

C. PRIVATE SECTOR PARTICIPATION IN PORTS

Ports and terminals benefit from the participation of private terminal operators, not only in terms of capital participation, but also in relation to the transfer of expertise and technologies. Over the last three decades, public–private partnerships have emerged as a mechanism to leverage greater private investment participation in port development and most importantly, to access specialized skills, innovations, and new technologies associated with infrastructure development, operation and maintenance. As today's ports systems require highly specialized managerial and operational skills, as well as cutting-edge technologies, the expertise of private partners for building, operating and maintaining transport infrastructure and services is significant and along with funding, constitutes an important resource.

1. Public–private partnerships

Building, operating and maintaining a port or terminal generally requires significant financial investment and highly developed managerial and technical skills and cutting-edge technologies. The increasing need to provide modern ports and cargo-handling facilities with terminal management and security systems has substantially increased capital and technical requirements of ports in recent years. Consequently, greater collaboration between the private and public sector has become necessary. While ports have been traditionally regarded as infrastructure and services to be provided by the public sector, a global shift towards private sector involvement, both in port infrastructure development and port operations, has taken place in recent decades.

Major changes in the ownership and operating structure of many ports have occurred, driven by the increasingly prominent role of the private sector, both as a source of finance and provider of services required for the successful operation of ports (Holman Fenwick Willan, 2015). This, in turn, has led to a change in the institutional structure of the port business and the role of the traditional owner and operator of a port – the port authority.

Today, the typical institutional structure in the port sector is the landlord port model. It is estimated that 85–90 per cent of global ports are landlord ports, which account for about 65–70 per cent of global container port throughput (Drewry Maritime Research, 2016). A typical landlord is a model where a port authority enters into concession agreements or public–private partnership schemes – or a combination thereof – for a series of individual terminals. The public or State-owned body would own and manage the port land and infrastructure, including common facilities such as breakwater and entrance channels, utilities and inland access (road, rail

and so forth). It also acts as a landlord to tenants on long-term arrangements that invest in superstructure and equipment, and carry out cargo handling (Drewry Maritime Research, 2016).

Private partners acting on the basis of concessions is, on the other hand, responsible for terminal operations and related investments such as superstructure, equipment, cranes and wharf expansion. Concessions are generally awarded on a leasehold basis for 20 to 50 years and may include the rehabilitation or construction of infrastructure by the concessionaire. Concessions permit Governments to retain ultimate ownership of port land and responsibility for licensing port operations and construction activities and to safeguard public interests. At the same time, they relieve Governments of substantial operational risks and financial burdens. Private investments tend to range from minimum stakes of 20 or 30 per cent to total financing, depending on the host country and port authority (Holman Fenwick Willan, 2011).

In a concession, the port authority can indicate a minimum throughput to be guaranteed by the concessionaire. This encourages the lessee to market the facility and optimize terminal and land usage. Failure to meet this obligation will incur a penalty to be paid by the terminal operator or the lease can be subject to termination. Throughput guarantees are considered a powerful governance tool, enabling more effective land management and land productivity. Performance targets incentivize better terminal utilization rates. The more optimal the use of space within a port, the lower the barriers to new port entrants, providing an opportunity for the port to further diversify its activities (MDS Transmodal, 2017). In a way, these minimum throughput guarantees can be compared to minimum traffic guarantees in other transport modes, where the situation is, however, inverted where a Government may provide guarantees to ensure private sector participation. To take the example of the road sector, Governments often consider it their responsibility to provide a minimum traffic guarantee to a private partner, for example, toll road operators in greenfield projects, where income risk may be considered too high and would limit private investor participation. However, the practice of imposing minimum throughput guarantees on a private partner, even for greenfield projects, seems to indicate that there is a higher potential of private participation and risk taking and that markets are functioning better for the maritime and port sector than for the infrastructure side of land transport modes. Nonetheless, accurate studies and forecasts are also necessary for port terminal development in order to determine realistic throughput levels and terminal service demand.

Other types of port management structures and ownership models are described in box 4.2.

