Negative Brief: Port Automation

By “Coach Vance” Trefethen

The AFF case complains that labor unions are slowing down trade at US ports by resisting automation (lost jobs) and work rules (like 24/7 operations) that could make the ports more efficient and solve for supply chain backlogs and delays. Plan will forcibly break union contracts and force ports to automate and operate 24/7.

Note on the International Transport Forum: They are NOT an industry nor union-affiliated entity, so they are not biased by the political views or economic self-interest of the unions. They are an inter-governmental agency funded by a large number of governments world wide that studies this stuff independently.

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Negative: Port Automation

NEGATIVE OVERVIEW

Proving a problem isn't enough for an AFF ballot

To win this debate round, AFF cannot simply show that "there are problems at Long Beach and L.A. ports, therefore vote Affirmative." There are two major issues we should overview. First, they have to prove their solution would work in Long Beach and L.A. Second, since they're applying the same solution all over the U.S., they have to prove that the same problems exist all over the U.S. and that the same solution would work everywhere else too. What the AFF is missing is that there are numerous variables that make every port and its situation or problems different. The same problems don't happen and the same solutions don't apply everywhere.

SOLVENCY

1. No productivity improvement

ITF Study: Automated ports are NOT more productive

International Transport Forum 2021 (an intergovernmental organisation with 63 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers) “Container Port Automation: Impacts and Implications”, International Transport Forum Policy Papers, No. 96 (accessed 24 Sept 2022) https://safety4sea.com/wp-content/uploads/2021/11/ITF-Container-port-automation-2021\_11.pdf

Fully automated container terminals do not yet exist. Across the world, 53 container terminals are now automated to a certain degree. This represents around 4% of global container terminal capacity. Most automated systems are deployed in the container yard. Only a few terminals have automated the transport between quay and yard. No terminal has completely automated quay cranes. Automated ports are generally not more productive than their conventional counterparts. Port organisation and specialisation, geographical location and port size are more important determinants of port performance than automation. This explains the limited automation of container ports to date.

ITF Study: Automated ports are 7-15% less productive. Studies claiming "more" productive were based on models and estimates, not actual results

International Transport Forum 2021 (an intergovernmental organisation with 63 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers) “Container Port Automation: Impacts and Implications”, International Transport Forum Policy Papers, No. 96 (accessed 24 Sept 2022) https://safety4sea.com/wp-content/uploads/2021/11/ITF-Container-port-automation-2021\_11.pdf

It is often assumed that automated ports are more productive. In manually operated terminals, it has been argued; there is a reduced production during shift changes, which is no concern at an automated terminal. Another argument is that the performance of automated equipment remains constant, unlike the performance of manually operated terminals (Jole, 2014). Many of these assumptions on the productivity of port automation are based on modelling and simulation exercises. For example, simulation experiments based upon real-life yard operational data from Norfolk (United States) show that the performance of a non-automated terminal could be substantially improved by automation using AGVs (Liu et al., 2004). However, in practice, automated ports are generally less productive than their conventional counterparts. A McKinsey survey in 2017 indicated that the productivity of automated ports is 7-15% lower than nonautomated ports.

Automated ports are 7-15% less productive than non-automated ports

[Michael Sainato 2022 (contributor to The Guardian and a journalist based in Gainesville, Florida) 10 Aug 2022 "AUTOMATION AND THE TRADE DEFICIT ARE DECIMATING US PORTS" (accessed 24 Sept 2022) https://therealnews.com/automation-and-the-trade-deficit-are-decimating-us-ports](Michael%20Sainato%202022%20%28contributor%20to%20The%20Guardian%20and%20a%20journalist%20based%20in%20Gainesville%2C%20Florida%29%2010%20Aug%202022%20%22AUTOMATION%20AND%20THE%20TRADE%20DEFICIT%20ARE%20DECIMATING%20US%20PORTS%22%20%28accessed%2024%20Sept%202022%29%20https%3A//therealnews.com/automation-and-the-trade-deficit-are-decimating-us-ports)

Automation in the shipping industry has further threatened the economic benefits these ports yield, despite capital costs associated with automation offsetting any savings from labor costs, and research showing automated ports are generally 7 to 15% less productive than non-automated ports.

