



SUEZ CANAL BLOCKAGE DUE TO HUMAN ERROR?

When it comes to transport infrastructure, the key components are nodes and links.

Nodes are the connecting points in a network where various links meet. The greater the number of links, the more flexible the network is. However, geographical and political limitations may not always result in alternative links for transporters.

The Suez Canal provides an efficient link for sea transport between Asia and Europe, cutting some two weeks off the journey time as opposed to going round the Cape of Good Hope in South Africa.

It provides a direct link for the transportation of goods across the two continents and facilitates the transportation of oil supplies from the Middle East, and accounts for about 12 percent of the world's sea traffic.

The canal, which opened in 1869, originally only had one lane for shipping to minimize capital cost outlays. With ever-increasing marine traffic due to huge trade volume, bypasses were completed recently in the canal's southern section to cater for larger flow, but the northern section remains single path.

To fully utilize the single lane's carrying capacity, the canal allows convoys of ships – up to some 50 vessels at a time – to travel in each direction, allowing northbound and southbound marine traffic on alternate days.

The blocking of the northern section of the Suez Canal by the giant container ship Ever Given became a marine traffic disaster as it strangled the vital link, blocking access for more than 400 ships and disrupting the delivery of essential goods to Europe, causing financial losses of billions of US dollars each day.

International media reported that pulp for making toilet paper and vital parts for automobile manufacture were stuck in the stagnant ships, and that the production of



Nuts and bolts

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these essential goods would be seriously disrupted, as they work on a "just in time" delivery schedule. Reverting to the round Africa route is both time-consuming and costly.

The canal accommodates marine vessels weighing up to 240,000 tonnes and a maximum draft (depth of water for navigation) of 20 meters. The corresponding values for the Ever Given are 200,000 tonnes and 16 meters.

As the giant container ship is 400 meters long, when it turned broadside, it blocked the narrow 300 meter-wide passage of the canal's northern section. Once stuck, the vessel became extremely difficult to dislodge, as its mammoth weight drove it firmly into the marine silt on the canal banks.

Various theories exist as to how the vessel lost steerage. Initial reports indicate that the vessel was manned with pilots onboard and that the weather conditions were not unusual for this time of the year. The vessel was fairly new and appeared to be reasonably well maintained.

My initial view is that the ship was skirting too close to the upper limit of the canal's maximum capacity for the safe passage of vessels.

Although the trend is to use the largest possible ship to carry goods in order to economize manpower and machine efficiency, the practice has probably now reached its limit in size.

I also suspect there was human error – both by the way of the canal operator and the ship itself – that caused this embarrassing and hugely expensive mistake.

I shall explain more in my next article.

Veteran engineer Edmund Leung Kwong-ho casts an expert eye over Hong Kong's iconic infrastructure