private services and ordinary citizens found that they did not know when they would receive so many things they needed, with the exception of locally produced food. Even the programming that governed the shipping system of containers was strongly disturbed by what was happening in a small part of China for what was described at the beginning as an epidemic

little more serious than the flu ones, for the chaos that suddenly seemed to have pervaded the ports and interports around the world. Ships that failed to fill up with goods often remained at anchor, accumulating delays that it was difficult to understand how and when to dispose of. In the first half of 2020, on all the main intercontinental routes, there were numerous “blank sailing”, cancellations of routes or port calls of container ships due to lack of cargo. The phenomenon, never experienced to this extent before, in May 2020 affected 2.7 million TEU, equal to 11.6% of the total hold capacity. The Seventh Annual Report “Italian Maritime Economy” of SRM, a Research Center connected to the Intesa Sanpaolo Group, estimated the TEU lost in 2020 at 7 million [23]. Along the routes between Asia and Europe, in the second quarter of 2020, there were 84 cancelled departures of the 374 scheduled, equal to 22.5% and an even higher number of cancellations occurred on the Pacific routes between Asia and the United States [24]. The whole world was realizing that the connectivity system underlying globalization made it interconnected not only to share resources in an unthinkable way wherever they were but also problems and without warning, making it much more fragile and less secure than it thought to be. Thanks to the prompt and decisive containment action of the pandemic put in place by the Chinese government, everything lasted a few months but it was enough to make it clear that all that glitters is not gold and that perhaps we had gone too far in exploitation of a mechanism to which safety alternatives should have been placed side by side. To this end, it will be necessary to think about diversifying the sources of supply. China and other low-cost labour markets will retain a strong position as suppliers, but zero-kilometre production and supply possibilities for the most critical goods will also have to be envisaged, probably by loosening the purse strings of the public support to compensate the large gap in costs, maybe by investing more on automation. In this, therefore, the experience of the pandemic could once again put into play the industrial markets of the countries of Europe. In 2020 the pandemic crisis, with the consequent abrupt slowdown in consumption, hit the world economy hard, causing a strong acceleration of the processes that the globalization of the market was inducing in all sectors of the economy and in particular in shipping. While sharing the principle of freedom of competition, of self-regulation of markets without undue state aid, a single incident was enough to clarify that some aspects necessary to protect the strategic interests of entire nations or even continents require the direct intervention of national and international authorities, to decide and implement huge investments that can no longer be deferred and to guarantee the reliability and sustainability of a system which, having opted for globalization, is unlikely to find alternative or less risky ways in a short time. The study therefore aims to draw attention to the need to review some public funding policies of strategic infrastructures such as ports and artificial waterways, vital for the world economy, in order to prevent the economic efficiency of a single industrial sector can be privileged by the private sector in an uncontrolled way to the detriment of the reliability and sustainability of the interests of entire communities.

8. Final considerations

The experience we are still living due to the pandemic and, more importantly, that experienced following the blockade of the Suez Canal due to the Ever Given grounding, has shown the vulnerability of the supply system of all that is necessary (energy products, consumer goods, mechanics, electronics, etc.) for the populations of modern Western democracies following the choice, difficult to change in a short time, to suffer rather than manage the globalization of markets. To further aggravate the situation there is also the consideration that globalization is essentially

asymmetrical and devoid of reciprocity: we are a market greedy for everything that is produced in the Far East while we struggle to export our production to those markets, allocating it for the EU internal market or by exporting it essentially to the USA. It is therefore necessary to think about improving the resilience of our supply system, bringing the port system back to the centre of institutional attention, re-evaluating the benefits of its historical regional configuration distributed along our coasts and flanked by a significant number of large multifunctional ports of national rank. The mistake to be avoided is to pursue, for the spirit of emulation, schemes unsuitable for our history and our territory in the illusory claim to pursue the 6GP as the only target based on what countries like Holland could do, characterized by a non-existent orography (not surprisingly they are called the Netherlands) and have been used for centuries to reclaim the dry spaces they needed from the sea. A country like Italy, with rocky and difficult to excavate coasts, subject to widespread seismic risk that requires a choice of redundancy of essential services, which in the last fifty years has failed to design and implement any large public structure or infrastructure within the programmed due-date, it risks building its first 6GP mega-port when has been reached the tenth generation. Italy's vast cultural and institutional differences with the peoples of northern Europe as well as with those of the totalitarian nations of the Far East may appear to be a limit, and in some cases they are. These differences, however, if well exploited can represent a strength. In particular, it is essential to avoid seeing the neighbouring port as the main competitor, losing sight of the overall scenario. This national vice is at the basis of the sale of the territory to the highest bidder, with a preference for foreigners, also yielding strategic choices with a high socio-economic impact and therefore the guarantee of true economic convenience and sustainability. Instead, healthy competition must be encouraged, trying to privilege the rational use of the territory by the residents. Pushing on mechanisms of co-creation and sharing of choices, according to rules that favour flexibility and resilience with diversification of sources and uses, we must aim for a non-rigid specialization with a low risk of rapid obsolescence, giving the right weight to rights and value of ideas more than economic power. The most suitable solution is to aim at strengthening an integrated port system, consolidating a network of 5GPs with a high level of efficiency. The most advanced organizational and communication methods that are being developed for 6GP must be standardized and adopted. With the 6GPs it will be necessary to have exchanges based on relationships of correct reciprocity, avoiding to engage in tests of strength but of efficiency and flexibility. In this way we will be able to look to the future in a certainly more optimistic way, knowing full well that a pandemic is around the corner and that an Ever Given can always obstruct a Suez Canal but that for these reasons we can no longer remain without essential supplies at the mercy of choices and decisions that risk marginalizing us and on which we have no possibility to affect. To improve the resilience of our supply system we must push towards a regionalization of globalization, also in view of possible protectionist tensions resulting from the ferment that logistical investments may have on geopolitical balances, assigning greater importance to technological innovations and to digitization, to reaffirm the role of our port system as a hinge of the international transport system of our continent and beyond [25]. National and supranational institutions must return to proactively and strategically govern the aspects that can influence for better or for worse the life and well-being of the populations subject to their administration, avoiding the establishment of economic and industrial oligopolies so large and powerful as to impose choices that could prove socially harmful, knowing full well that prevention is better than cure. Probably the same valuation method adopted up to now by the control institutions on market concentrations must be revised to take into account the great speed with which certain phenomena now occur compared