Automated ports are 7-15% less productive. Even if they were more productive, the profits would leave the US to benefit foreign owners

Dr. Daniel Flaming and Patrick Burns 2022. (Flaming - President, Economic Roundtable; PhD in urban studies; formerly worked for Los Angeles County, coordinating delinquency prevention, managing community development and affordable housing programs, and administering job training and research programs Burns - senior researcher, Economic Roundtable; public policy researcher specializing in labor market dynamics, industry change and urban geography.) (accessed 24 Sept 2022) "SOMEONE ELSE’S OCEAN" 29 June 2022 https://economicrt.org/publication/someone-elses-ocean/

Studies of actual outcomes from port automation by Moody’s Investors Service, McKinsey & Company and the International Transportation Forum have found that cost savings are doubtful. In practice, automated ports are generally less productive than their conventional counterparts. The productivity of automated ports is 7-15 percent lower than for non-automated ports. Even if cost savings materialize, the profits leave the United States and go to foreign owners.

No net benefit to automation. It's a "Lose / Lose" for workers and the American public

Hellenic Shipping News 2022 (shipping industry journal) 26 July 2022 " A West Coast port worker union is fighting robots. The stakes for the supply chain are high" (accessed 24 Sept 2022) https://www.hellenicshippingnews.com/a-west-coast-port-worker-union-is-fighting-robots-the-stakes-for-the-supply-chain-are-high/

A report prepared by the Economic Roundtable and underwritten by the ILWU’s Coast Longshore Division, released on June 30, disputes many of the points in the PMA study, stating in particular that port automation eliminates jobs. “We often think that technology and automation are synonymous with progress, but after looking at evidence from ports around the world, this is not a win-lose issue, but rather a lose-lose issue for both workers and the American public,” said Daniel Flaming, president of the Economic Roundtable and co-author of the report, in an email to CNBC. “Automation of shipping terminals isn’t cost-effective or more productive, but it enables foreign shipping giants to avoid the inconvenience of dealing with American workers and the union that represents them.”

No study claiming benefits of port automation actually had any data from automated port projects

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The costs and benefits of port automation projects are rarely spelt out explicitly. Automation projects can make sense under some assumptions but not under others. Quite often, assumptions underlying assessments are misleading, e.g. that bigger ships need automation or that automation is necessary to reduce emissions. To build consensus around port automation projects it is therefore crucial that a broad set of stakeholders, including trade unions and governments, have access to the assumptions underlying proposals prepared by operators. Similarly, potential job losses and potential external costs need to be made explicit. A lack of publicly available cost-benefit analyses makes it difficult to evaluate the effects of automation projects. Ex-post evaluations of port automation projects are practically not available. Terminal operators are likely to have carried out such evaluations, but none seem to be available in the public domain. Instead, what is amply available are academic modelling exercises. However, it is a mistake to take model outcomes for evidence of the effectiveness of port automation projects in practice. Some academic studies confuse the two. For example, Kon et al. (2020) reviewed existing academic studies on container terminal automation, observing positive outcomes but failing to mention that none of the evaluation studies reviewed was of actual port automation projects.

2. A/T "Statistical analysis of ports shows LA and Long Beach are worse than others" - Plan won't solve

That same metric proves that automation doesn't solve. The metric cited in the AFF case says:

" In a review of 351 container ports around the globe, Los Angeles ranked 328 and Long Beach came in even lower, at 333. They both finished even lower than Tanzania’s Dar es Salaam, Turkey’s Nemrut Bay and Kenya’s Mombasa"

Those numbers come from the "World Bank Container Port Performance Index." It's a decent and reliable source, but it creates a number of problems for the Affirmative team. On that index, the lowest number, number 1, is the best port, while big numbers like 328 suggest poor performance. Using the Affirmative's theory, we should expect the best ports on the list to be the most highly automated, if automation guarantees efficiency. Let's see how their theory works, using their own metrics.

We're going to be citing from the 2021 version of the World Bank Index, so our numbers will be a little better updated than the Affirmative's, but it's the same source, so it has the same standards and methods. And to be completely honest, in the 2021 World Bank Index, Long Beach and Los Angeles came in dead last on the list at numbers 369 and 370. That proves there are problems at those ports, but the question is whether lack of automation has anything to do with the cause or the solution. First…

Rotterdam, Netherlands, port is completely automated and is the model for full automation

Hellenic Shipping News 2022 (shipping industry journal) 26 July 2022 " A West Coast port worker union is fighting robots. The stakes for the supply chain are high" (accessed 24 Sept 2022) https://www.hellenicshippingnews.com/a-west-coast-port-worker-union-is-fighting-robots-the-stakes-for-the-supply-chain-are-high/

In 1993, the Dutch port complex in Rotterdam became the first to introduce machine automation and has since become the model for a fully automated terminal. Today, several of the busiest foreign ports in the world have some degree of machine automation, including those in Shanghai, Singapore, Antwerp and Hamburg.

