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EGYPT'S RISING
MARITIME SECTOR
HAS ECHOES OF ANCIENT TIMES





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BUILDING FOR THE FUTURE WITH SUSTAINABLE GOALS

The global economy is facing increasing headwinds in the form of tightening geopolitical tensions, soaring inflation and escalating fuel prices. This uncertain backdrop has started to dampen consumer demand and raise business costs.

With this in mind, we continue to remain vigilant in monitoring our portfolio of assets, seeking opportunities in new markets where our network can be strengthened, and where value and synergy with our customers' needs can be created.

We are currently working on a very exciting project in Egypt, where we are developing a new container terminal in Abu Qir with an investment of US\$730 million. This project will have a capability of handling 2 million TEU upon completion. We have also been busy in pursuing other business opportunities to expand the group's presence in the country, which in turn also supports Egypt's Vision 2030 of regional leadership and sustainability development. In this issue we take a look at Egypt's maritime past and how the country has evolved over the centuries to become a modern shipping hub.

In parallel to exploring new opportunities in new markets, we remain committed on our path towards greater sustainability, through investment in green technology and adopting sustainable operational practices. These efforts will enable us to grow and adapt to a future where sustainability is essential.

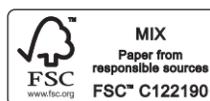
We have reinforced our commitment to sustainability efforts, by establishing more aggressive reduction targets of greenhouse gas emissions. We aim to reduce our diesel consumption per TEU by 30%, and to reduce our greenhouse gas emissions intensity by 20%, compared to our 2020 baseline, and to reach those targets by 2030. You may read more about our sustainability efforts in the latest edition of our Sustainability Report (2021).

Moving forward, the use of eco-friendly electric-powered tractors and autonomous trucks will be extended to a number of ports in our network, including our facilities in Mexico, Oman, Thailand, and the UK, in order to achieve greener terminal operations. Expanding rail freight services is also an important aspect to our sustainable development strategy, which can enhance terminal efficiency, provide more connections to inland destinations and further reduce carbon emissions.

I am confident that our adaptability and determination to grow our network, but to do so sustainably, will pay dividends in the future.

Eric Ip
Group Managing Director
Hutchison Ports

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EGYPT'S RISING MARITIME SECTOR HAS ECHOES OF ANCIENT TIMES

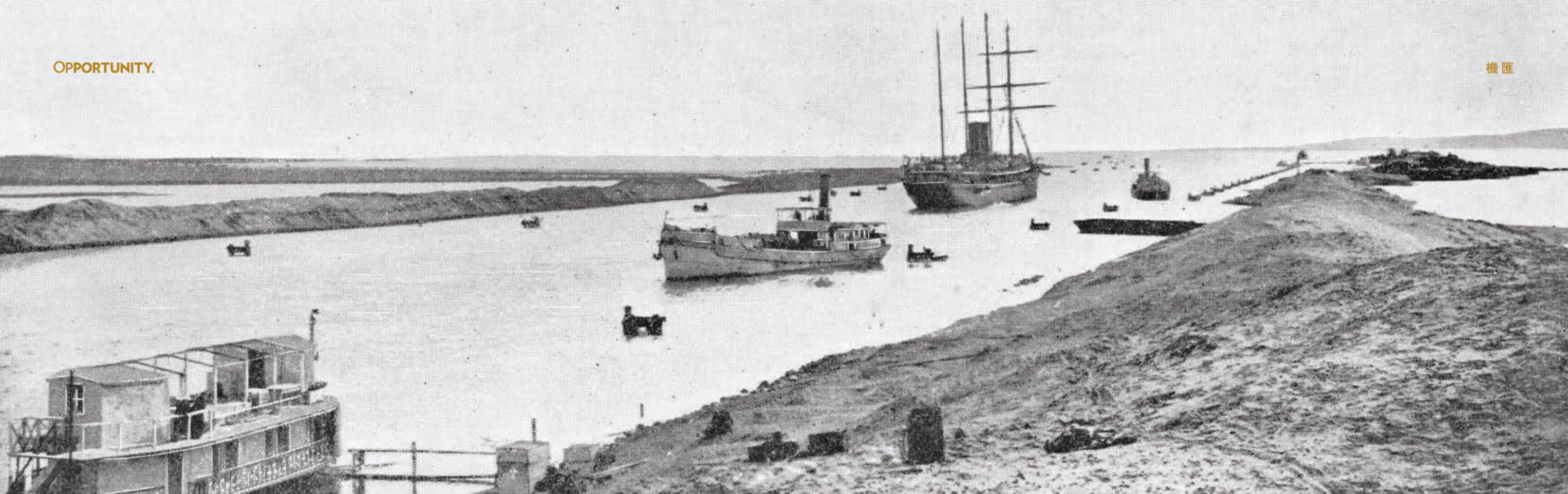
At the very heart of Egypt's maritime history is the River Nile, which for thousands of years has provided a link between towns, cities and villages throughout the country as well as vital communications and trading links with countries in the Mediterranean Sea and the Red Sea.

From the Nile, Egyptian mariners sailed into the Eastern Mediterranean Sea and called at major cultural and trading centres in Syria, Palestine, Cyprus, Crete, Greece and Libya. The earliest depictions of seagoing ships are dated to 2,500 B.C. with evidence that regular journeys were made to and from Syria as early as 3,500 B.C.

As it was not possible to navigate directly from the Egyptian Nile to the Red Sea, some means of overland transportation were required, mostly through deserts in Lower Egypt.

To complete the journey across the deserts, ships were dismantled for transportation by donkeys and then reassembled on the Red Sea coast before continuing their journey along the Red Sea. These early intermodal transport links helped to blend Egyptian civilisation into a cultural mixture of Middle Eastern and African influences and build a flourishing trade.



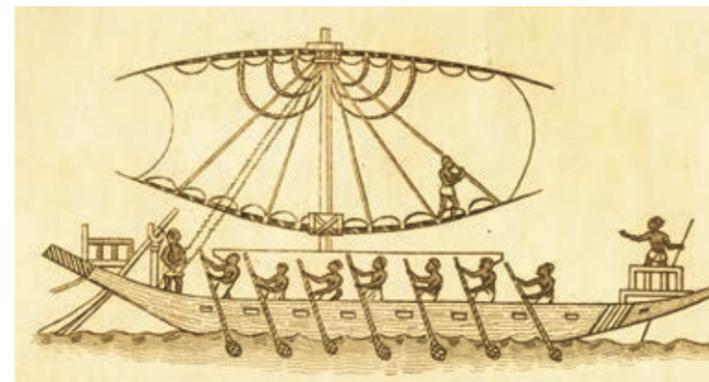


THE SUEZ CANAL 2,500 YEARS IN THE MAKING

To bridge the gap between the Nile and the Red Sea, Pharaohs from ancient times tried to build a canal that would open up trade both to the north and south. With mixed success, the Nile was connected to the inland Bitter Lakes, but the constant silting of the canal meant that the final elusive link to the Red Sea was not viable.