to the past and the fact that the excess of concentration must also be assessed on the basis of the relevance that the sector has on the specific population in a specific socio-economic context. Allowing a limited number of individuals a significant horizontal and vertical growth in a vital sector such as that of logistics, to cover all the links of the supply chain from primary sources to the final consumer, can cost very dearly to the territory that that sector must serve. The risk is not only linked to possible strategic or evaluation errors by the oligarch but intrinsic in the fact that the governance of such large systems, in a democracy, is something very complex and often unreliable. Even the best organized enterprise, linked to the vision and action of a particularly enlightened private individual, can be influenced by the changed historical conditions and fail. The closure of a very large business that has shaped a vast area of territory to its existence and interests will inevitably drag it into the fall. Normally not having any roots in the territory that is not of economic interest, more simply to establish that, in a changed situation, it no longer has the convenience of operating in that sector or in that territory. When an event of this type occurs, it almost always happens suddenly and sometimes in an unclear and transparent way, leaving unemployment and strong discomfort where once there were well-being and growth projects.

This is what happened with the Taranto Container Terminal (TCT) [26], the transshipment terminal owned by Evergreen and Hutchinson on the basis of a 60-year concession signed in 2001 to manage up to 2 million TEUs of annual capacity. Traffic grew to 892,000 TEU in 2006, but dropped the following year to 760,000 TEU, triggering a decline that saw volume plummet to an all-time low of 197,000 TEU in 2013. One of the main reasons was the switching in 2014 of the UAM Evergreen Service for the new container port of Piraeus acquired by COSCO thanks to the support of its Chinese government. To try to counter these serious market distortions, the European Commission has recently proposed a new “Regulation to address distortions caused by foreign subsidies in the Single Market” [27]. The free market remains a healthy objective but in the presence of such high concentrations of activities and such vast inefficiencies or administrative incapacities of some public Authorities, it must in part be subjected to real checks to prevent economic oligopolies from diverting the course of politics to their exclusive advantage.

Conflict of interest

The author declares no conflict of interest.

References

1. Confcommercio, *Riflessioni sul sistema dei trasporti in Italia*, 2019. Available from: https://www.isfort.it/wp-content/uploads/2019/10/Riflessioni_sul_sistema_dei_trasporti_in.pdf.
2. Video Message of His Holiness Pope Francis 2020. Available from: http://www.vatican.va/content/francesco/en/messages/pont-messages/2020/documents/papa-francesco_20201121_videomessaggio-economy-of-francesco.html.
3. European Commission, *Handbook on the external costs of transport*, 2019. Available from: <https://op.europa.eu/en/publication-detail/-/publication/e021854b-a451-11e9-9d01-01aa75ed71a1/language-en/format-PDF/source-search>.
4. UNCTAD STAT, 2020. Available from: https://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?sCS_ChosenLang=en.