**END QUOTE.**

So, Rotterdam should be at the top of the index, right? Wrong. It's actually far below average at 291

World Bank Port Container Performance Index 2021 (accessed 29 Sept 2022) Table E.1 The CPPI 2021: Global Ranking of Container Ports https://thedocs.worldbank.org/en/doc/66e3aa5c3be4647addd01845ce353992-0190062022/original/Container-Port-Performance-Index-2021.pdf



And oddly enough, 3 of the ports AFF wants to automate to make them "better" are Philadelphia, Tampa and Baltimore, which scored 55, 61 and 76 respectively - all of them MUCH better than Rotterdam

World Bank Port Container Performance Index 2021 (accessed 29 Sept 2022) Table E.1 The CPPI 2021: Global Ranking of Container Ports https://thedocs.worldbank.org/en/doc/66e3aa5c3be4647addd01845ce353992-0190062022/original/Container-Port-Performance-Index-2021.pdf



3. Port automation projects almost always fail

In an article titled "Why Port Automation Fails" Dr. Yvo Saanen in 2020 explains all the problems that have happened whenever it's been tried so far

Dr. Yvo Saanen 2020. (Managing Director and Founder of TBA, a leading terminal design and simulation company in The Netherlands) APRIL 2020 (accessed 24 Sept 2022) " Why port automation fails" https://tba.group/en/insights/papers/why-port-automation-fails

In June 1993 an ECT/ Sealand partnership at Rotterdam Delta Terminal opened the world’s first “robotized” terminal. Transport between quay and stack was conducted almost entirely by Automated Rail Mounted Gantry cranes (ARMGs) and Automated Guided Vehicles (AGVs). Since then over 1,100 driverless stacking cranes are reported to have gone into operation worldwide and over 35 automated terminals have been launched ([PEMA](https://www.tocevents-europe.com/content/dam/Informa/toc-events-europe/presentations/tech-toc-presentations-/the-pema-papers/Automatic_Stacking_Crane_Performance.pdf)). The transition has been a steep learning curve, and with years of hard-won experience under the belt, port operators, analysts and executives have begun to understand the realities and challenges of automation far better. A lack of software and technology standardisation, mismanaged market expectations, labour disputes, lower than expected productivity and initial terminal under-performance have hallmarked almost every port automation project.

Details on multiple reasons why port automation projects fail

Dr. Yvo Saanen 2020. (Managing Director and Founder of TBA, a leading terminal design and simulation company in The Netherlands) APRIL 2020 (accessed 24 Sept 2022) " Why port automation fails" https://tba.group/en/insights/papers/why-port-automation-fails

At TOC EUROPE 2015, Frank Tazelaar, at the time managing director of APM Terminals MVII terminal in Rotterdam, himself at the time at the pointy end of their automated terminal development, spoke about the APMT approach in Maasvlakte II: a best-of-breed, mix-and-match style of procurement (World Cargo News 4/2015) where the terminal operator itself acts as an integrator, managing the efforts of a disparate group of vendors – automated equipment manufacturers, software and sensor vendors, TOS suppliers, and integrators. APMT approached this once more in similar fashion in their terminal in Tanger, albeit with different vendors and a different operating model. What remains with the mix & match model is the need to integrate, almost on a project-by-project basis, which is inherently complicated and time-consuming.
Problem two: data, data, data
This is only the tip of the iceberg. The tantalizing promises of digitalization cannot be realized without data – accurate, diverse and clean – not to mention as much of it as possible. Persistent problems regarding data and knowledge sharing, accessing shipping and transport data, co-ordination with regard to platform development, and a “closed-source” mindset to developing port technology not only create serious delays in implementing port automation but more significantly cramps [innovation](https://www.mdpi.com/2199-8531/5/2/30/pdf). Even the [World Economic Forum](https://www.weforum.org/agenda/2019/05/global-trade-identity-can-be-the-cornerstone-of-paperless-trade/) got involved, with a report that chides the shipping and ports sector for its slow digital uptake, and fragmented data sources. As data is increasingly seen as the new gold, the question of who owns the data further hampers the sharing of data, since every actor in the supply chain wants to get the most out of “their” data, ignoring the greater potential of sharing.