The idea of a canal that could connect the River Nile with the Mediterranean and the Red Sea dates back 2,500 years. A series of small canals were built connecting the Nile River and the Mediterranean to the Red Sea and were in use as early as 2,000 B.C. The canals were suitable only for small vessels due to the limited draught and constant silting from the sand in the adjoining deserts.

The first person to come up with the idea of connecting the Red Sea and the Mediterranean, via the Nile and its branches, was the Egyptian Pharaoh Senusret III of the Twelfth Dynasty. His idea was to promote trade and facilitate communication between the East and the West as the ships came from the Mediterranean, sailed through the Nile until Zagazig and then to the Red Sea via the Bitter Lakes that were connected to it at the time. Today, remnants of the old canal can be found in Geneva, a place near the city of Suez.



“ Pharaoh Senusret III ruled from 1878-1839 B.C. and was the fifth King of the 12th Dynasty of the Middle Kingdom of Egypt. His reign is often considered the height of the Middle Kingdom which was the Golden Age in Egypt’s history in so far

as art, literature, architecture, science, and other cultural aspects reached an unprecedented level of refinement, the economy flourished, and military and trade expeditions filled the nation’s treasury. His achievements also include creating the template for the modern-day Suez Canal. ”



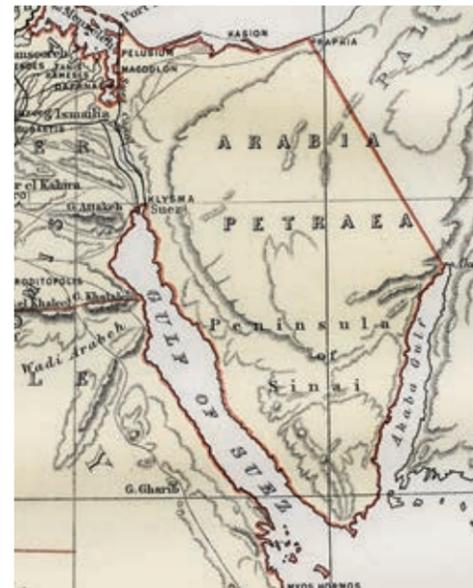
THE BIGGEST ENGINEERING PROJECT ON EARTH

For more than 1,100 years the canal concept lay dormant until the 1850s, when seeing an opportunity for Egypt and the Ottoman Empire, Governor of Egypt Khedive Said Pasha commissioned French diplomat Ferdinand de Lesseps to create a company to construct the canal. The Suez Canal Company was given a 99-year lease over the waterway and the surrounding area. The commission's final report was completed in 1856; two years later, the Suez Canal Company was formally established.

On 25 April 1859, the construction of the Suez Canal began and commenced operation on 17 November 1869. It took 10 years and an estimated 1.5 million people worked on the project. Most of the development work was carried out by hand as there was very little mechanised digging or construction equipment so the costs of building the canal was relatively high, totalled US\$100 million, more than double the original estimate. (source: suezcanal.gov.eg)

CHARACTERISTICS OF THE SUEZ CANAL

- It is the longest canal in the world without locks.
- The Mediterranean entrance is situated at Port Said and the Red Sea entrance at Suez Port.
- Navigation is both day and night.
- The canal is liable to be widened and deepened when required, to cope with the development in ship sizes and tonnages.
- With the adoption of the Vessel Traffic Management System, vessels can be monitored and followed on every spot of the canal and intervention in emergency cases can be taken.
- The Suez Canal accommodates partially loaded Very Large Crude Carriers and Ultra Large Crude Carriers.



WORLD-CLASS WATERWAY

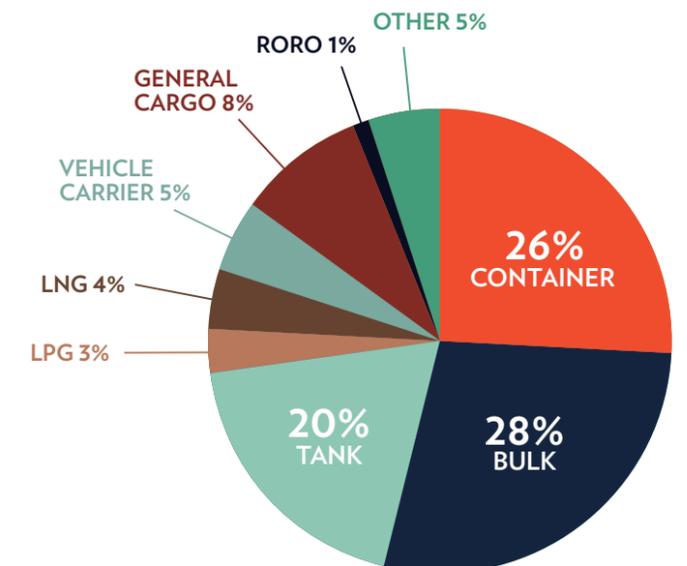
Despite being built more than 150 years ago; the Suez Canal maintains its strategic importance to international shipping. Egypt was the first country to dig a canal across its land with a view to activate world trade.

The Suez Canal is an artificial sea-level waterway running north to south across the Isthmus of Suez in Egypt to connect the Mediterranean Sea and the Red Sea. The canal separates the African continent from Asia, and it provides the shortest maritime route between Europe and the lands lying around the Indian and western Pacific Oceans. It is one of the world's most heavily used shipping lanes.

Stretching 192 kilometres the canal links Port Said on the Mediterranean Sea in Egypt southward to the city of Suez (located on the northern shores of the Gulf of Suez). The canal separates the bulk of Egypt from the Sinai Peninsula.

Owned and operated by the Suez Canal Authority, the waterway is open to ships of all countries and has set a new record for the highest number of ships transiting in a day. On 29th September 2021, a total of 87 vessels made transit through this strategic canal, leaving behind the previous high of 75 that was achieved on 6th February 2019.

