



RETROFIT TERMINAL AUTOMATION

MEASURING THE MARKET

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To date, most of the 44 automated container terminals already in operation around the world have been developed as new projects, that is; built from scratch on a blank canvas. However, there are notable exceptions where existing manual terminals have been retrofitted with automation as part of a major redevelopment, such is the case at terminals in Germany and the USA for example.

In Hamburg, HHLA is undertaking a phased redevelopment of the Burchardkai Terminal, the largest and oldest container handling facility in the port, which dates back to the late 1960s. The company is gradually installing ARMG yard blocks and turning the terminal into a semi-automated facility.

In Los Angeles, the TraPac terminal has been re-equipped and re-developed into a fully automated facility using ASCs in the yard and automated straddle carriers for horizontal transfer. In neighbouring Long Beach the Middle Harbor Redevelopment

Project has seen OOCL develop a fully automated facility using ASCs and AGVs on the footprint of older terminal infrastructure. However, this example is perhaps closer to a greenfield development than a retrofit due to the extent of the redevelopment work undertaken.

OPTIMISING EXISTING TERMINALS

Figure 1 shows the existing and planned automated terminals across the world, giving an insight into container terminal automation as it presently stands globally. Looking ahead, it is clear that long-term container port demand growth has been reset to a lower, “new normal” rate. Gone are the days of double-digit growth and most observers expect a more mature rate of no more than 5% per year. This, together with greater risks and potentially lower returns from greenfield terminal projects, has led to a much more cautious approach to such projects by many terminal operators and investors. With the

number of greenfield terminal projects in the pipeline reduced, the opportunity to develop these terminals as automated facilities is similarly affected. However, the flip side of terminal operators’ reduced interest in greenfield terminals is a much greater focus on optimising their existing terminals. Part of this may well involve consideration of conversion to semi or full automation, but how big is the potential global market for such retrofit terminal automation?

Figure 2 shows the proportion of existing container handling terminals worldwide that are automated. Of the 1,300 or so facilities, only just over 3% can be classed as automated. On one hand, this might be viewed as disappointingly low given the high profile of automation and the potential benefits it offers. However, on the other hand, it does indicate huge potential pool of existing facilities that might be retrofitted with automated equipment.

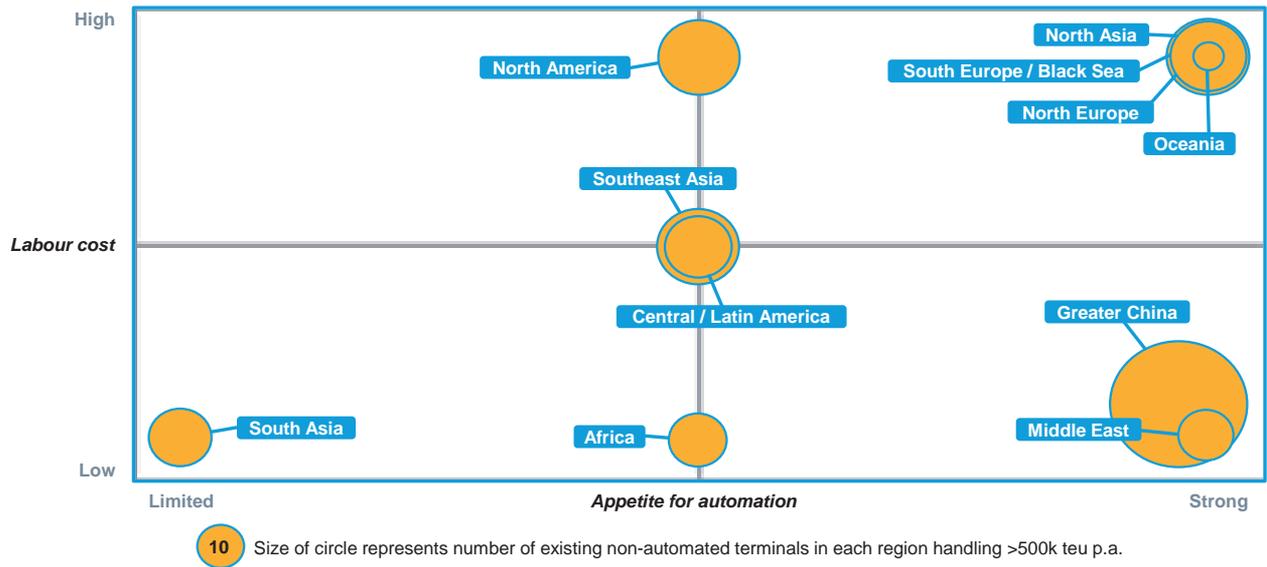


Figure 5: Number of potential retrofit automation terminals by world region

Source: Drewry Maritime Research

On the horizontal axis is an assessment of the appetite for terminal automation in each region. This is much more subjective, and more nuanced. For example, there may be a strong appetite for automation from terminal operators and investors due to high labour costs, but if there are also strong dockworker unions against the concept, this appetite is counteracted to a degree. Hence, the overall appetite in North America for example has been judged as moderate. There is also the influence of prestige and a desire to be at the cutting edge of technological development, meaning although labour costs in the Middle East and Greater China are low by world standards, suggesting a lesser appetite for terminal automation, in fact it is strong in these locations due to the aforementioned prestige and cutting edge reasons. Another consideration is the newness of terminals, on the basis that locations with long-established, older terminals may be more ripe for redevelopment and re-equipping, whereas those with newer terminals less so. This favours more mature market locations such as North America and Europe.

NORTH ASIA AND EUROPE

The top right of the matrix has a combination of high labour costs, as well as a strong appetite for terminal automation. Regions in this quadrant are likely to offer the best potential for retrofitting. By the same token the bottom left quadrant is least likely to offer potential, with its combination of low labour costs and limited appetite. However, the number of potential terminals in each region is

also part of the story (indicated by the size of the circle for each region), and not surprisingly Greater China has the highest amount.

This potential is mitigated by the relatively low labour costs which may call into question the validity of automation even with the prestige and cutting edge motivations. The regions able to combine the best potential for retrofit automation (high labour costs and strong appetite) together with significant numbers of existing suitable terminals are North Asia and Europe (North and South). The region least likely to attract retrofitting automation is South Asia, with its low labour costs and apparent limited interest in the prestige rationale. That said, it is interesting to note the news that

Adani’s greenfield terminal planned for Vizhinjam in India is to be provided with an automated solution by ZPMC.

Greenfield projects have not gone away, there are over 100 confirmed developments currently in the pipeline around the world, albeit so far only a handful have opted for automation. But for the time being at least, the opportunities for retrofitting automation in existing terminals appear to be in the ascendance. The locations offering the most plentiful and suitable terminals are Europe, North Asia and Greater China. It will be interesting to see which locations take the lead and why.

This analysis is taken from Drewry’s quarterly Ports & Terminals Insight report.

ABOUT THE AUTHOR

Neil Davidson has over 30 years’ experience in the port sector. He joined Drewry in 1997 and founded the company’s ports practice. Neil has spoken at over 100 industry conferences, seminars and private briefing sessions worldwide and regularly contributes expert insight and analysis to the trade press and British national newspapers, as well as TV and radio.

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