Anchored in the new reality

Ports perspectives

March 2021

kpmg.ae
Foreword

Accounting for more than 90% of the world’s commerce, maritime trade is one of the most cost-effective and efficient ways of moving large volume of goods around the world.\(^1\) While ocean trade has been driving global trade over the last few centuries, containerization of cargo is a comparatively recent phenomenon, dating from 1956.

Over the last couple of decades, an increasing trend noted for maritime trade has been the growing share of containerization, fueled by growth in consumer demand from China and other emerging economies. With increasing scale and complexities in modern trade over the years, the world’s major shipping lines, as well as the container port operators, have expanded their global footprint and are building presence across the supply chain to enhance their value proposition.

Global trade in recent years has been impeded by trade tensions, which poses a major risk to maritime trade, causing potential disruption to supply chains. The combination of trade tensions between global economic superpowers such as the US and China and the Covid-19 pandemic has contributed to significant pressure being exerted on the global ports industry. The role of port operators in these challenging times to keep the flow of goods moving is proving to be vital.

Through this publication, based on our research and our experience with clients in the industry, we examine the global and regional port industry outlook, outline the forces we believe will shape its future, explore trends and dig deep into new and emerging growth areas.

We trust you find our first edition of this report stimulating, informative and engaging. We look forward to hearing your views and discussing the contents with you.

Please feel free to get in touch with any of the country contacts listed at the back of this report.

Shahnawaz Nakhoda
Partner
Ports and Logistics
KPMG Lower Gulf
Anchored in the new reality
Anchored in the new reality
Contents

Executive summary 06
Global and regional outlook 10
Areas of focus and risks 20
Embracing technology 26
Current and future state 30
About KPMG 33
Executive summary

The spread of the Covid-19 virus, subsequent lockdowns and the economic downturn have disrupted global maritime growth and trade flow, reducing overall port activities in 2020.

Global outlook
The last two decades had witnessed significant growth in containerized port throughput fueled by an increase in global consumer demand. China is a significant contributor accounting for 8 out of the top 15 global ports by throughput volumes. China’s dominance is however expected to gradually slowdown as a result of the ongoing US-China trade disputes, resulting in increased tariffs and ultimately higher cost of trade. Some multinational companies are currently contemplating a manufacturing exodus from China, seeking alternative production bases and trade partners to escape potentially higher tariffs and rising production costs. As global companies look to realign their supply chains and decentralize their manufacturing capacity, China is also focusing more on technology-driven and high-value industries to power their next growth cycle.

Global trade patterns are gradually changing, with regional trade replacing the traditional east-west international routes. With the onset of the pandemic and the US-China trade situation, focus on short-sea trades using smaller ships rather than mega vessels is an emerging trend resulting in improved port network and connectivity. Port operators are becoming trade enablers and are investing in technology more than ever.

Regional outlook
Gulf Cooperation Council (GCC) ports, due to their strategic location, have traditionally been large transshipment hubs. Container penetration in GCC countries is more than six times that of the world average and significantly higher than that of major developed nations in the west.

To support manufacturing-led growth and to attract foreign direct investment (FDIs), there has been an emphasis on development of free trade zones (FTZs). Development of port-linked FTZs has been one of the success factors for the ports and logistics sectors in the region.

In the GCC, there is a trend of increasing throughput capacity as the port operators continue to invest heavily in port infrastructure, expansion and technology. Currently, the region’s annual average capacity growth is estimated to be 4.2% which is double the global average capacity growth of 2.1% leading to a drop in utilization across the ports.

GCC ports have higher average vessel sizes due to being transshipment hubs. However, the average duration of stay for vessels in GCC ports is generally higher than any of the other major maritime geographies even in comparison to transshipment hubs such as Singapore and Hong Kong. To improve port productivity, with the help of public authorities, port operators in the region are actively seeking solutions by adopting innovation technologies and establishing initiatives designed to overcome trade barriers and logistics inefficiencies.
Anchored in the new reality
Areas of focus and risks
The pandemic has introduced uncertainty within the ports industry. We have identified several key points that port operators would do well to consider:

<table>
<thead>
<tr>
<th>Area</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial impact of Covid-19</td>
<td>Port expansion and vertical integration, primarily funded by loans, resulted in a significant rise in net debt levels. Given the pandemic, the long-term sustainability of port operators’ businesses needs to be assessed.</td>
</tr>
<tr>
<td>Operational and business risks</td>
<td>Addressing port underutilization and congestion remains a key priority. Whilst operators continue to strive to find a perfect balance on port utilization which is largely dependent on demand, they are implementing innovative solutions, mostly with the help of technology, to increase trade efficiency.</td>
</tr>
<tr>
<td>Political environment</td>
<td>Global trade tensions were front and center in 2019, and with growing political tensions across the world as the Covid-19 blame game ramps up, this remains a key risk to global container port growth.</td>
</tr>
<tr>
<td>Health and safety</td>
<td>As the pandemic progresses, the priority of the leading industry players is to make sure that the entire workforce is safe by adopting a no-harm approach.</td>
</tr>
<tr>
<td>Safety and cyber security</td>
<td>For global ports and logistics providers, the security of supply chains is critical in keeping their people and trade operations safe. As hackers are taking advantage of lowered defenses during the pandemic, which could potentially compromise the security of the port’s operating technology systems, the role of digital transformation in changing the sector’s cyber risk profile is becoming increasingly crucial.</td>
</tr>
<tr>
<td>Sustainability</td>
<td>Climate change is emerging as the highest priority risk. Environmental concerns dominate the top long-term risks.</td>
</tr>
</tbody>
</table>
Embracing technology
Adoption of smart port technologies and integration of the port value chain through digital platforms has accelerated due to the ongoing pandemic. Along with several emerging technologies, ports are leveraging trade and logistics platforms to facilitate the creation of a transparent trade ecosystem and access to new routes and services.

Current and future state
Port operators are evolving from traditionally being confined to landside operations to a broader concept of port-centric logistics, where ports are not seen merely as a thoroughfare for goods but as part of a larger and integrated ecosystem of global trade. Instead of being focused solely on the ports business, vertical integration between port operators and logistics service providers (both inland and by sea), either through alliances and mergers and acquisitions, is picking up pace, increasing overall presence in the trade supply chain. This trend may also encourage logistics service providers to differentiate or improve the services they offer.
Global and regional outlook

Container volumes have declined by 2.1% in 2020 but is expected to rebound by 8.9% in 2021.ii

Global maritime trends
The last two decades witnessed significant growth in containerized cargo, fueled by an increase in global consumer demand. A major contributor of the global trade growth has been China, with the country’s share in global merchandise trade increasing from 3.8% in 2000 to 12.7% in 2019.vi

The Covid-19 pandemic resulted in an unprecedented contraction in demand leading to a slowdown in global trade in 2020. The World Bank forecasted a 5% reduction in global GDP and 20% contraction in trade volumes due to government-imposed lockdowns and lack of demand. The global port industry’s earnings before interest, tax, depreciation and amortization (EBITDA) for H1 of 2020 has reduced by 16% as compared to H1 of 2019.vi Container volumes have declined by 2.1% in 2020 but is expected to rebound by 8.9% in 2021.vii

Container ports
The list of the top 15 container ports in 2019 highlights China’s dominance in global container shipping with 8 of the top 15 ports located in China (Table 1). China contributed 27% of the global manufacturing output in 2019 and most of the containerized volumes from Chinese ports represent port-to-port (i.e. origin to destination) cargo.
With the recent US-China trade situation having been aggravated by Covid-19, a number of multinational companies are contemplating a manufacturing exodus from China and relocating their production base to escape higher tariffs and rising production costs. The ongoing pandemic has expedited the shift as it makes sense for companies to diversify production and supply lines. Other countries including India, Bangladesh, Mexico, Vietnam and Taiwan are emerging as suitable alternatives. The shift will have a detrimental impact on Chinese containerized volumes but benefit ports of the countries where the trade shift will occur. However, while companies are reassessing their supply chains, they will initially find it difficult to replace China due to the challenges in replicating the scale and quality of infrastructure. As global companies look to realign their supply chains and decentralize their manufacturing capacities, China is also focusing more on high tech and high value industries to power their next growth cycle.
**Port operators**
Since the 1990s, the world’s major port operators have expanded their global footprint, with four out of the current top five port operators (in terms of TEU) having throughputs across at least five continents and controlling more than 50% of the global container traffic in 2019. Emerging markets generally remain the primary focus for major port operators. In terms of geographical footprint, DP World is the most diverse operator with terminals in 31 countries across six continents. Although APM Terminals is in the lead in terms of the number of countries with existing port terminals, unlike DP World, it does not have a presence in the Oceania region (Table 1).

**Table 1: Terminal operators throughput league table ranking and analysis (2019)**

<table>
<thead>
<tr>
<th>Throughput rank</th>
<th>Operator</th>
<th>TEU (in millions)</th>
<th>Global Presence*</th>
<th>Global TEU share</th>
<th>Overview</th>
</tr>
</thead>
</table>
| 1               | China Cosco Shipping (CCS)- Beijing, China | 109.8 | 14 | 13.7% | – approximately 75% of activity generated from emerging markets  
– primarily port-to-port traffic, limited exposure to transshipment  
– large investment in One Belt One Road Initiative, 70% of volume from Mainland China market |
| 2               | PSA International (PSA)- Singapore | 84.8 | 18 | 10.6% | – approximately 85% of traffic from emerging markets  
– overall around 40% port-to-port traffic, significant transshipment  
– around 43% of volume from Singapore |
| 3               | APM Terminals (APM)- The Hauge, Netherlands | 84.2 | 37 | 10.5% | – balanced portfolio - approximately 55% of TEU is from emerging markets.  
– approximately 70% port-to-port traffic  
– no traffic in Oceania region |
| 4               | Hutchinson Ports (HP) – Hong Kong, China | 82.6 | 24 | 10.3% | – focused on emerging markets but with significant presence in Europe  
– mostly port-to-port traffic  
– 40% of volume from Mainland China and Hong Kong operations |
| 5               | DP World- Dubai, UAE | 69.4 | 31 | 8.7% | – approximately 85% of traffic from emerging markets  
– overall around 40% port-to-port traffic, significant transshipment  
– approximately 21% of volume from Port of Jebel Ali – Dubai, UAE  
– global footprint across 6 continents |