2022 SUEZ CANAL SEGMENT DISTRIBUTION (March)



Source: lethagencies.com

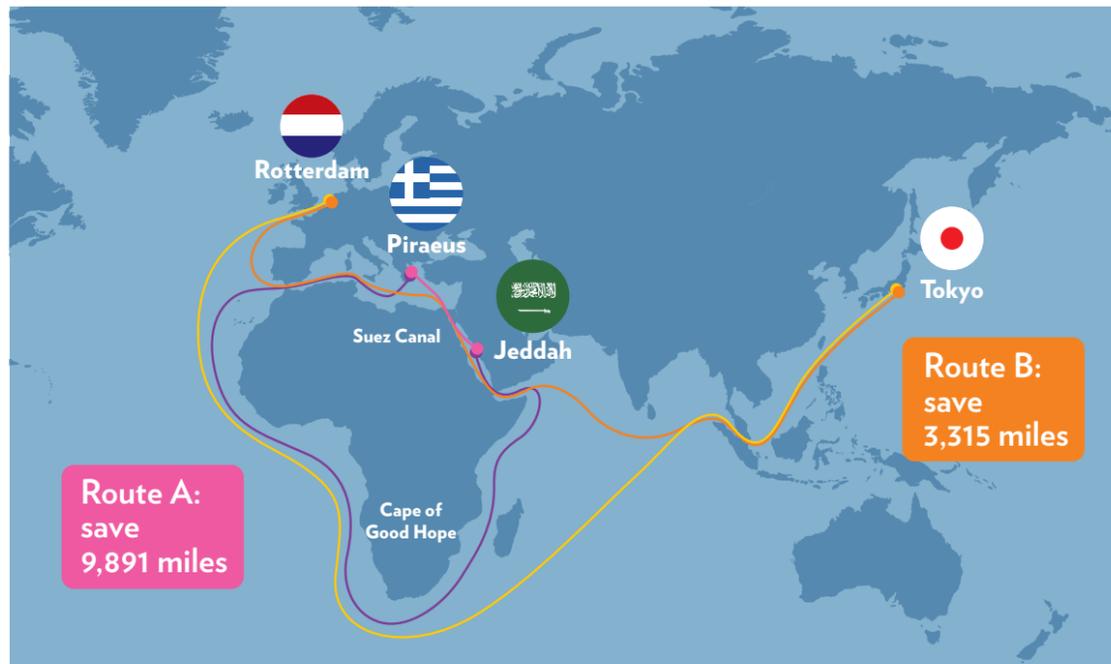
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Today the Suez Canal is still a vital trade link, essential for east-west trade saving billions in shipping fuel costs and emissions. The alternative route around the continent of Africa via the Cape can add 3,000 miles and weeks to the journey from the Indian Ocean to the North Atlantic.

Example:

	From	To	Distance (Nautical Miles)		Saving Miles	%
			via Cape	via Suez Canal		
Route A	Jeddah	Piraeus	11,207	1,316	9,891	88
Route B	Tokyo	Rotterdam	14,507	11,192	3,315	23

SAVING IN DISTANCE



source: suezcanal.gov.eg



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ABUNDANT RENEWABLE ENERGY

Egypt has all the essential elements to develop its sustainable energy sector. A large landbank, sunshine and high wind speeds, making it a prime location for renewable energy projects.

The government of Egypt has a strategic plan to build its sustainable energy mix to both meet increased demand, and move to a more environmentally sustainable and diverse electricity sector.

The 2035 Integrated Sustainable Energy Strategy, which builds on previous strategies, emphasises the importance of renewable energy.

Egypt intends to increase the supply of electricity generated from renewable sources to 20 percent by 2022 and 42 percent by 2035, with wind providing 14 percent, hydro power 2 percent, photovoltaic 22 percent, and concentrating solar power 3 percent by 2035.

EGYPT TO HOST COP 27

Reflecting Egypt's leading role as an advocate to mitigate climate change, the 27th session of the Conference of the Parties (COP 27) will take place in Sharm El-Sheikh, Egypt, in November this year. COP27 will provide a good platform and an opportunity to build on commitments made during last year's conference in Glasgow, Scotland.

In a statement confirming Egypt as the host of COP27, the organisers said the country will make the conference 'a radical turning point in international climate efforts in co-ordination with all parties, for the benefit of Africa and the entire world.'



Source: cop27.eg

MODERN EGYPT BUILDING PORT AND LOGISTICS INFRASTRUCTURE

Today, Egypt is building world-class container terminals and logistics facilities, including those operated by Hutchison Ports and continues to be a vital trading and shipping centre for the Middle East and Africa (MEA).

The Egyptian government is working with the private ports sector to implement a comprehensive plan to upgrade its ports at the Red Sea and Mediterranean Sea with the goal of becoming a logistics centre in the MEA and promoting its presence on the international trade map, according to Xinhua.

2021



US\$402.84 billion

statista.com

2021

Foreign Direct Investment



US\$23.5 billion

egyptindependent.com

2021

Population



US\$106.2 million

UN Population Fund

'The plan aims to boost the competitiveness of Egypt's ports, create added value, lure investments, and activate the flow of importation and exportation,' said Mona Sobhy, Professor of Economic Geography and Transportation with the Al-Azhar University in Cairo, told Xinhua.

Egypt has many well-established ports in the Mediterranean Sea, including Alexandria, Daqahilia, Damietta, Arish, Said, and East Port Said. The port of Jarjoub is also scheduled to open soon, according to Professor Sobhy.

The plan, expected to be completed in 2024, covers 58 projects for upgrading Egyptian ports with an estimated cost of US\$4 billion.

The development work includes building berths, trading yards, new wharves, commercial and logistical areas, dredging shipping lanes and port docks, and linking them to the railways and electric train network, as well as providing all ship services.

Egypt has started to develop Ain al-Sokhna, one of the targeted ports at the Red Sea, with an investment of \$US1.27 billion, to shift it into a central port at the Red Sea and the Mediterranean Sea. Two ports at al-Arish and al-Tour have also been reopened.

Meanwhile, Egyptian President Abdel Fattah El-Sisi has ordered a study to assess the building of the al-Max port on the Mediterranean Sea.

'Egypt is also working on the digital transformation of the operation of ports, linking seaports, dry and internal ports, consumption centres and manufacturing areas through road and rail networks, which would facilitate the movement of transport and distribution of exports and imports,' Sobhy said.

'Egypt plans to link the ports and industrial areas in the Sinai Peninsula with the north-western Gulf of Suez and provide logistic services for ships inside the ports such as Ain Sokhna and East Port Said, with an aim to create added value.'

'The development of those ports would attract more investments to Egypt and transform the country into a logistical and commercial centre in the Middle East and Africa,' she added.

Waleed Gaballah, Professor of Financial and Economic Jurisdictions at Cairo University, told Xinhua that the development plan will turn Egypt into an important part of the global supply chain.

Egypt has established multi-purpose stations in some ports and linked them together, such as linking the port of Ain Sokhna with the port of El Alamein by an electric railway, he said.

Hutchison Ports has been operating in Egypt since 2005, responsible for the construction, operation and management of two terminals at Alexandria Port and El Dekheila Port.

Both ports are in Free Zone areas with highway connections to the capital of Egypt, Cairo. Alexandria port is situated on the north coast of Egypt approximately 220 kilometres from Cairo and is the principal port of Egypt. The port of El Dekheila is situated seven kilometres west of Alexandria and is considered an extension of Alexandria port. Both ports handle approximately 60 percent of Egypt's foreign trade according to Alexandria Port Authority and well-positioned to capture cargo from the hinterland.



In 2020, the group signed a long-term agreement with the Egyptian Navy to develop and operate a new terminal in Abu Qir, the construction of the new terminal is moving ahead on a greenfield site. The new terminal is designed to handle a capacity of 2 million TEU upon completion and a total quay length of 1,200 metres with a draft of 18 metres capable of handling mega vessels of the future. The project includes provision for a 60-hectare container terminal yard, and an additional 100 hectares of land exclusively reserved for future expansion.

Hutchison Ports' Abu Qir will be connected to a new six-lane highway, with a direct link to the city of Alexandria some 20 kilometres away. The highway is part of the national road network providing access to the capital city of Cairo and other major cities across the country. The Port of Abu Qir provides strong trade lane connections to Europe, the Middle East and Asia.