Box 4.2. Alternative port management structures and ownership models

There are four main port management models: public service ports, tool ports, landlord ports and private service ports. These characteristics may vary, depending on differing public and private sector responsibilities.

Each model has its own characteristics concerning the ownership of infrastructure, equipment, terminal operation and provision of port services to ships such as pilotage, towage and mooring. Service and tool ports mainly focus on the realization of public interests, whereas landlord ports aim to promote a balance between public interests (port authorities) and private interests (port industry). Fully privatized ports focus on private (shareholder) interests.

Public service ports. The port authority owns the infrastructure and performs the complete range of services required for the functioning of the port system, which means that the authority owns, maintains and operates all port infrastructure, superstructure, equipment and port assets, including cargo handling. Some ancillary services can be allocated to private companies. Service ports are generally a branch of a government ministry. The number of public service ports is declining.

Tool ports. These are similar to public service ports but differ in that cargo operations are handled by the private sector. However, terminal equipment, such as quay cranes and forklift trucks, is owned by the port authority. Cargo handling on board vessels and on the quay is carried out by private cargo-handling or stevedoring firms. In some cases, tool ports are used to transition from public service ports to landlord ports.

Landlord ports. These are the most common port management model, where the port authority acts as a regulatory body, while port operations – especially cargo handling – are carried out by private companies. Infrastructure, particularly terminals, are leased to private operating companies or to industries such as refineries, grain terminals, tank terminals, and chemical plants. In this case, the port authority retains ownership of the land. The most common form of lease is a concession agreement, whereby a private company is granted a long-term lease in exchange for rent, which is commonly a function of the size of the facility as well as the investment required to build, upgrade or expand a terminal. Private operators are also responsible for providing terminal equipment to ensure that operating standards are observed. Private port operators provide and maintain their own superstructure, including buildings (for example, offices, warehouses, container freight stations and workshops). Dock labour is employed by private terminal operators, although in some ports part of the labour force may be provided by the port authority.

Private service ports. These port facilities are fully privatized, but retain their maritime role. Likewise, the port authority is entirely privatized. Most of the port functions are under private control, although the public sector enjoys standard regulatory oversight powers and can own port shares.

Sources: Rodrigue, 1998–2017 and World Bank, 2007.

2. Private participation in infrastructure in ports

Table 4.9 highlights some key data on private participation in infrastructure (private participation in infrastructure) in ports in emerging and developing economies between 2000 and 2016. Some \$68.8 billion of private investment was committed across 292 projects. Areas covered include port infrastructure, superstructures, terminals, and channels for container, dry bulk, liquid bulk and multipurpose terminals. Most of the investments were related to greenfield and brownfield projects, representing 58 per cent and 38 per cent, respectively, of the total investment share, followed by divestiture and a small number of management and lease projects (figures 4.5 and 4.6).¹

The largest investment share was in Latin America and the Caribbean, representing 31 per cent of total investments, followed by Eastern Asia and the Pacific (23 per cent), sub-Saharan Africa (15 per cent) and Southern Asia (15 per cent) (figure 4.5). Western Asia and North Africa and Europe and Central Asia had 7 per cent and 6 per cent respectively. Latin America and the Caribbean had the largest number of projects with 87 projects, followed by Eastern Asia and Pacific (76 projects), sub-Saharan Africa (49 projects), Southern

Table 4.9. Private participation in infrastructure port projects in emerging and developing economies, 2000–2016