No policy upholding the resolution ("significantly reform") can succeed. It has to be small, gradual change, to work

Dr. Yvo Saanen 2020. (Managing Director and Founder of TBA, a leading terminal design and simulation company in The Netherlands) APRIL 2020 (accessed 24 Sept 2022) https://tba.group/en/insights/papers/why-port-automation-fails

Automation succeeds when terminals approach it as a journey of incremental, but sustained change. A defined path to automation approach allows terminals, even those with ageing fleets, to begin automating. Starting with smart features, terminals can choose from a range of operator-assisting technologies. Each enhancement brings that crane closer to its automation horizon. As terminals layer smart features onto their equipment, the system grows in an organic manner, allowing operators and managers to become increasingly familiar with the way the equipment functions. Eventually, the equipment is ready for supervised operation, and automated operation.

4. Specific conditions at Long Beach and L.A. mean automation won't add any value

Link: Long Beach and L.A. have highly variable traffic volume. It's in AFF's case, but if you need evidence:

BBC News 2021 "Record backlog of cargo ships at California ports" (accessed 24 Sept 2022) 21 Sept 2021 https://www.bbc.com/news/business-58643717

Together, LA and Long Beach are the main seaborne gateway to the US, particularly for imports from China. And on Saturday a record 73 ships were stuck outside - almost twice as many as at the same time in August. Some cargo ships have been diverted because of the backlog, which is preventing thousands of containers from being unloaded. But nearby ports like Oakland do not have the capacity to deal with the volume of trade. At the Port of LA alone, the amount of cargo handled is up 30% this year so far, compared with the whole of 2020.

Fail: Ports with highly variable traffic flows do not benefit from automation

Safety 4 Sea 2021 citing a study by the International Transportation Forum. (Safety 4 Sea: **leading source of news and insight on safer, smarter & greener** shipping. ITF - an inter-governmental organisation within the OECD system; think tank for transport policy issues and organizes the annual global summit of transport ministers) 24 Nov 2021 "Automated ports generally not more productive than conventional ones, report finds" (accessed 24 Sept 2022) https://safety4sea.com/automated-ports-generally-not-more-pro

As for container terminal automation, it appears to offer benefits only under certain conditions and thus for a limited group of terminals. Namely, container terminals that face a relatively stable market with guaranteed throughput are more suitable for high levels of automation because of their regular cargo flows. On the other hand, terminals with fluctuating throughput are better served by less automation as this maintains greater flexibility. Furthermore, consolidation of carriers, the market power of alliances and the rise of mega-ships have increased peak loads, volatility of cargo flows, and transhipment. These developments require terminals to be more flexible to assure ship-to-ship connections.

5. Capital costs

High cost of capital equipment offsets the savings on labor, so automation often doesn't actually save money

Safety 4 Sea 2021 quoting a study by the International Transportation Forum. (Safety 4 Sea: **leading source of news and insight on safer, smarter & greener** shipping. ITF - an inter-governmental organisation within the OECD system; think tank for transport policy issues and organizes the annual global summit of transport ministers) 24 Nov 2021 "Automated ports generally not more productive than conventional ones, report finds" (accessed 24 Sept 2022) https://safety4sea.com/automated-ports-generally-not-more-pro

Comparatively, high handling costs also make the case for automation not entirely convincing:
"Although automation of container terminals reduces labour costs, capital costs are higher as automated equipment is more expensive than manually operated equipment. Whether or not automation has led to lower overall handling costs is place-specific."

6. More study needed

You have to study on a case by case basis to determine whether automation of any particular port is a good idea

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Terminal operators, trade unions and governments should have access to assessments of costs and benefits of port automation project proposals and their underlying assumptions. This knowledge guarantees that all stakeholders can assess the merits of the automation project based on the same evidence. Any evaluations of port automation projects should be made public. Findings will help policy makers to identify under which conditions automation could be effective.