LATEST NEWS

Hutchison Ports has signed a Term Sheet with Kamel al-Wazir, Minister of Transport of Egypt. The Group will participate in two new projects in El-Dekheila Port and Sokhna Port. The exciting news from both sides marks the importance of the Egyptian market in terms of global trade and economic development.

ECONOMY ROARS AHEAD

The World Bank in its latest economic update has highlighted Egypt's economic resilience to COVID-19. Macroeconomic reforms have helped stabilise the economy, allowing the country to enter the COVID-19 crisis with improved fiscal accounts and a relatively ample level of foreign reserves.

Energy sector reforms helped boost both the electricity supply and gas exports, opened up the energy market for private activity, and incentivised investments in renewables.

Egypt's export-oriented sectors were contracting since the beginning of the crisis (tourism, manufacturing, extractives, and Suez Canal) and started rebounding during 2021.

Minister of Trade and Industry, Nevine Gamea, announced that Egyptian non-oil exports amounted to US\$32.128 billion for the first time in 2021, compared to \$25.427 billion in 2020, a difference of \$6.701 billion – a significant increase of 26 percent.

The geographical distribution of Egyptian exports during 2021 included the European Union at \$9.153 billion, compared to \$5.881 billion during the year 2020 – an increase of 56 percent. While exports to the US reached \$2.446 billion compared to \$1.618 billion, an increase of 51 percent.

Other markets were \$9.128 billion compared to \$6.978 billion during 2020, an increase of 31 percent, and the African continent (without Arab countries) stood at \$1.853 billion, up from \$1.445 billion in 2020, an increase of 28 percent.

EGYPT EXPORT GROWTH TREND

Exports	2020 (US\$ billion)	2021 (US\$ billion)	Growth rate
Non-oil	\$25.43	\$32.13	↑ 26%
EU	\$5.88	\$9.15	↑ 56%
US	\$1.62	\$2.45	↑ 51%
African continents <i>(exclude Arab countries)</i>	\$1.45	\$1.85	↑ 28%
Other markets	\$6.98	\$9.13	↑ 31%

source: egyptindependent.com (Jan 2022)

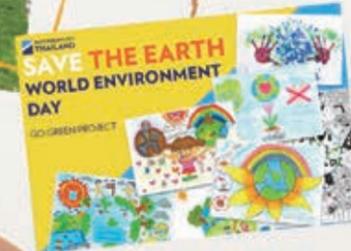
The country's strong economic rebound and long-term development of its seaports will lead to an increase in Egypt's competitiveness in the maritime transport sector, this will support Egypt's Vision 2030 to transform the country into a global hub for energy, trade, and logistics.

Enhancing competitiveness in its port sector will enable Egypt to attract shipping lines and attract more foreign investment in local transport and logistics projects.

Capital of Egypt, Cairo cityscape.



A Refreshed Sustainability Campaign Is Underway



Hutchison Ports has a long history of building sustainability both in the environment and across the communities where it operates.

Last year the Group Sustainability Committee (GSC) was authorised to drive new policies and to lead a strategic goal to reduce emissions across global operations. The Group is committed to building a greener environment in the maritime sector targeting a significant reduction in total CO2 emissions by 2030.

The GSC is adopting United Nations Sustainable Development Goals to align its plan with international efforts to build a more sustainable environment.

Two of the group's community keynote programmes are Go Green and Dock School. Go Green aims to promote the concept of repurposing industrial waste recovered from terminals and port communities into recycled products to foster environmental protection.

From a community perspective, the Dock School initiative has successfully introduced the 'Green School Project' which aims to increase students' environmental awareness and improve their environmental performance via education and sponsorship programmes.

Both 'Go Green' and 'Dock School' promote environmental protection in Waste Management (KPI 5) and Education, which are now combined under one campaign to provide greater flexibility for global business units to plan their resources. A refreshed logo for both campaigns has been brought to life this year which reflects a more vibrant, creative, and connected campaign for future activities.



1998-2021

2022

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KPI 5 WASTE MANAGEMENT

The group has organised a five-stage waste recycling initiative, KPI 5 which collects and repurposes a range of materials from colleagues, hauliers, tenants and ships calling at terminals. The concept is to reduce the amount of waste generated in the port community, by re-using materials, and diverting waste from landfills through recovery and recycling.

Recyclable non-hazardous materials and hazardous materials including waste oil, scrap metal, waste wood and lead acid batteries are segregated, stored and collected by licensed companies.

GOING GREEN

Go Green was launched in 2014, as a global initiative undertaken by members of the international ports and maritime community. Now Hutchison Ports is driving ahead with its initiatives to broaden sustainability campaigns beyond the port and nearby communities and into local, regional, and national sustainability programmes.

Over the years, thousands of staff from around the world participate each year in a range of activities that contribute towards a greener way of living and working.



ENHANCING DOCK SCHOOL

As part of Hutchison Ports' sustainability community outreach, the Group started its first Dock School project in Hong Kong in 1992. Today the programme has expanded to cover half of the countries where the Group operates and will continue to expand to more locations where educational attention is needed and required.

At the heart of the Hutchison Ports Dock School programme are a number of initiatives including improving school facilities, and providing scholarships, and education funds to focus on knowledge and the importance of environmental protection. These enhanced educational programmes will encourage children to understand the importance of participating in sustainability projects in their local communities.

Staff members of Hutchison Ports also volunteer to organise camps, day trips and tours for children attending Dock Schools, further consolidating the strong relationship with students and schools at a local level.



HUTCHISON PORTS' DOCK SCHOOL AND COMMUNITY CONTRIBUTIONS SINCE 1992



EXTENDING THE REACH INTO A WIDER COMMUNITY

Around the world, Hutchison Ports staff will be working with educational, civil and charitable organisations to improve sustainability in their local communities.

A range of activities and workshops will be held which include terminal visits for students to learn about how the latest technology, green fuels and waste management development are vital to the Group's goal to become a more sustainable terminal operator.

Activities such as recycling workshops for staff and visiting students will transform plastic bottles into plant pots and plants are then donated back to the local community.



Sustainability Report 2021



Community initiatives

For university students who are studying for degrees related to the environment, Hutchison Ports is offering internships to research waste management and environmental protection initiatives in operation at its terminals.

A global tree planting campaign with local schools has been very successful for many years and now the programme will be expanded to include talks about the importance of effective waste management. The Group is also recycling oil drums from its terminals and donating them to local schools for waste separation.

Hutchison Ports will continue to assist the next generation to improve their contributions to local communities and to understand the importance of protecting the environment.

To learn more about Go Green and Dock School, download the Hutchison Ports Sustainability Report 2021 or visit our website.