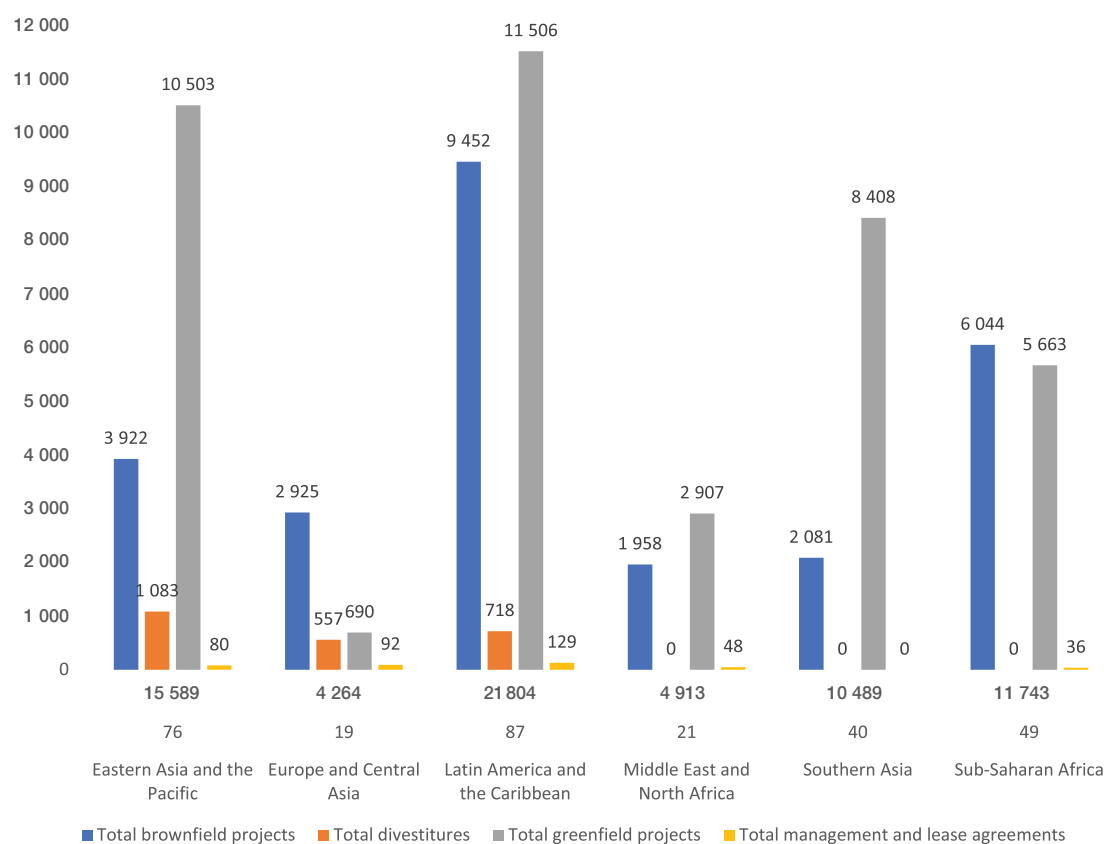
Number of countries with private participation	63
Projects reaching financial closure	292 projects, total investment \$68.8 billion
Region with largest investment share	Latin America and the Caribbean (31%)
Type of project with largest share in investment	Greenfield project (58%)
Type of project with largest share in projects	Greenfield project (47%)
Projects cancelled or in distress	8 (2% of total investment)

Source: World Bank, 2017a.

Asia (40 projects). The Middle East and North Africa had 21 projects, and Europe and Central Asia 19 projects.