Can't just fiat automation: You have to study it, case by case, and do it gradually. It only makes economic sense in a few cases

International Transport Forum 2021 (an intergovernmental organisation with 63 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers) “Container Port Automation: Impacts and Implications”, International Transport Forum Policy Papers, No. 96 (accessed 24 Sept 2022) https://safety4sea.com/wp-content/uploads/2021/11/ITF-Container-port-automation-2021\_11.pdf

There is no automatic success formula for container terminal automation. This has important implications for policy makers: their considerations on port automation should be based on a clear identification of costs, benefits and alternatives, facilitated by constructive social relations, and grounded in a clear understanding of ways to deal with the societal costs of automation. Fully automated container terminals do not actually exist, contrary to what common port automation terminology would suggest. Most automated systems are deployed in the container yard, only a few terminals have automated the transport between quay and yard, and no terminal has automated quay cranes. The reason for gradual uptake of port automation is that container terminal automation makes economic, financial and business sense only for a limited number of terminals and only under certain conditions.

Automation only benefits certain ports under certain conditions

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Container terminal automation appears to offer benefits only under certain conditions and thus for a limited group of terminals. Container terminals that face a relatively stable market with guaranteed throughput are more suitable for high levels of automation because of their regular cargo flows. In contrast, terminals with fluctuating throughput are better served by less automation as this maintains greater flexibility.

7. New trends in the shipping industry make automation unprofitable

Automation is only cost-effective if a port has a steady predictable flow of cargo, but trends in the industry are the opposite: More volatility is expected

International Transport Forum 2021 (an intergovernmental organisation with 63 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers) “Container Port Automation: Impacts and Implications”, International Transport Forum Policy Papers, No. 96 (accessed 24 Sept 2022) https://safety4sea.com/wp-content/uploads/2021/11/ITF-Container-port-automation-2021\_11.pdf

Considerations on handling costs need to be placed in the current context of liner shipping: a highly consolidated industry operating with mega-ships that generate significant peaks and troughs in ports where these ships operate. Consolidation in liner shipping has resulted in a highly concentrated liner shipping industry, further highlighted by their co-operation in alliances and consortia. This has created huge market power in relation to ports, resulting in more volatility of port cargo due to carriers shifting cargo from one port to another depending on the advantages they can receive there (ITF, 2018). The introduction of mega-ships on various trade corridors, notably the Asia-Europe corridor, has resulted in more cargo peaks and troughs within the ports along these corridors. Automated ports could make sense in ports with a regular and steady flow of containers, but this is much less the case in ports with volatile and peak-and-trough cargo flows. In those situations relying on dock labour is actually more cost-effective, as labour can be organised more flexibly to meet the irregularity of port cargo flows, especially in ports that have labour pools.

8. 24/7 won't solve

Union Pacific tried 24/7 port operation in Long Beach and Los Angeles, but it didn't accomplish much

Lisa Baertlein 2021 (journalist for Reuters news service) 21 Oct 2021 (accessed 24 Sept 2022) Union Pacific says 24/7 California port operations no quick fix https://www.reuters.com/world/us/union-pacific-says-247-california-port-operations-no-quick-fix-2021-10-21/

Union Pacific Corp [(UNP.N)](https://www.reuters.com/companies/UNP.N) - one of two major railroads that haul cargo inland from the backed-up Los Angeles and Long Beach seaports - handled just a few dozen more containers after switching its nearby cargo terminal to 24/7 operations, Chief Executive Lance Fritz said on Thursday. The railroad's Intermodal Container Transfer Facility (ICTF) last week added roughly 20 hours in the early mornings on Sunday and Monday to take the facility to round-the-clock operation. The move supported the [Biden Administration's plan](https://www.reuters.com/world/us/biden-cite-progress-unsnarling-supply-chain-meeting-with-labor-industry-2021-10-13) to ease snarls at the Southern California ports that process roughly 40% of the container cargo that enters the country. But so far, it hasn't made a big dent.

Even if the port is open all night, trucks won't show up to move stuff out of the port

Washington Post 2021 (journalist David J. Lynch) 13 Oct 2021 " As supply chain troubles mount, Biden touts longer hours for L.A. port" (accessed 24 Sept 2022) https://www.washingtonpost.com/business/2021/10/13/biden-port-los-angeles-supply-chain/

The administration says the giant companies will set an example that will spur others to follow. But longer working hours at the neighboring ports, which operate as a single complex under dual management, will matter only if trains, trucks and warehouses all do the same. Already, truckers have been reluctant to show up at the Long Beach port during the 3 a.m.-to-7 a.m. slot known as the “hoot” shift — named for the hoot owl — because they have nowhere to take containers at that hour.