*Number of countries with existing terminals
Source: Drewry Report and KPMG analysis
**Port infrastructure**
Increased concentration in the shipping industry and the adoption of larger vessels has resulted in demand for higher port productivity and better infrastructure by the liners. The use of mega vessels has led to increased container handling per call, requiring higher crane throughputs and increased productivity. To address these requirements, global port operators are increasingly investing in automation technology.

Figure 2 depicts the number of terminals and degree of automation of the top eight global port operators. Four of the top eight port operators (HP, DPW, PSA and Cosco) are considered ‘enthusiastic adopters’ of automation – i.e. they deploy automation across a relatively high number of terminals with some degree of automation (second quadrant) while the rest are considered as at an ‘emerging state’ with a small number of automated terminals (third quadrant).

The first quadrant is where the port operators aspire to be in the future. Currently, none of the top eight global port operators are in the first quadrant.

**Short-sea trades**
With the onset of the pandemic and the US – China trade situation, emerging trends include a focus on short-sea trades using smaller ships, resulting in improved port connectivity. With shorter distances, it may no longer be economically feasible to deploy large container ships, paving the way for feeder services. The feeder vessels may not typically require modern port infrastructure, and hence could potentially bypass the traditional transshipment hubs in favor of local ports that are closer to customers. This could potentially be a game changer, necessitating port operators to seek customer alliances with feeder services rather than shipping lines.

In 2019, DP World ventured into the feeder business through the acquisition of Unifeeder, having one of the largest short-sea networks in Europe, and subsequently acquired Feedertech Group, a Singapore-based feeder operator, in 2020. The acquisition increased DP World’s short-sea network connectivity by more than 100 ports, covering smaller ports that cannot accommodate larger vessels.

Source: Extracted from Drewry and KPMG analysis

---

**Figure 2. Adoption of terminal automation**

01 **First quadrant** – high number of terminals with higher degree of automation

02 **Second quadrant** – high number of terminals with some degree of automation

03 **Third quadrant** – small number of terminals with some degree of automation

04 **Fourth quadrant** – small number of terminals with higher degree of automation

Source: Extracted from Drewry and KPMG analysis
Regional outlook

Trade in the GCC

The region accounted for 3.4% of global merchandise trade in 2019, at USD 1.3 trillion. The UAE and Saudi Arabia account for 77% of merchandise trade of GCC members (figure 3), with the UAE enjoying the highest trade value.

The GCC is making its mark in the world maritime trade due to the pace of infrastructure creation. Wealth derived from oil has been invested to create state-of-the-art infrastructure over the last two decades. Countries including the UAE have invested heavily in building infrastructure such as ports and FTZs to attract FDIs.

Figure 3: Export-import merchandise trade split in the GCC region (in millions of USD)
Container ports overview
The GCC member countries account for more than 3% of global container port traffic, with the UAE leading the containerized trade throughput, representing more than 50% of the region’s total in 2019.xiv

The location of the GCC countries is advantageous as it is located at the entry to Red Sea and near the Suez Canal, and can be considered as gateway to Europe and Asia. This location maybe an ideal transshipment hub for container traffic on the Europe-Asia lane.

The mix of transshipment volumes is generally higher than port-to-port volumes in the GCC region. However, tariff rates from transshipment are significantly lower than that of port-to-port. As a result, port operators need to find the optimal mix of transshipment and port-to-port volumes to maximise port profitability and productivity.

The GCC region has played an important role in the development of the global maritime trade routes by virtue of its strategic location on the East-West trade lanes, enabling development of state-of-the-art infrastructure. This report endeavors to capture the evolving dynamics influencing the region’s maritime sector and the road ahead for regional maritime operators.

Dr. Steffen Wagner
Global Head of Transport & Leisure- KPMG
**Container penetration**
As seen in figure 4, container penetration in GCC countries is more than six times that of the world average, and significantly higher than that of major developed nations in the West, indicating significant transshipment volumes.

**GCC port throughput**
Approximately 51% of container traffic in the region is handled by ports in UAE, followed by Saudi Arabian ports with 23%. The Port of Jebel Ali in Dubai is the busiest in the region, with 51% of the throughput of the top five container ports (figure 5). This dominance in container shipping is due to the UAE’s significant investment in port infrastructure and the logistics ecosystems, including FTZs. Other countries in the region have also announced significant investment plans in their vision documents. Saudi Arabia is planning USD 36 billion worth of investments in logistics, as part of its National Industrial Development and Logistics Programme.