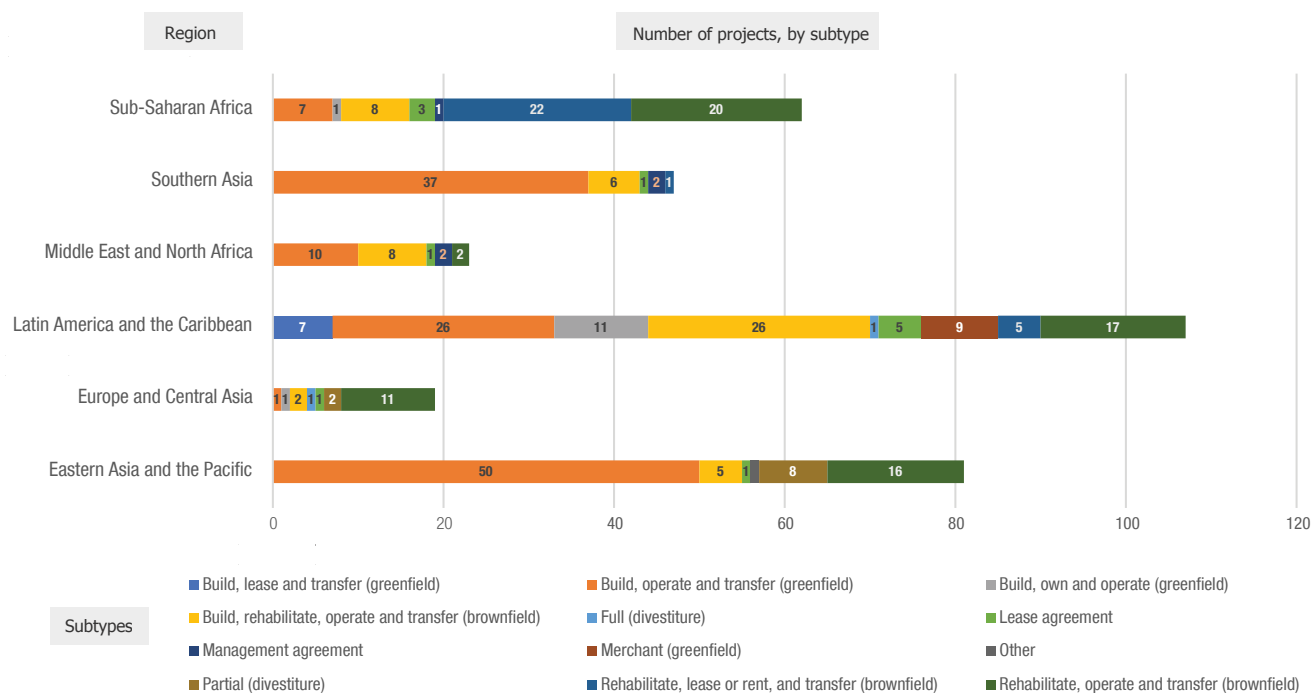
The majority of port projects are based on build–operate–transfer concession agreements. Under such an agreement, a private consortium or company builds a facility, operates it for a specified period of time and returns it to the public sector at the end of that period. Contract duration is usually determined by the amount of time a concessionaire would realistically need to

Figure 4.5. Private participation in port infrastructure investments and number of projects by region and type, 2000–2016
(Million dollars)



Source: UNCTAD secretariat calculations, based on World Bank, 2017a (as at July 2017).

Figure 4.6. Private participation in port infrastructure projects by region and subtype, 2000–2016



Source: UNCTAD secretariat calculations, based on World Bank, 2017a (as at July 2017).

recoup its investment through user charges. The term “concession” covers the rights and risks involved in collecting these fees, as well as in building and operating the facility. Such concessions are generally suited to projects involving considerable investment and operating content.

Investors in port developments are predominantly global port management companies. As noted in table 4.10, the AP Moller–Maersk Group accounted for the lion’s share of total investment (\$12.4 billion) and projects (43 projects) in 2000–2016, followed by the Port of Singapore, with about \$5 billion in investment for 18 projects. Hutchison Whampoa ranks third, with a total investment of \$4.6 billion for 17 projects. In general, these companies invest in various projects and have extensive geographical coverage but tend to specialize in certain regions. For example, CMA CGM has been a major player in Northern Africa and Western Asia; Hutchison Whampoa, in Asia; and Bolloré Group, in sub-Saharan Africa. In liner shipping companies, such as the AP Moller–Maersk Group or the Mediterranean Shipping Company, terminal operations are generally subordinate to their maritime shipping business, which is not the case for port terminal developers such as the Port of Singapore.

In recent years, newcomers have entered the market and increased competition in the sector. This includes the China Ocean Shipping (Group) Company and International Container Terminal Services, as well as Yildirim and Noatum groups.² These companies are building up their portfolio of port terminals, feeder operations and forwarding activities, as well as other support and logistics services and value added businesses.