HUD TO PLAY KEY ROLE IN HONG KONG'S FIRST OFFSHORE LNG TERMINAL



Hong Kong LNG Terminal Limited (Simulated photo)

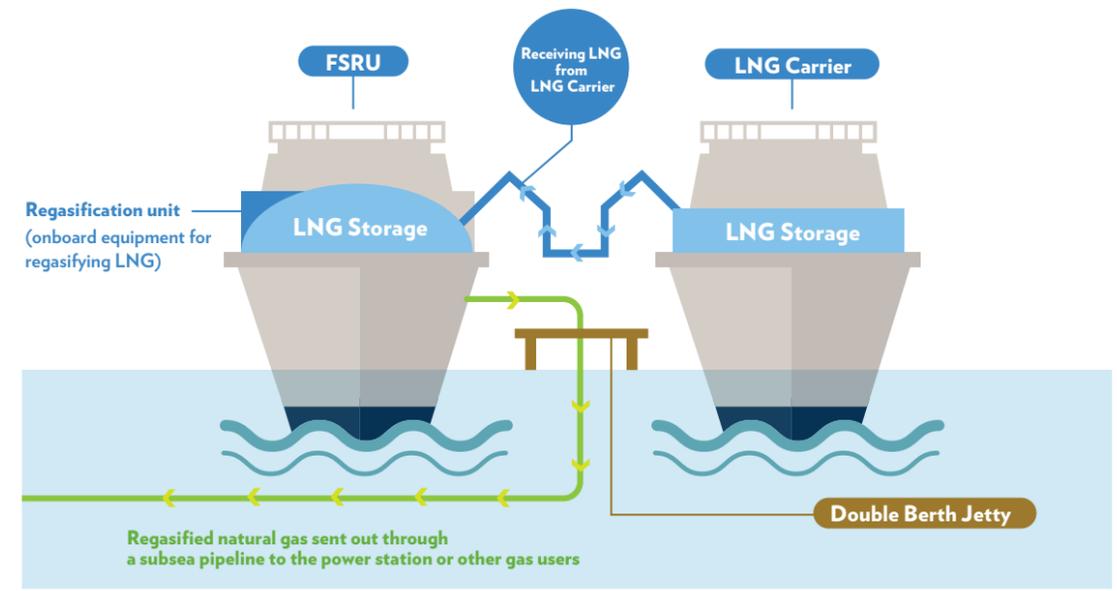
The earth has enormous quantities of natural gas, but much of it is in areas far from where the gas is needed. Liquefied Natural Gas (LNG) is one of the cleanest fossil fuels and is being widely adopted around the world in order to reduce greenhouse gas emissions and help combat global warming. To move the fuel across oceans, natural gas is converted into LNG.

As Hong Kong implements its plans to significantly reduce carbon intensity in line with the Hong Kong Climate Action 2030+ report,

the opening of the first offshore LNG Terminal Jetty in the Special Administrative Region using Floating Storage and Regasification Unit (FSRU) technology is a major step to transitioning to a cleaner energy source for its future power needs.

The offshore LNG Terminal is a double berth jetty with subsea pipelines that connect to the gas receiving stations (GRS) at the Black Point Power Station in the New Territories and the Lamma Power Station.

OFFSHORE LNG RECEIVING TERMINAL KEY COMPONENTS AND PROCESS OVERVIEW



Source: edp.gov.hk

Natural gas makes it possible to comply with the new environmental standards. Compared with diesel, natural gas fuel represents the following reductions:

 **↓25%**
reduction in carbon dioxide (CO₂)

 **↓80%**
reduction in nitrogen oxide (NO_x)

 **↓97%**
reduction in carbon monoxide (CO) emissions

HUDGROUP

As part of the development of the LNG terminal, located in offshore waters to the east of the Soko Islands, Hongkong United Dockyards (HUD) has successfully tendered to build, own and operate two standby support vessels, providing around the clock safety and security services of marine operations at the offshore facility. One of the roles of the tugs will be to deploy for rapid evacuation of the terminal, in the event of an emergency.

Hongkong Salvage & Towage, a division of HUD and renowned in the industry for providing multi-disciplinary marine services, will provide communications links to the vessels' surveillance system via the Control Centre. This system will provide the crew with real-time local marine traffic information and weather reports to enable safety preparedness and immediate response and assistance.

The state-of-the-art vessels will be powered by a dual LNG-Marine Gas Oil fuel system to comply with reduced emission goals, which include fewer particulates while nitrogen oxide and sulphur oxide levels will be reduced by 80 percent. The specialist vessels, to be operated by HUD, are under construction at Cheoy Lee Shipyards Ltd in Zhuhai, China.

STANDBY VESSEL OUTLINE SPECIFICATIONS



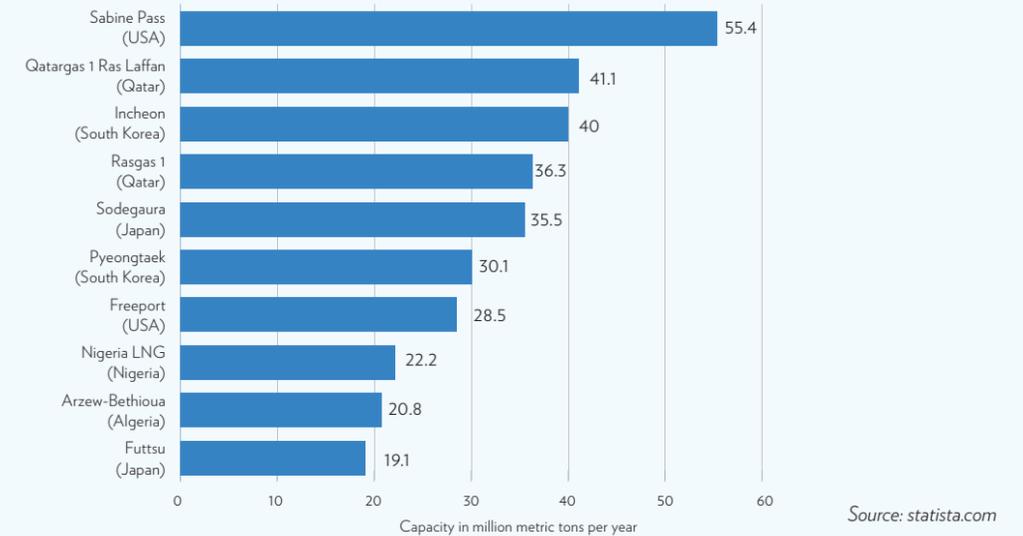
Supporting the Hong Kong Government's 2030+ report which recommends an increase in natural gas for power generation, CLP Power Hong Kong Limited (CLP) and The Hongkong Electric Company, Limited (HK Electric) are jointly building the offshore LNG terminal. Hong Kong has no indigenous energy resources and all energy for the city needs to be imported from overseas.

Dependable fuel sources are critical to maintaining a reliable power supply for the Hong Kong population, while providing environmental benefits. Furthermore, long-term natural gas supply stability by diversifying supply sources,

and enabling procurement of natural gas at competitive prices from the global market is vital to remain the city's sustainable development.

The HKSAR Government will work closely with CLP and HK Electric; to ensure they can secure adequate supplies of natural gas and put the required infrastructure in place in the coming decade to handle the larger quantities of natural gas that will be required to be imported into Hong Kong to meet emissions targets. The LNG Terminal can also supply other users with natural gas, such as for marine transportation.

LARGEST OPERATIONAL LIQUEFIED NATURAL GAS TERMINALS BY CAPACITY WORLDWIDE AS OF 2021



GLOBAL DEMAND FOR LNG TO GROW BY 2040

As Hong Kong builds up its infrastructure to accommodate imports of LNG, the city is part of a global movement to reduce reliance on coal and oil and use natural gas. Shell plc forecasts that global demand will grow to 700 million tons a year by 2040, a 90 percent increase when compared to 2021, according to an article published in Natural Gas Intelligence.