**Port infrastructure and investment**
Most ports in the region are owned and managed by regional port authorities, while terminals are directly operated either by the port authorities, or by major global port operators. Operators such as DP World and Gulftainer have expanded across multiple geographies. Abu Dhabi Ports, which operate ports, economic zones and logistics businesses in the region, have lofty global ambitions and capabilities for rapid expansion across geographies.

The industrial and logistics sectors are amongst the core pillars identified for economic diversification in the GCC region.

To support manufacturing-led growth and to attract FDIs, there has been an emphasis on development of FTZs. Currently, there are approximately 100 FTZs in the GCC region with more planned. The development of port-linked FTZs...
has been one of the success factors for the ports and logistics segments in the region. For instance, one of the key factors contributing to the success of the Port of Jebel Ali is the linking of their operations with the Jebel Ali FTZ. Several other players in the region are adapting the same model, including Abu Dhabi Ports – Khalifa Industrial Zone, Saqr Port – Salalah Port, Salalah Free Zone, RAKEZ Free Zone, etc.

**Throughput, capacity and utilization**

While the region is in a decent position in terms of demand growth, the rapid increase in capacities have fueled growth in the region’s ports, leading to a drop in utilization across ports, as supply growth has outpaced demand in recent years. The region’s annual average capacity growth is estimated to be 4.2%—double the global average capacity growth of 2.1%.

The region is currently in a state of excess capacity with a port utilization rate of 55%—the lowest in Asia by region and still far behind the global average of 62%.

**Port efficiency**

Another factor for consideration for authorities and operators in the region has been comparatively low port efficiency, as vessel turnaround time is generally longer. GCC ports have higher-than-average vessel sizes as they tend to be transshipment hubs. However, in the UAE and Saudi Arabia, the average duration of stay for a vessel in the port is higher than any of the other major maritime geographies, even in comparison to transshipment hubs such as Singapore and Hong Kong (figure 7).

**Figure 6: No. of free trade zones within the GCC region**

<table>
<thead>
<tr>
<th>Country</th>
<th>No. of Zones</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Arab Emirates</td>
<td>49</td>
</tr>
<tr>
<td>Saudi Arabia, Qatar and Bahrain</td>
<td>37</td>
</tr>
<tr>
<td>Oman</td>
<td>11</td>
</tr>
<tr>
<td>Kuwait</td>
<td>02</td>
</tr>
</tbody>
</table>

*Source: COMCEC, World Bank*

**Figure 7: Port efficiency**

<table>
<thead>
<tr>
<th>Year</th>
<th>Median time in port (days)</th>
<th>Average container carrying capacity per ship</th>
<th>Maximum container carrying capacity per ship</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.94</td>
<td>4,310</td>
<td>21,200</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.77</td>
<td>7,753</td>
<td>23,656</td>
<td></td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.77</td>
<td>5,043</td>
<td>21,413</td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.53</td>
<td>3,690</td>
<td>21,413</td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.69</td>
<td>3,510</td>
<td>21,756</td>
<td></td>
</tr>
<tr>
<td>Global average</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A shorter time in port is a positive indicator of the level of port efficiency and trade competitiveness.

*Source: UNCTAD data*
One of the major factors affecting vessel days in ports is the quality of port infrastructure. Based on the 2019 data from the World Economic Forum Opinion Survey, in terms of port infrastructure quality, Singapore and Hong Kong ranked first and fourth respectively, while the UAE and Saudi Arabia ranked 12th and 42nd respectively. Another factor that contributes to Hong Kong’s low vessel days in ports is its keen focus on a ‘convenience and trade’ policy, which imposes minimum licensing controls on transported goods and an expedited customs clearing process.

To improve port efficiency, port operators, with the help of public authorities in the GCC region, are actively adopting innovative technologies and improving the customs clearance process to ease the movement of goods being imported and exported from the region. A recent initiative is the adoption of the World Logistics Passport (WLP) framework. The WLP framework is designed to overcome trade barriers such as logistics inefficiencies, that currently limit the growth of trade in developing markets. Benefits from the project include shared expertise and process developments among partner countries, resulting in cost and time savings and faster customs clearances. WLP connects government bodies such as customs authorities with logistics service providers to ease the process of commercial transactions.
Areas of focus and risks

Key areas port operators may want to pay particular attention to are outlined in this section.

The financial impact of Covid-19
Like most other sectors, the port industry is enduring the financial pinch of the pandemic. Rising debt levels, coupled with plunging earnings and deteriorating cashflows, has exposed the industry to funding, liquidity, covenant compliance, and even business continuity risks.

The advent of Covid-19 has raised fears over shipping carriers’ liquidity positions, which translates to increased credit risk for port operators. Although the risk has been mitigated to a certain extent by the financial support extended in the form of state-backed loans, guarantees, government grants and subsidies, the long-term sustainability of the carriers and hence of the port operators business needs to be assessed. As described by Drewry: “The need for state support is an indictment of the perilous nature of many carrier balance sheets that have not addressed the debt bubble arising from the financial crash.”