Some private terminal operators are also expanding their investment beyond ports into hinterland connectivity, investing in rail and road infrastructure and related services, thereby improving access to markets and enabling door-to-door delivery. Since many port

project developments are associated with the One Belt One Line initiative, the role of Chinese investment in ports, port hinterlands, and related services will be key in the future. In May 2017, China Ocean Shipping (Group) Company and Lianyungang Port Group agreed to acquire the Khorgos Gateway. The two Chinese companies will each hold a 24.5 per cent stake in the container transportation company affiliated with the Government of Kazakhstan.³

Bulk and tank terminals are mainly controlled by commodity trading organizations, which tend to control their own supply chain and logistics network. In addition to owning a quarry or mine and operating a terminal and inland transport services, some bulk operators are also investing in ships to carry their cargo into the respective markets (Holman Fenwick Willan, 2011).

In 2016, ports attracted the third-highest level of investment, compared with other transport segments. The largest investments in the transport sector were in roads (\$12.4 billion), followed by rail and metro (\$10.1 billion). Some \$3.1 billion in commitments were delivered across 10 projects: 6 in Latin America and the Caribbean, including 4 port projects in Brazil. Ghana, the Islamic Republic of Iran and Myanmar registered transport projects for the first time in over 10 years, all in the ports sector: Tema Port expansion, Chabahar Port development and Myanmar Industrial Port modernization, respectively (World Bank, 2016b). See table 4.11.

3. Challenges in the application of public–private partnerships

Legal complexity is one of the main challenges associated with public–private partnerships, as a number of jurisdictions and procedures are involved, requiring an understanding of local conditions by the private sector. The lack of clear regulatory and institutional frameworks that enable proper application and enforcement of

Table 4.10. Leading global port investors, 2000–2016

Global investors	Country	Investment (million dollars)	Number of projects
AP Moller–Maersk Group	Denmark	12 425	43
Port of Singapore	Singapore	5 064	18
Hutchison Whampoa	Hong Kong, China	4 558	17
DP World	United Arab Emirates	3 922	27
Bolloré Group	France	3 301	11
Marubeni	Japan	2 541	5
International Container Terminal Services Inc.	Philippines	2 029	21
EIG Global Energy Partners	United States	1 858	3
Mediterranean Shipping Company	Switzerland	1 419	4
Hutchison Port Holdings	Hong Kong, China	1 276	3

Source: World Bank, 2017a.

Table 4.11. Selected port projects, 2016

Economy	Project	Investment (million dollars)	Sponsors	Type of private participation in infrastructure
Brazil	Salvador Port Passenger Terminal	4.4	Socicam, Aba Infraestrutura e Logistica	Brownfield project (rehabilitate, operate and transfer)
Brazil	Santos Port Ponta da Praia Terminal	146.0	Louis Dreyfus (50%), Cargill (50%)	Brownfield project (build, rehabilitate, operate and transfer)
Brazil	Santos Port Macuco Terminal	81.4	Fibria Celulose (100%)	Brownfield project (rehabilitate, lease or rent, and transfer)
Brazil	Suape Port Sugar Terminal	63.7	Odebrecht (75%), Agrovía (25%)	Greenfield project (build, operate, and transfer)
Ghana	Tema Port Expansion	1 500.0	AP Moller–Maersk Group (35%), Bollore Group (35%), other (30%)	Brownfield project (build, rehabilitate, operate and transfer)
Iran, Islamic Rep.	Chabahar port development	235.0	Other	Brownfield project (build, rehabilitate, operate and transfer)
Jamaica	Kingston Freeport Terminal Limited	452.0	CMA CGM (51%), China Merchant Holdings (International) Company (49%)	Brownfield project (build, rehabilitate, operate and transfer)
Myanmar	Myanmar Industrial Port Modernization	200.0	Other (100%)	Brownfield project
Panama	PSA Panama International Terminal, phase 2	400.0	PSA (100%)	Greenfield project (build, operate, and transfer)
Viet Nam	Dinh Vu Port acquisition	4.5	Other (51%)	Partial divestiture

Source: World Bank, 2017a.