5. UNCTAD, Review of maritime transport, 2020. Available from: https://unctad.org/system/files/official-document/rmt2020_en.pdf.
6. Ship Technology (2920) Analysis. The ten biggest shipping companies in 2020. Available from: <https://www.ship-technology.com/features/the-ten-biggest-shipping-companies-in-2020/>.
7. Container News, Shanghai Containerized Freight Index, 2021. Available from: <https://container-news.com/scfi/>.
8. Cepal.org/Transports, Ongoing challenges to ports: the increasing size of container ships, Facilitation of transport and trade in Latin America and the Caribbean, 2020. Available from: https://repositorio.cepal.org/bitstream/handle/11362/46457/1/S2000485_en.pdf.
9. UNCTAD, Port marketing and the challenge of third generation port—Report by the secretariat, 1994. Available from: https://unctad.org/system/files/official-document/tdc4ac7_d14_en.pdf.
10. UNCTAD, Fourth-Generation Port: technical note—Ports Newsletter 19—prepared by the secretariat, 1999. Available from: <https://unctad.org/system/files/official-document/posdtetibm15.en.pdf>.
11. Flynn M, Lee P (2011) The next step on the port generations ladder: customer centric and community ports, In: Notteboom, T. Author, *Current Issues in Shipping, Ports and Logistics*, Brussels, University Press Antwerp, 497–510.
12. Lee P, Lam J (2015) Container Port Competition and Competitiveness Analysis: Asian Major Ports, In: Lee CQ, Men QG, Authors, *Handbook of Ocean Container Transport Logistics – Making Global Supply Chain Effective, International Series in Operations Research & Management Science*, New York, Springer, 97–136.
13. White M (2018) A global trade platform using blockchain technology aimed at improving the cost of transportation, lack of visibility and inefficiencies with paper-based processes, IBM. Available from: <https://www.ibm.com/blogs/blockchain/2018/01/digitizing-global-trade-maersk-ibm/>.
14. Deloitte (2019) The blue waterfront City and port integration through smart cluster management and hybrid planning models. Available from: <https://www2.deloitte.com/content/dam/Deloitte/nl/Documents/consumer-business/nl-deloitte-cip-the-blue-waterfront-city-and-port-integration.pdf>.
15. Repubblica Italiana, Gazzetta Ufficiale della Repubblica Italiana, 4 febbraio, 1994. Available from: <https://www.gazzettaufficiale.it/eli/gu/1994/02/04/28/so/21/sg/pdf>.
16. Federazione del mare (2019) VI rapporto sull’economia del mare, Censis, Cogea, SRM. Available from: https://www.federazionedelmare.it/images/pubblicazioni/VI_Rapporto_sulleconomia_del_mare_dic_2019/VI_Rapporto_su_Economia_del_Mare_FedMARE_2019.pdf
17. Kohn A (2021) With ships urged to speed up, cargo worth millions lost at sea, Aljazeera. Available from: <https://www.aljazeera.com/economy/2021/4/27/bas-ships-pressured-to-speed-up-cargo-worth-millions-lost-in-sea>.
18. Giani F (2019) La nave cargo MSC Zoe ha perso 281 container nel Mare del Nord, avviate le operazioni di pulizia, Berlino Magazine. Available from: <https://berlinomagazine.com/2019-germania-nave-cargo-perde-281-container-nel-mare-del-nord-rischio-disastro-ambientale-msc-zoe/>.
19. Savvides N (2019) Grimaldi confirm Grande America fire started in container cargo, Freight Waves. Available from: <https://www.freightwaves.com/news/maritime/grimaldi-confirms-grande-america-fire-started-in-cargo-container-ezqx7-g33nr-gn3cf>.

20. The Maritime Executive, ONE Apus Arrives in Japan Showing Extent of Massive Container Collapse, 2020. Available from: <https://www.maritime-executive.com/article/one-apus-arrives-in-japan-showing-extent-of-massive-container-collapse>.
21. Koh A, El Wardany S, Clark A (2021) Suez Canal Snarled by Giant Ship Choking Key Trade Route, Bloomberg. Available from: <https://www.bloomberg.com/news/articles/2021-03-23/suez-canal-traffic-blocked-by-container-ship-stuck-in-waterway>.
22. BBC News, Beirut explosion: What we know so far, 2020. Available from: <https://www.bbc.com/news/world-middle-east-53668493>.
23. SRM, Italian Maritime Economy. The impact of Covid-19 on maritime transport: strategic routes and global scenarios. Intermodality and sustainability as keys to the Italian recovery, 2020. Available from: <https://www.srm-maritimeeconomy.com/p/italian-maritime-economy-the-impact-of-covid-19-on-maritime-transport-strategic-routes-and-global-scenarios-intermodality-and-sustainability-as-keys-to-the-italian-recovery/>.
24. Spirito P (2021) Il futuro dei porti italiani, Napoli, Guida Editori.
25. Viola V (2020) Il Mezzogiorno diventi la piattaforma logistica del Mediterraneo—Interview with Prof. Ennio Cascetta—Il Sole 24 Ore 16/10/2020. Available from: <https://www.ilsole24ore.com/art/il-mezzogiorno-diventi-piattaforma-logistica-mediterraneo-ADV9Ztt>.
26. Palmiotti D (2015) Porto di Taranto, Tct lascia e mette in liquidazione la società del terminal—Il Sole 24 Ore. Available from: <https://st.ilsole24ore.com/art/impresa-e-territori/2015-06-12/porto-taranto-tct-lascia-e-mette-liquidazione-societa-terminal-180711.shtml?uuid=ABIg5bxD>.
27. European Commission, Commission proposes new Regulation to address distortions caused by foreign subsidies in the Single Market, 2021. Available from: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_1982.

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