In recent years, port operators have put increased focus on expansion and/or vertical integration, that are primarily funded by loans resulting in a significant rise in net debt levels. A number of planned and ongoing major port projects globally have been put on hold as a result of the pandemic and global trade volumes are forecasted to decline in the short term. Projects that are at an initial planning stage are at risk of being suspended or shelved, meaning the time and resources expended on them so far would have been in vain.

Port underutilization
Global containerised demand throughput has declined by 2.1% due to the pandemic but is expected to increase by 8.9% in 2021. As a result of the pandemic, the global port utilization is projected to decline in 2020 to 62% from 69% in 2019. Although the average annual increase in demand is forecasted to outpace the increase in capacity in terms of growth rate in the long run, underutilization of ports still remains one of the risks faced by many port operators in the short to medium term. Underutilized port equipment and terminals contribute little to the ports’ operating income and cashflows thereby increasing the financial risk of impairment.

Port congestion
Factors contributing to port congestion include low port productivity and scarcity of space. Congested ports are at risk of losing potential customers and revenue as a result of blank sailings. To address this, operators are gradually implementing innovative solutions to increase productivity and storage capacity. In 2020, DP World commenced the pilot phase of its new high bay storage system (HBS), BoxBay. The project aims to provide a more efficient container handling system and increased container storage capacity.
Anchored in the new reality
Political environment
Global trade tensions were front and center in 2019, and with growing political upheaval across the world as the Covid-19 blame game ramps up, this remains a key risk to global container port growth.

US-China trade war
The recent political tensions between the US and China under the Trump administration, aggravated by the pandemic, exposed the risks of heavy reliance on limited, concentrated supply chain logistics. There has been a shift in global trade patterns with regional trading replacing the traditional east-west international routes. Operators whose volumes rely mostly on U.S. and China related trades are especially at risk. Although the result of the recent US elections in favor of president Biden has generally been expected to ease the tension, it is still premature at this time to predict the direction of US foreign trade policies.

Brexit
The United Kingdom’s (UK) withdrawal from the European Union (EU) was officially finalized on 31 January 2020, subject to a transition period which ended on 31 December 2020. Although both parties have agreed that no tariffs or trade quotas will be implemented on goods being transported, border checks, including safety and customs declarations, would be applied to UK goods travelling to the EU and vice versa. Tariffs would make UK goods more expensive and harder to sell in the EU while full border checks may cause traffic bottlenecks at ports, leading to significant delays causing a decrease in port productivity and efficiency, and increased operating costs. A recent report from the UK National Audit Office (NAO) confirms the concerns over gaps in preparedness and potential ramifications.

Qatar trade embargo
In 2017, Saudi Arabia, the United Arab Emirates, Bahrain and Egypt cut diplomatic ties with Qatar which led to closures affecting the sea routes between these countries and Qatar. The Al-Ula Declaration on 5 January 2021 has put an end to the Qatar trade embargo which had limited trade within the GCC region for more than three years since 2017. The declaration is expected to re-establish trade activities through unified markets and complete economic integration thereby promoting political stability and economic growth in the region.

Abraham Accords Peace Agreement
On 13 August 2020, Israel and the UAE formally agreed to normalize their relationship. The agreement was signed on 15 September 2020 and is expected to establish strong relations between the two sides in areas such as economy, trade, medicine and technology. The agreement is expected to not only boost the economies of the two parties but also the entire Middle East region.

In a bid to capitalize on the opportunities presented by the agreement, Abu Dhabi Ports, via Khalifa Industrial Zone (KIZAD) and ZonesCorp, opened its industrial cities and free zone cluster to Israeli entities looking to expand their operations in this region. As a result of these efforts, Israeli companies will be able to exponentially scale their businesses in an efficient and cost-effective manner by taking advantage of the improved supply chain distribution channels and logistics operations. Abu Dhabi Ports will also benefit due to diversified activities in the free zone and through its collaboration with renowned Israeli technology companies.
Health and safety
The ports and logistics industry is exposed to a wide range of health and safety risks. These include people interacting with heavy loads, as well as moving equipment. The priority of leading industry players is to ensure the safety of the workforce by adopting a “no-harm” approach. The focus is heightened in emerging markets where fundamental safety frameworks may not be widespread, or operate with zero or minimum regulatory enforcement. For a large number of companies operating in the ports and logistics sector, health and safety has become a standing agenda item in board meetings. Most of these companies have established committees comprising senior leaders, whose primary objective is to ensure the accountability, effectiveness, and continual development of health and safety programs.