contracts can also be a major barrier for public–private partnerships. Furthermore, there are often regulations that limit private and/or foreign participation, owing to the strategic nature of ports and terminals. For example, private concession may be limited to certain sections within a port or a foreign investor may be required to form a partnership with a majority domestic shareholder (Holman Fenwick Willan, 2011). Yet, not all countries have the necessary legal frameworks to grant concessions. In some cases, general legislation deals with concessions, which may cover ports. It may be necessary to pass legislation specifically to enable a port authority to grant a concession. Generally, such legislation spells out the modalities relating to the concession, including its duration and ports services for which a port operator may or may not take responsibility under the concession (Holman Fenwick Willan, 2015). Hence, a Government that is beginning to work with public–private partnerships in ports may wish to conduct a comprehensive review of the legal and regulatory framework governing the port sector in order to determine whether amendments to existing laws may be necessary or whether new legislation is required. (World Bank, 2017b). Identifying and mobilizing basic administrative and technical resources to prepare and manage public–private partnerships would also be important. Choosing a suitable public–private partnership port model (box 4.2) is essential to determine private sector involvement, ranging from low

to high participation and would define responsibilities and risk allocation between the public and private sectors. Thus, setting up a public–private partnership policy framework that addresses and mitigates risks is key and requires a broad set of legal, managerial and technical capacities (UNCTAD, 2016). Moreover, it is important for Governments to fully understand the consequences and ramifications of such mechanisms, and be mindful of potential costs and benefits over the entire life of a project in order to avoid any unexpected fiscal shocks (UNCTAD, 2015b). In the case of a landlord port, the set-up of a public port authority and the accurate definition of its mandate are vital, as well as clear rules ensuring the transparency of tender procedures and of managing partnership contracts.

Increasingly stringent environmental and climate policies are taking on greater importance in port development. Port development and operations can have an impact on air and water quality, and land use; ports are increasingly shifting towards policies that promote environmentally friendly operating and handling practices in order to meet local and international standards and regulations. These may cover waste and ballast water, dangerous cargo handling, carbon emissions, noise and other forms of pollution. Complying with such requirements would entail significant investment by private sector operators. At the same time, when awarding concessions, port authorities are increasingly examining port operators'

green port credentials and carbon dioxide footprints. Cold ironing, clean technology for port equipment and vehicles, sustainable wind and solar power generation, sustainable buildings, water protection, effective dust suppression systems for dry bulk cargoes, recycled concrete and other green construction materials are often required. These developments can be expected to continue affecting how ports are constructed and operated and will require additional investment from the private and public sectors (Holman Fenwick Willan, 2011).

Achieving efficiency gains – a key objective of the public-private partnership model – depends on how risks and responsibilities can be transferred from the public sector to the private sector, according to the principle that risks should be borne by the party best able to manage them.⁴ Solid risk analysis and appropriate risk allocation between the public and private sectors is paramount to achieve a win-win partnership for both.

D. OUTLOOK AND POLICY CONSIDERATIONS

The container port sector remains vulnerable to unfavourable developments in the world economy and global demand. However, in line with the projected recovery in containerized trade flows, global container port throughput is projected to increase by 2.8 per cent in 2017. It is expected that Asian ports will record the fastest growth (2.9 per cent), followed by Europe (2.8 per cent), North America (2.0 per cent) and developing America (2.6 per cent).

Projected growth is underpinned by a recovery in key markets and the strength of the North American economy. Growth in Africa, developing America and China will contribute to the projected expansion in global port volumes, reflecting, among other factors, the rebound in Western African economies, the gradual recovery in Brazil, growth reported at Panamanian ports and port productivity in China (Lloyd's Loading List, 2017d). The impacts of mega-alliances, consolidation in the liner shipping market and deployment of vessels in excess of 18,000 TEU capacity are likely to further materialize in the short to medium term. Based on this scenario, ports and their stakeholders may wish to consider the recommendations set forth below.

All ports

Ports should formulate policies and devise plans on how best to adapt to the requirements of the changing liner shipping market environment.