In Shell's LNG Outlook the company said that Asia is expected to consume most of the growth as 'domestic gas production declines, regional economies grow and LNG replaces higher-emission energy sources, helping to tackle concerns over air quality and to help progress toward carbon emissions targets.'

The demand for natural gas in the Asia-Pacific region is 'booming' with a '12 percent rise in gas demand in China.'

More countries have announced net zero-emission targets and that had put extra pressure to reduce national emission targets. Natural gas is an important part of the transition to cleaner energy along with renewable energy sources and solutions.

In the medium-term LNG is likely to play an important role, along with renewable energy, to ensure energy security.

VISIBILITY THE KEY TO REDUCE SUPPLY CHAIN DISRUPTION



Since the Spring of 2020, the global supply chain has undergone a series of tectonic shocks and disruptions with the Covid-19 pandemic as the underlying cause.

The ripple effect of the disruption is that day-to-day planning has been very challenging as many housebound consumers decided to switch to e-commerce to supply their everyday needs consequently there were serious capacity overloads at sea and on land.

According to the Harvard Business Review, there are other reasons for supply chain disruption apart from the pandemic including a new urgency to reduce greenhouse gases, the Russia-Ukraine conflict and the lockdown in China due to an increase in COVID-19 cases in its major manufacturing and port cities. Supply chain managers need to navigate this dynamic situation and think beyond product costs and supplier choices.

The tsunami of container movements overwhelmed shipping and ports, compounded by labour shortages in trucking and warehousing leaving many boxes stranded in Asia, Europe and the US. With airlines grounded and air freight capacity limited, it was shipping that bore the brunt of an unprecedented surge in container volumes.

During this time, it was difficult for supply chain managers to have accurate information about materials, suppliers, manufacturers and shipments to pull together a coherent plan, according to Kris Kosmala, a partner at Click & Connect, a supply chain optimisation company.

'In a prolonged period of one-off disruptions, transparency of supply chains is critical to source the data that could be rapidly processed into actionable insights. Without those insights, not just raw data, responding rapidly to an unexpected supply event, mitigating risk and ultimately protecting the business, brand, and people is impossible,' he said.

During the last two years, higher costs, bottlenecks and congestion have affected most companies but some fared much better than others. The companies that were able to identify problems and can react relatively quickly than others, mostly larger businesses with direct involvement in logistics operations, were able to respond much earlier during the pandemic, as mentioned in the Harvard Business Review.

Smaller companies, however, generally working with third-party logistics providers did not have access to that first-hand information until later and therefore were impacted disproportionately.

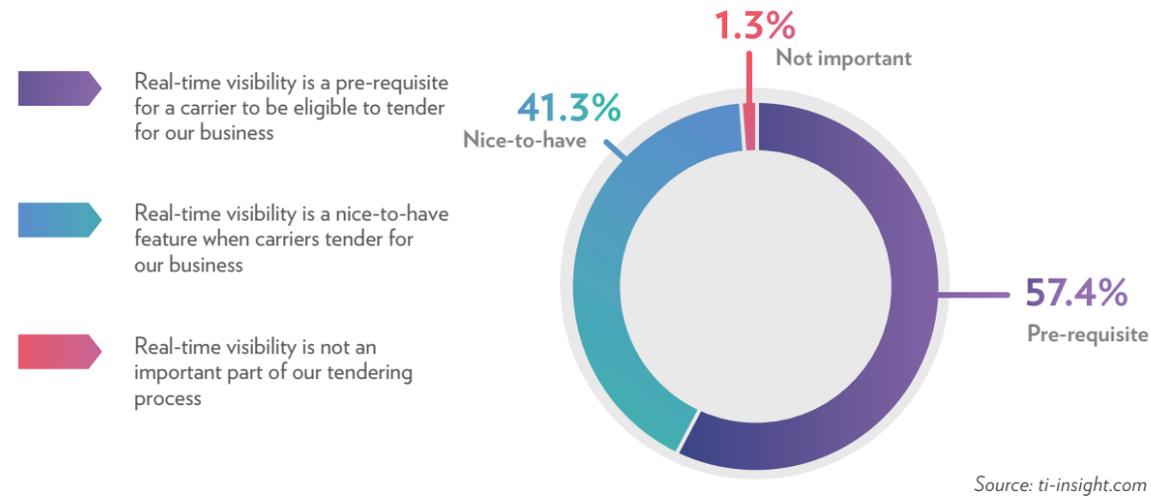
Being able to identify patterns at the beginning of an ocean-shipping-transit cycle rather than at the end can give managers as much as a 30-day head start on problems on the receiving end, yet many fail to take advantage of this. Monitoring the spot markets for container shipping and air freight rates can also provide an indicator of disruption in the supply chain.

Approximately seventy-seven percent of shippers said that the lack of end-to-end visibility disrupted their supply chain in the last six months, according to a report in The Loadstar.

NEW SUPPLY CHAIN VISIBILITY APPROACH NEEDED

The pandemic uncovered vulnerabilities and a lack of resilience in global supply chains, with businesses being affected and forced to operate under volatile conditions and struggling to identify the most appropriate course of action. As a result, the demand and importance of visibility in the logistics industry have increased, with most shippers realising that visibility is no longer a nice-to-have, but a must-have.

IS REAL-TIME VISIBILITY AN IMPORTANT FACTOR WHEN YOU ARE BUYING TRANSPORTATION SERVICES FROM CARRIERS?



One of the main issues for supply chain managers is that traditional retail tools for predicting store sales became less effective, as e-commerce demand became impossible to quantify.

Stocking strategies also became less reliable and uncertain as did inventory location decisions as the buying public opted to buy goods online because of lockdowns and many local restrictions to suppress the spread of COVID-19.

This uncertainty made its way into the transportation sector as the infrastructure built around traditional cargo movements to retail outlets were no longer fit for purpose. This meant that transportation sourcing and capacity demand became a major headache for many supply chain managers.

VISIBILITY IS THE KEY

While many visibility solutions may hold the key to solving many supply chain issues, including tracking inventories, monitoring shipments and even replicating products on the market, some decisions need to be made about what is visible in the supply chain.

The ability to see will be determined by what is visible in the supply chain and should not be determined by what the technology provides.

A focus on the objectives, the specific needs, and a set of firm expectations on how the visibility data will be consumed, processed and presented becomes very important when logistics decisions are being made.

One of the main challenges for supply chain managers is the real-time gathering of data, from truck drivers with smartphones to passive RFID tags installed in packaging or containers. The disparate data gathering from multiple sources means that the farther away from a supply chain manager is from directly monitoring the status of cargo, the more visibility is a derivative of other data to create what the real status may be.

The supply chains are increasing their capability to digitalisation, cloud-based and agile. Some common trends in today's modern supply chain strategy are to gain more visibility.

Digitisation to the supply chain will significantly improve the ability to compress timely decisions using demand forecasts and can better manage inventory, suppliers' transport and storage.