Covid-19 precautions
To mitigate the risk of Covid-19, ports have implemented a variety of measures to comply with health and safety recommendations. The protocols put in place included standardized sterilization procedures when receiving vessels, imposing travel and physical distancing measures for employees and segregating workforces into dedicated zones of accommodation. Many organizations introduced the mandatory use of personal protective equipment (PPE) by employees when interacting with customers, and sanitization of buildings, berths, offices and accommodation. Some port operators also mandated completion of questionnaires by ship crew members and health checks on arrival at the destination.
Safety and cyber security
For global ports and logistics providers, the security of the supply chain is critical in keeping their people and trade operations safe. The security incident impacting Beirut’s port in August 2020 highlighted the risk of storing hazardous and explosive materials in the vicinity of the port. Accordingly, port operators have initiated due diligence and comprehensive inventory checks to mitigate potential risks.

The digital transformation revolution has led to a change in the sector’s cyber risk profile. Increased focus on automation increases the risk of cyber-attacks on ports’ operating technology. The pandemic has rendered systems particularly vulnerable to hackers. Since the adoption of remote working, different and more sophisticated methods of hacking have been observed. Cyber-attacks could also compromise the port community system for manipulation or theft of data.

Recently, CMA CGM experienced a ransomware-like cyberattack which crippled its e-commerce system for at least a week. The cyberattack led to the paralysis of messaging services and online applications and functionalities like bookings, tracking, route finder, etc. The cyberattack has disrupted communications and inconvenienced both CMA CGM and its customers, particularly the shippers and forwarders.

One of the most infamous large-scale cyber-attacks in the past decade took place at one of Antwerp’s largest terminals in Belgium. A drug cartel seized control of containers’ movement and retrieved the data needed to collect it before the legitimate owners. In a recent survey, 83 percent of business executives rate cyber security threats as a significant risk to organizational growth. However, when cyber security is omitted from the digital business value chain, a significant commercial opportunity is missed.

Sustainability
In 2020, the World Economic Forum’s Global Risks Report classified climate change as the top risk. Climate change has influenced our lives more profoundly than many expected, with the last five years being the warmest on record. This has led to more intense and frequent natural disasters. Global temperatures are on track to increase by at least 3°C towards the end of the century, twice what climate experts warned is the limit to avoid the most severe economic, social and environmental consequences, including loss of life, social and geopolitical tension and negative economic impact. For the first time in the history of the Global Risks Perception Survey, environmental concerns dominate the top long-term risks by likelihood where three of the top five risks by impact are also environmental.

As a response to these environmental concerns, legislators are introducing measures to restrict the environmental impact of maritime operations. One example is the introduction of the International Maritime Organisation (IMO) regulations to reduce sulphur oxides (SOx) emissions from ships. Other possible measures include the introduction of carbon taxes and other mechanisms to curb carbon emissions. This has the potential to not only change the way ports and ships operate, but also the types of cargo that will be shipped if the world moves away from fossil fuel to sustainable alternatives.

In parallel with these developments, investors are increasingly incorporating Environment, Social and Governance (ESG) considerations in their investment decisions and require more insight into the ESG performance of companies and their exposure to risks associated with climate change. This is further reinforced by legislation from governments and stock exchanges. Organizations are increasingly seeking to publicly disclose their sustainability performance, including their approach to transparency, their environmental impact, and in the upcoming reporting cycle, their response to Covid-19. Examples of reporting and disclosure initiatives that have recently gained traction are the Task Force on Climate-related Financial Disclosures (TCFD) that supports companies with a set of recommendations to identify their exposure to climate change and related events.
Embracing technology

The industry is facing a set of emerging challenges including growing freight traffic, increasing pressure to address environmental concerns, and critical operational challenges while delivering services. To overcome these challenges, the past few years have seen an increase in investment centered on the adoption of smart port technologies and integration of the value chain with digital platforms. With the ongoing pandemic, the dependence on technology has grown exponentially.
Adoption of smart ports technologies

Leading ports are leveraging the Internet of Things (IoT) for live-tracking of cargo status; blockchain for supply chain optimization; drones for operational oversight and environmental safety; high bay storage systems for container handling; and data analytics for deriving data-driven insights for internal/external customers.

IoT can be considered the cornerstone of this transformation due to the clear need to digitize the delivery process for monitoring cargo and deliveries with the aid of smart sensors. The port of Hamburg, the third busiest port in Europe, initiated a strategic program in 2011 to evolve into a “smart port” to optimize capacity and maximize efficiency. This was achieved through the adoption of IoT technology in the port ecosystem by installing sensors to monitor the use of physical assets (e.g. trucks, cranes, carriers, roads, warehouses, etc.), using GPS, and geo-referencing to monitor movement of traffic.

Blockchain technology has the potential to digitalize supply chains, eliminate record-keeping efforts, promote paperless transactions, and streamline the supply chains by enabling real-time communication. In 2017, the port of Antwerp announced a pilot project for more efficient and secure container handling leveraging blockchain technology in collaboration with NxtPort. The data utility platform being developed will collect and pool data from various stages in the supply chain of the Port of Antwerp.

Drones are quickly becoming a regular tool in the ports and logistics industry. Ports are using drones in their routine monitoring to improve safety, reduce costs and enhance process efficiency. Around the world, from the Netherlands to Vietnam, ports are using Airobotics drones for controlling aerial cargo transport, monitoring ships, cleaning the local environment and tracking the construction of ports.