Terminal operators, ports and shipping lines should engage in closer cooperation to mitigate the negative impact of growing cost pressures. Of concern is that cost pressures may lead to increasing port charges, although this may prove difficult, given the current market conditions. Also, if terminal operators are forced

to leave the market because of lower margins or refrain from investing in new capacity because of uncertain returns, the container port industry may find it difficult to service the liner shipping sector, in particular larger ships (Drewry Maritime Research, 2016a).

With carriers increasingly requiring less fragmented terminal capacity – fewer but larger terminals are needed in each port – physical and ownership consolidation of terminals will probably become necessary. Some observers expect to see increased cooperation between neighbouring ports, as in the case of the ports of Seattle and Tacoma (Lloyd's Loading List, 2017c). More mergers and acquisitions are also expected, as illustrated by the takeover by APM Terminals of the Spanish Group TCB and Yilport's purchase of the Portuguese group Tertir, and others (Lloyd's Loading List, 2017c).

Smaller and secondary ports

Ports servicing the trade of developing countries, especially, relatively smaller and secondary ports, will need to adjust to remain competitive and continue to attract business, whether through direct connections or feeder services. In addition to safeguarding the business of smaller ports, it is important from a shipping and trade perspective to minimize the costs and delays affecting trade and supply chains that are serviced by these ports.

Trans-shipment ports

Competing on the maritime operations side for trans-shipment traffic may not be always sustainable in the context of the new operating landscape. Ports will need to reconsider their offering by considering other services to customers, which would also increase their revenue streams. Depending heavily on cargo handling activities for generating port income may not be a good strategy in the long term and more attention should be given to areas such as inland ports, warehousing, cold stores and distribution facilities (Lloyd's Loading List, 2017c). Apart from generating new sources of revenue, ports will be establishing stronger partnerships and links with shippers and cargo owners (Lloyd's Loading List, 2017c).

Governments

Government has a role to play by supporting small to medium-sized ports in adapting to the new situation, including through policy work and other facilitative arrangements that would support the improvement of their services in their respective hinterlands, rather than competing for international trans-shipment hub status (Lloyd's Loading List, 2017e). To help secondary and smaller ports maintain their market position, steps should be taken to clearly identify which strategy to follow to attract mainline or feeder service providers.

Improving understanding of the determinants of cargo dwell time is crucial. Governments can help address inefficiencies and unlock the capacity constraints

associated with ports through regulation, incentives, policy support measures and investment, including to ensure efficient operations by border management and clearing agencies.

Furthermore, the participation of private terminal operators through public–private partnerships is evolving as an important mechanism to leverage greater private investment participation in port development and most importantly, to access specialized skills, innovations, and new and clean technologies associated with infrastructure development, operation and maintenance. Governments can build on the extensive public–private partnership models to define a suitable public–private partnership strategy that would ensure successful collaboration and generate sustainable development outcomes. Important prerequisites for a successful public–private partnership are as follows: well-designed public–private partnership agreements that ensure appropriate risk sharing and flexibility, a clear policy framework that addresses and mitigates risks, a legal and regulatory system that ensures that agreements are effective and enforceable, and an institutional framework within government, including technical and managerial capacities, to properly manage the process. Private operators are key partners for port development and competitiveness. Not only do they help improve the movement of goods efficiently and cost effectively through enhanced infrastructure and services, but

they also contribute to better port sustainability and competitiveness through new technologies, improved supply chain management, hinterland connectivity and door-to-door delivery.

All port stakeholders and partners

The efficiency of port operations is a major driver of trade competitiveness and the ability of ports to compete in a complex and evolving market structure. Steps should be taken to support the adoption of relevant technologies and solutions in ports, including for customs automation and port community systems.

Port performance indicators are essential to determine the standing of ports. Understanding the performance of ports helps inform relevant port-related planning and decision-making processes. Efforts should be pursued to refine port performance measurements, including by investing in data collection capabilities and supporting information and communications technology platforms that lower data collection and analysis costs. Given that it is difficult to make effective international comparisons of port performance, standardization of port performance measures and metrics will support meaningful benchmarking and reliable comparisons and rankings. Another suggestion would be to examine the perceptions of users and stakeholders regarding port performance or user or stakeholder satisfaction measurement.