Artificial Intelligence (AI) technologies will gradually be incorporated and is being seen in the supply chain and logistics industry to improve accuracy, efficiency and safety issues. These self-learning capabilities will inject stability to the supply chain with a guaranteed production line.

A move to the **cloud** enables accessible information anywhere to decision-makers wherever they may be and is often easier to integrate with partner systems.

Many companies are looking to **relocate** parts of their supply chains near their home country which can quickly response to consumer demand. These processes will lower the cost for shipping and transit of goods, gain flexibility and lessen lead times.

Adopt **Automation and robotics** to manufacturing lines can enhance operational efficiency and accuracy during complicated and repetitive production tasks.

In light of the increasing demand for visibility from shippers, moving forward, those carriers that have the capabilities to operate a fully transparent global supply network will stand out from the competition and win new business, but also improve existing customer relationships.

HAS BLOCKCHAIN'S GOLDEN AGE ARRIVED?

In recent years, we have witnessed cyber security breaches that have severely impacted government departments, large corporations and individuals. The scourge of cybercriminals costs businesses and countries billions of dollars each year, notwithstanding the reputational damage caused by the theft of data.

In shipping, the world's largest carriers and logistics companies have been targeted by cyber-attacks, the industry is particularly vulnerable because of the multiple players and billions of transactions involved in container shipping in any given year. The cyber criminals, always searching for the weakest link in the supply chain, have found that shipping has many gaps to exploit.

This year has already seen a concerning number of cyber-attacks on ports and terminals. A cyber-attack hit major European ports including Rotterdam and Antwerp, following a suspected ransomware attack causing a full system outage at one of the container terminals in India early this year.

More generally the advent of more employees working from home increased dramatically during the last two years as a consequence of the COVID-19 pandemic. This has also exposed serious weaknesses in digital communications and data sharing across platforms in many industries.

To plug those gaps and raise the security wall even higher, spending on cyber security will amount to US\$1 trillion between 2017 and 2021 according to references made in an article published in [Infosys.com](https://www.infosys.com).



OPPORTUNITY.

SHIPPING STILL IN THE SIGHTS OF CYBERCRIMINALS

The concern is growing that shipping remains vulnerable to cyber-attacks particularly as global supply chains remain under pressure due to geopolitical conflict, congestion and high freight rates. It is worth remembering that 90 percent of the world's products are moved to market by ships. With this knowledge, criminals have the leverage to disrupt computer networks for ransom payments.

According to Cybertalk.org between 2017 and 2020, cyber-attacks on shipping increased by 900 percent, translating to roughly one incident on a ship per day. Examples include one carrier having to close its entire IT country network in the US.

A major European liner shipping company recently warned the shipping community to remain alert regarding sophisticated phishing and spear phishing attacks that leverage fake domains.

These cyber-attacks can affect shipping operations, safety or security issues which can result in information systems being compromised, data loss or data corruption, according to Cybertalk.org.

POSITIONING AND COMMUNICATION SYSTEMS INTERFERENCE

Global Positioning Systems and Automatic Identification Systems are also under attack as both systems rely on radio frequencies that are not encrypted, creating a back door for cyber hackers to feed fake co-ordinates to the ship's system potentially sending the vessel off course. Radios also connect to subsystems that control mechanical components of the ship which could result in power and equipment failures.

Insecure Wi-Fi connections at ports' may leave a ship's system vulnerable to cyber-attack, with three major shipping companies being victims of ransomware attacks through this threat.

FIGHTING MARITIME CYBERCRIME

In order to protect assets, it is important to conduct a thorough cyber risk assessment. The risks should include a focus on inventory, control systems and data.

The report recommends that all weaknesses and vulnerabilities be analysed and fixed across the whole organisation.

Leveraging Artificial Intelligence is one way that organisations can use software to protect their systems, operating 24 hours a day, providing constant vigilance against security breaches.

WHY BLOCKCHAIN?

One of the key tools rolled out globally to prevent data breaches is blockchain, which reduces vulnerabilities and provides strong encryption and more effectively verifies data ownership and integrity. The 'Achilles' heel' in the cyber world are passwords providing criminals with the 'keys' to valuable personal and corporate data, blockchain can eliminate the need for some passwords.

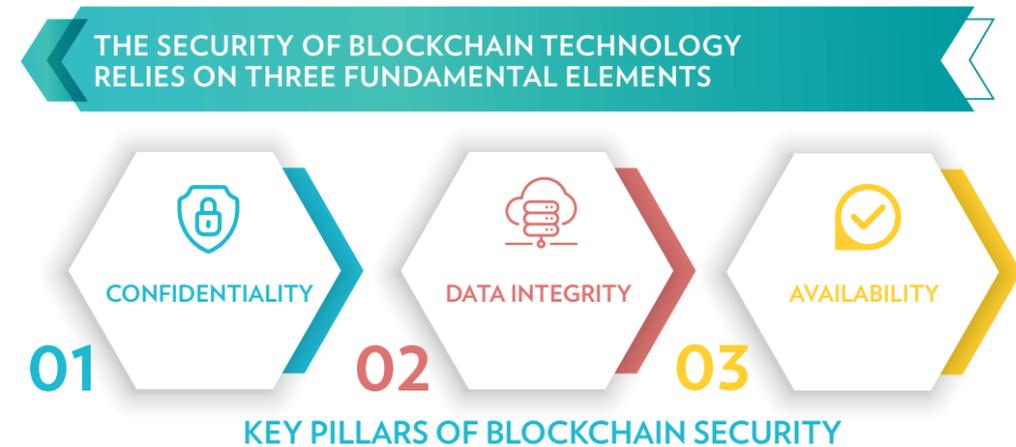
The principal advantage of blockchain is its use of a distributed ledger, as transactions are recorded across every node in the network, making it difficult for attackers to steal, compromise, or tamper with data, unless a vulnerability exists at the platform level, according to Infosys.com.

Blockchain's collaborative consensus algorithm monitors for malicious actions, anomalies and false positives without the need for a central authority. This collective 'surveillance' strengthens authentication and secures data communications and record management.

The real strength of blockchain is that all connected network participants have to agree to the validity of each of the records, providing additional security for all parties.