High Bay Storage (HBS) system

is an automated container handling system that stacks containers up to 11 floors high, delivering more than three times the capacity of a conventional yard with enhanced performance including significant gains in handling speed, energy efficiency, safety and reduced operating costs. DP World recently commenced its pilot phase of BoxBay (a high bay storage system) to reduce by at least 70% the land area needed to support terminal operations, and increase yearly yard throughput per hectare by more than 300% in comparison with a Rubber Tyred Gantry Crane (RTG) container yard.

Data and analytics applications are allowing supply chains to adopt a proactive rather than a reactive response to supply chain risks. Singapore’s Maritime and Port Authority (MPA) established a data-enabled traffic prediction tool to forecast vessel arrival times and estimate potential traffic congestion using predictive analytics. The port of Hamburg in Germany uses analytics to aggregate various data points (i.e. vessel positions, height and width of bridges, etc.) to optimize internal port operations.

Additionally, smart ports are leveraging other technologies such as artificial intelligence (AI) to enhance predictive insights and cloud computing, data management and data sharing amongst various stakeholders. Robotic process automation (RPA) is being leveraged to automate processes across several support functions (Finance, HR, and Supply Chain Management).
Digitizing the trade and logistics value chain
The new connected ecosystem of platforms is supporting the growth of maritime trade across the globe.

The single window platform integrates multiple systems to facilitate the exchange of information between port stakeholders e.g. port authorities, exporters, and importers. Countries such as Singapore and the Netherlands were able to solidify their competitive advantage over other key players by using an intelligent single window platform for information exchange (the Port Community System) between governments and trade communities that would facilitate the creation of a transparent trade ecosystem.

Digital exchange platforms are being rapidly deployed by leading ports over the past decade. These platforms digitize the entire logistics supply chain by creating a marketplace for various sub-segments of the market. In 2020, DP World acquired SeaRates.com, a digital platform that enables customers to transport cargo worldwide at the click of a mouse. DP World has also created the Digital Freight Alliance, an online association that brings freight forwarders globally onto one platform, giving them access to new tools, routes and services, and enabling them to do more business anytime.
Current and future state

Port operators are shifting their focus from traditional landside operations to being part of a larger ecosystem of global trade.

Current state of ports and logistics
Over the past few decades, port operators have shifted their strategies from traditionally being confined to landside operations to a broader concept of port-centric logistics where ports are not seen merely as a thoroughfare for goods but as part of a larger and integrated ecosystem of global trade. DP World, for example, identifies itself as the leading global trade solutions enabler which views ports as central to its global integrated operations, encompassing a broad spectrum of supply chain segments—from maritime and overland terminals to marine, logistics and ancillary services, as well as technology-driven commercial solutions. With this strategic focus, it has developed a range of other services for its customers, providing end-to-end services from intermodal handling and management of containers and cargoes, to storage and warehousing. It has also ventured into non-port businesses such as the feeder and inland logistic services through the acquisition of Unifeeder, Feedertech and Transworld to further boost its logistics and trade connectivity.

Recently, ADQ-owned Abu Dhabi Ports announced its acquisition of MICCO Logistics, a local freight management firm, expanding its logistics portfolio with the aim of providing a fully integrated and holistic logistics solutions in the UAE and beyond. This acquisition will enable Abu Dhabi Ports to manage all customer touch points from contract sourcing and purchase order management to order fulfillment and handling solutions via its strategically located network of distribution centers. Furthermore, Abu Dhabi Ports has partnered with one of the world’s largest maritime and energy consultant to undergo a massive digital transformation using blockchain technology, with a focus on decarbonization.

Virgin Hyperloop, the first initiative of its kind, was created through a partnership between DP World and Virgin to provide cargo systems that will enable fast, sustainable and efficient delivery of palletized cargo around the world. Hyperloop is a futuristic mode of vacuum tube-based transport, resembling a train but traveling at the speed of a jet aircraft. The projects are already in progress in the UAE, India and the USA. If the project is realized, it can deliver freight and move people from point to point at a top speed of 1,200 kmph—giving rise to greater productivity and efficiency in the logistics ecosystem. Systems are electric and can be powered by renewable energy, creating a more sustainable solution for transport. In November 2020, Virgin Hyperloop successfully completed its first ever human transportation journey, bringing the technology a step closer to commercial use.