9. No fiat power

The President cannot simply command ports to stay open or improve their operations

Washington Post 2021 (journalist David J. Lynch) 13 Oct 2021 " As supply chain troubles mount, Biden touts longer hours for L.A. port" (accessed 24 Sept 2022) https://www.washingtonpost.com/business/2021/10/13/biden-port-los-angeles-supply-chain/

[The White House](https://www.washingtonpost.com/business/2021/09/24/supply-chain-biden-ports-backlog/?itid=lk_inline_manual_39) is eager to demonstrate progress on a vexing host of supply chain snarls. Yet officials note that the cargo carriers, ports, terminal operators, trucking lines and warehouses involved are almost entirely private-sector entities, leaving the president with little power to command immediate improvement.

DISADVANTAGES

1. Lost jobs

Port automation guarantees job losses

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Container terminal automation has undoubtedly resulted in job losses for dockworkers. According to Prism Economics and Analysis (2019), labour reductions at various terminals that were automated amounted to 40-50% at the TraPac terminal in Los Angeles, 50% at Patrick’s terminal in Sydney and up to 85% at the automated terminal in Qingdao.

Automation is already raising costs and losing jobs in Long Beach, California

[Michael Sainato 2022 (contributor to The Guardian and a journalist based in Gainesville, Florida) 10 Aug 2022 "AUTOMATION AND THE TRADE DEFICIT ARE DECIMATING US PORTS" (accessed 24 Sept 2022) https://therealnews.com/automation-and-the-trade-deficit-are-decimating-us-ports](file:///C%3A%5CUsers%5Cshagg%5CDropbox%5CS23%20Editorial%20%281%29%5CVance%20work%20folder%20-%20not%20for%20publication%5CMichael%20Sainato%202022%20%28contributor%20to%20The%20Guardian%20and%20a%20journalist%20based%20in%20Gainesville%2C%20Florida%29%2010%20Aug%202022%20%22AUTOMATION%20AND%20THE%20TRADE%20DEFICIT%20ARE%20DECIMATING%20US%20PORTS%22%20%28accessed%2024%20Sept%202022%29%20https%3A%5Ctherealnews.com%5Cautomation-and-the-trade-deficit-are-decimating-us-ports)

For shipping companies, automation degrades the number of workers and the labor unions that represent dockworkers, and with that the economic benefits those jobs and their income yield for nearby communities. An estimated 572 full-time jobs at the Ports of Los Angeles and Long Beach were lost in 2020 and 2021 to automation. Meanwhile, profits for the global shipping industry soared during the pandemic to over $190 billion in 2021, as the rate to ship a 40-foot container increased from less than $2,000 in 2019 to as much as $20,000 in 2021.  Rebecca Schlarb, a third generation dock worker at the Port of Long Beach, has seen dozens of jobs disappear to automation over the years since she started working there in 1991. She now works on a fully automated terminal.

They've already started automating Long Beach and L.A., and they're already losing jobs

Dr. Daniel Flaming and Patrick Burns 2022. (Flaming - President, Economic Roundtable; PhD in urban studies; formerly worked for Los Angeles County, coordinating delinquency prevention, managing community development and affordable housing programs, and administering job training and research programs Burns - senior researcher, Economic Roundtable; public policy researcher specializing in labor market dynamics, industry change and urban geography.) (accessed 24 Sept 2022) "SOMEONE ELSE’S OCEAN" 29 June 2022 https://economicrt.org/publication/someone-elses-ocean/

Four percent of global container terminal capacity has been automated. This includes Long Beach Container Terminal (LBCT) at the Port of Long Beach and Trans Pacific Container Service Corporation (TraPac) at the Port of Los Angeles. A conservative analysis of job loss shows that automation eliminated 572 full-time-equivalent jobs annually at LBCT and TraPac in 2020 and 2021.

The whole automation goal is to replace workers - if not, there's no point to it

International Transport Forum 2021 (an intergovernmental organisation with 63 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers) “Container Port Automation: Impacts and Implications”, International Transport Forum Policy Papers, No. 96 (accessed 24 Sept 2022) https://safety4sea.com/wp-content/uploads/2021/11/ITF-Container-port-automation-2021\_11.pdf

The higher the local labour costs, the higher the potential savings from automation, provided that automation actually replaces workers. This is one of the reasons why most of the port automation projects have been implemented in high-wage countries: in low-wage countries, automation projects simply make less sense in terms of cost savings. Reduction of labour costs only takes place insofar as automation actually reduces the workforce. This might seem trivial, but automation projects can be overly optimistic about this.