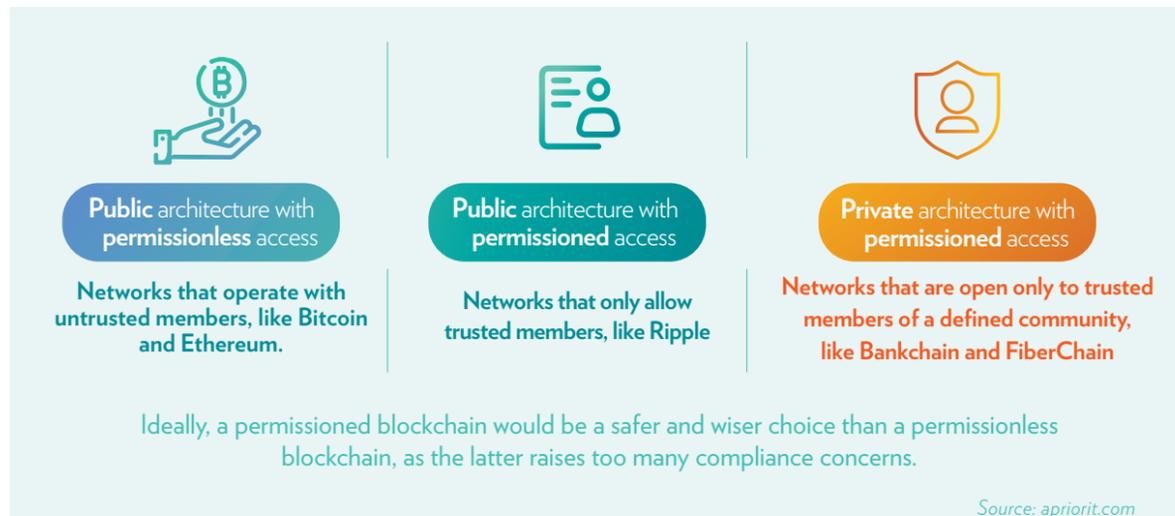
THE FUNDAMENTALS OF BLOCKCHAIN SECURITY

A blockchain is distributed and replicable by nature. It uses the consensus of participants and the latest achievements in cryptography. As a result, blockchain-based solutions are more resistant to cyber-attacks than non-blockchain systems.



Source: apriorit.com

THREE COMMON TYPES OF BLOCKCHAIN NETWORK ARCHITECTURES



INTEROPERABILITY – A POTENTIAL ROADBLOCK

One of the major problems is the standardisation of protocols and business standards as some platforms use different ecosystems for their smart contract logic, transaction schemes, and consensus models, [Infosys.com](https://www.infosys.com) suggested.

Weak interoperability limits the scalability of blockchain; for developers’ roadblocks can be created from platform misconfiguration, communication mistrust, specification errors in application development, and cross-chain smart contract logic problems.

BLOCKCHAIN FOR CYBERSECURITY: MAJOR CONS



Source: apriorit.com

Today many of these issues are being overcome thanks to open protocols, multichain frameworks, and algorithms taking root in blockchain and mitigating these issues.

Standardisation is being driven by business communications organization GS1, the company has published global standards for blockchain interoperability, and it is working with Microsoft and IBM on incorporating those standards into their enterprise blockchain applications. The Enterprise Ethereum Alliance is also developing business standards, reported [Infosys.com](https://www.infosys.com).

GSBN GAINING MOMENTUM

One of the leading platforms to develop blockchain technology for the global shipping industry is the Global Shipping Business Network (GSBN). The idea for GSBN came from a consortium of ports and shipping lines including CMA CGM, COSCO SHIPPING LINES (COSCO), COSCO SHIPPING Ports, Hapag-Lloyd, Hutchison Ports, OOCL, Port of Qingdao, PSA International and Shanghai International Port Group (SIPG).

‘The platform is neutral and not for profit, very important in convincing the shipping industry to share its valuable data,’ according to Bertrand Chen, CEO of GSBN, in an interview with Seatrade Maritime.

The challenge according to GSBN is to develop greater co-operation between all players in the container shipping industry and to leverage the benefits of a platform that will enable them to add value to their own data.

The company is building a platform that is similar to the way the electricity grid or water networks operate, that it can facilitate the movement of data between different parties using a neutral and secure platform.

One of the inhibitors in expanding the number of users to the network is the concern about sharing

sensitive and valuable data between banks, regulators, beneficial cargo owners, carriers and terminal operators.

Overcoming those concerns is one of GSBN’s biggest challenges as there are multiple parties in shipping who have conducted business using traditional paper-based contracts and documents for trade and Customs for generations, developing trust and realising the value of blockchain is the key to the acceptance of blockchain.

The golden age for digitising the shipping industry may be upon us as blockchain technology is gathering more pace and support. With the exceptional profits made by container shipping lines during the pandemic, there has been a significant corresponding investment in technology and in digitisation. The benefits of blockchain are many, including providing banks with a digital platform to improve efficiency to assess the credit of shippers and trade finance, etc.

New rules and regulations are also being implemented around International Maritime Organisation (IMO) emissions reduction targets, such as carbon taxes in the US and EU, which will impact shipping lines. Blockchain can provide a neutral platform to ensure that all documentation and transactions are compliant to these new regulations.



* COSCO SHIPPING LINES and COSCO SHIPPING Ports

CARGO RELEASE PILOT GAINING MOMENTUM

A successful pilot of the Cargo Release platform in China harnesses blockchain technology and offers a paperless, transparent solution that connects each individual involved in logistics at the port of import, including agents, consignees, shipping lines, and terminals. It has been deployed by several industry-leading shippers, including COSCO Shipping Lines, OOCL, and SIPG.

By cutting out the paper element of processes, the system simplifies data exchange and shortens operation time among all parties involved through real-time updates, reducing the time it takes for cargo to be ready for release. The processing time can be cut from days to a matter of hours, according to GSBN.

Chen said, 'Like the early days of cloud technology, the shipping industry is on the cusp of an exciting revolution where major efficiencies will be unlocked, and significant value will be created. This announcement is a milestone for global trade as this sector steps into the next digital era. The deployment of Cargo Release in China is of major significance as one of the most important markets for import and export in the world.'

The Ministry of Transport of the People's Republic of China is already rolling out its 'Chang Xing Programme' to digitise China's ports and shipping industry in collaboration with carriers and members of GSBN such as COSCO SHIPPING Lines, OOCL and Hapag-Lloyd.

GSBN's Cargo Release has also expanded its footprint to Hong Kong, Thailand (Laem Chabang) and Singapore to modernise global trade and benefit even more stakeholders in the ecosystem. It has since then been serving more than 10,000 customers in China and across Southeast Asia.

The blockchain-based container logistics platform is also piloting its Cargo Release in Rotterdam, the Netherlands, which involves Hutchison Ports ECT Rotterdam, COSCO Shipping Lines, freight forwarder OOCL Logistics and Chinese merchant trader Sumec Group. The former three companies are affiliated with the existing shareholders of GSBN.

What's NEW.

GSBN has recently extended its service to Europe after establishing a presence in China and Southeast Asia.



BLOCKCHAIN IS A CRITICAL KEY TO IMPROVE CYBER SECURITY

This intertwining of blockchain and cyber security is still an evolving approach. Not all research ideas on digital identities, decentralised storage, securing edge devices, and smart contracts align with business needs.

It will take business time to adapt to blockchain and its processes, but the benefits are clear. In the shipping world where cybercrime continues to grow each year, there is a real need to find a secure digital solution with strong encryption that verifies data ownership and integrity; that is something that blockchain can deliver.

For shipping, blockchain will be one important piece in the armoury to fight data theft and attacks on critical IT systems.

BLOCKCHAIN FOR CYBERSECURITY: MAJOR PROS



Source: apriorit.com

For now, the advice is to undergo a complete audit of IT systems and communications tools to identify the potentially vulnerable areas that may leave a company open to a cyber-attack. This will provide the platform to improve security protocols and minimise the risk of future attacks.

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