Future state of ports and logistics
Port operators and logistics service providers are integral to the global ecosystem of trade. They are part of an integrated supply chain where the action of one potentially affects the other, whether favorably or not. Port operators increasingly see themselves as enablers of global trade, and are venturing towards non-port businesses, including logistics and adoption...
of multimodal transport to streamline various services. Vertical integration between port operators and logistics service providers (both inland and by sea) either through alliances, or mergers and acquisitions, are picking up. This trend has port operators seeking logistics partners or businesses that would synergize with their existing processes and technology. Soon, the rapidly growing efforts of port operators to streamline the trade supply chain will put pressure on logistics service providers to differentiate and innovate their services. The weakest links in the trade supply chain will be removed or replaced. To survive, logistics service providers may either partner with port operators or form alliances amongst themselves. Eventually, those who cannot adapt, especially smaller logistics businesses, are at risk of not remaining competitive.
Anchored in the new reality
About KPMG

For almost 50 years, KPMG Lower Gulf Limited has been providing audit, tax and advisory services to a broad range of domestic and international, public and private sector clients across all major aspects of business and the economy in the United Arab Emirates and in the Sultanate of Oman. We work alongside our clients by building trust, mitigating risks and identifying business opportunities.

KPMG Lower Gulf is part of KPMG International Cooperative’s global network of professional member firms. The KPMG network includes approximately 227,000 professionals in over 146 countries. KPMG in the UAE and Oman is well connected with its global member network and combines its local knowledge with international expertise, providing the sector and specialist skills required by our clients.

KPMG is widely represented in the Middle East: along with offices in the UAE and Oman, the firm operates in Saudi Arabia, Bahrain, Kuwait, Qatar, Egypt, Jordan, the Lebanon, Palestine and Iraq. Established in 1973, KPMG in the UAE and Oman employs 1,485 people across four offices, including about 100 partners and directors.

Our latest initiative, KPMG IMPACT, aims to help clients future-proof their businesses amid times of increasing focus towards issues such as climate change and social inequality. The goal is to help them achieve success across 17 major Sustainable Development Goals (SDGs) and become more resilient and socially conscious.

As we continue to grow, we aim to evolve and progress, striving for the highest levels of public trust in our work. Our values are:

- **Integrity**: We do what is right.
- **Excellence**: We never stop learning and improving.
- **Courage**: We think and act boldly.
- **Together**: We respect each other and draw strength from our differences.
- **For Better**: We do what matters.

To meet the changing needs of our clients, we have adopted an approach aligned with our global purpose: Inspiring Confidence, Empowering Change. Our three pillars – exceptional quality of service, an unwavering commitment to the public interest, and building empowered teams – are the foundation of our firm.
Sources


ii Drewry Container Forecasted 2020 Q4

iii https://lloydslist.maritimeintelligence.informa.com/one-hundred-container-ports-2020/port-data

iv Drewry Global Container Terminal Operators 2020 – pages 220-221 and KPMG analysis

v The World Bank, Databank- World development indicators (Merchandise exports) and KPMG Analysis

vi Drewry’s Ports & Terminals Insight 4Q20

vii Drewry Container Forecasted 2020 Q4
(same as above)


x https://www.cnbc.com/2020/05/14/china-is-producing-higher-value-goods-even-as-factories-shifting-from-mainland.html

xi Source: Drewry Global Container Terminal Operators 2020: pages 22 and 85 to 130

xii Modified illustration from Drewry Container Terminal Operators 2020 page A4 and KPMG Analysis

xiii https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=101

xiv https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=13321

xv https://lloydslist.maritimeintelligence.informa.com/one-hundred-container-ports-2020/port-data#portthroughput


xvii Drewry Global Container Terminal Operators 2020 – page 123
https://www.gulftainer.com/
https://www.adports.ae/core-business/ports-terminals/ports/

https://www.mwani.com.qa/English/Pages/default.aspx#

xviii Drewry Global Container Terminal Operators 2020 – pages 220-221 and KPMG analysis

xix Drewry Global Container Terminal Operators 2020 – pages 220-221 and KPMG analysis

xx https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=170027

xxi https://www.theglobaleconomy.com/rankings/seaports_quality/

xxii https://www.freeportchina.com/the-worlds-three-major-free-trade-ports.html

xxiii https://www.arabianbusiness.com/politics-economics/438330-how-dubai-aims-to-play-key-role-in-boost-global-trade

xxiv Drewry Container Forecaster 2020 Q2- page 103

xxv Drewry Container Forecasted 2020 Q4
(same as page 10)

xxvi Drewry Container Global Container Terminal Operators – page 221


xxviii The UK border: preparedness for the end of the transition period, November 2020


xxx https://www.oilandgasmiddleeast.com/drilling-production/37573-gecf-welcomes-alula-declaration


xxiii KPMG Consumer Loss Barometer, 2019

xxiv The Global Risks Report 2020

xxv 2020 was one of three warmest years on record | World Meteorological Organization (wmo.int)

xxvi Drewry Global Container Terminal Operators – pages 75 and 116.
Anchored in the new reality
The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2021 KPMG Lower Gulf Limited, licensed in the United Arab Emirates, and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

KPMG International provides no client services. No member firm has any authority to obligate or bind KPMG International or any other member firm vis-à-vis third parties, nor does KPMG International have any such authority to obligate or bind any member firm. All rights reserved.

The KPMG name and logo are registered trademarks or trademarks of KPMG International.

Designed by KPMG Lower Gulf Creative team.

Publication number: 3300
Publication date: March 2021