Jobs and economic impact of port workers should outweigh other considerations

Dr. Daniel Flaming and Patrick Burns 2022. (Flaming - President, Economic Roundtable; PhD in urban studies; formerly worked for Los Angeles County, coordinating delinquency prevention, managing community development and affordable housing programs, and administering job training and research programs Burns - senior researcher, Economic Roundtable; public policy researcher specializing in labor market dynamics, industry change and urban geography.) (accessed 24 Sept 2022) "SOMEONE ELSE’S OCEAN" 29 June 2022 https://economicrt.org/publication/someone-elses-ocean/

The share of purchases by dockworkers at local businesses as a share of all purchases by all wage earners amounts to 13 percent in San Pedro, 9.4 percent in Wilmington-Harbor City, and 1.3 percent in the City of Long Beach.
RESPONSIBILITY TO CALIFORNIA RESIDENTS
Ports must provide public benefits that offset their negative impacts on port cities in order to be true to their public trust. Jobs are the most fundamental benefit, beginning with jobs on the docks and extending to manufacturing industries with export capabilities. Ports need to be community managers acting in the public interest, and able to bridge the demands of parties beyond the port by providing innovative transport solutions for California firms and by protecting jobs linked to the ports. The ports are a key hub in an extraordinary international transportation infrastructure for distributing goods. This valuable locational advantage should be used to stimulate manufacturing growth in California and safeguard jobs in port communities.

Additional Impact: Social costs. Laid-off workers don’t pay taxes (cost #1) and end up on welfare (cost #2)

International Transport Forum 2021 (an intergovernmental organisation with 63 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers) “Container Port Automation: Impacts and Implications”, International Transport Forum Policy Papers, No. 96 (accessed 24 Sept 2022) <https://safety4sea.com/wp-content/uploads/2021/11/ITF-Container-port-automation-2021_11.pdf> (the European writer of this article uses the words "social security" to refer to what we call welfare benefits in the USA)

The social costs of port automation are often ignored. These include social security expenses (in case of redundancies) and tax revenues foregone (when port workers are replaced by machines). Most people get income from work and personal income tax revenues are generally higher than corporate tax revenues. Therefore the personal tax income lost due to the replacement of a worker by a machine is in many cases not compensated by higher corporate tax revenues. There can be additional tax income related to the profits that the manufacturing of automated equipment generates, but these are generated in the countries where the equipment is manufactured, which is often not where the worker is replaced by the machine. The social costs of automation will naturally be disregarded by the stakeholders that benefit but should be taken into account by governments in their decisions on port automation.

2. Delays and bottlenecks

Automated ports completely shut down if one thing goes wrong, while manual operations could work around it

[Michael Sainato 2022 (contributor to The Guardian and a journalist based in Gainesville, Florida) 10 Aug 2022 "AUTOMATION AND THE TRADE DEFICIT ARE DECIMATING US PORTS" (accessed 24 Sept 2022) https://therealnews.com/automation-and-the-trade-deficit-are-decimating-us-ports](file:///C%3A%5CUsers%5Cshagg%5CDropbox%5CS23%20Editorial%20%281%29%5CVance%20work%20folder%20-%20not%20for%20publication%5CMichael%20Sainato%202022%20%28contributor%20to%20The%20Guardian%20and%20a%20journalist%20based%20in%20Gainesville%2C%20Florida%29%2010%20Aug%202022%20%22AUTOMATION%20AND%20THE%20TRADE%20DEFICIT%20ARE%20DECIMATING%20US%20PORTS%22%20%28accessed%2024%20Sept%202022%29%20https%3A%5Ctherealnews.com%5Cautomation-and-the-trade-deficit-are-decimating-us-ports) (brackets added)

“The most substantial problem I see, specifically with Long Beach Container Terminal in their automation, is that there’s limited flexibility in the delivery,” said [Long Beach dock worker Rebecca] Schlarb. “It’s easier to move around and adjust for equipment breakdowns on a conventional terminal than it is on an automated terminal when it’s isolated and locked down.” She explained that when a crane or another piece of automated equipment breaks down, it completely halts cargo movement or traffic until it’s manually fixed rather than in a traditional operation where it would be isolated.

Automated ports have experienced outages and bottlenecks caused by lack of flexibility

International Transport Forum 2021 (an intergovernmental organisation with 63 member countries. It acts as a think tank for transport policy and organises the Annual Summit of transport ministers) “Container Port Automation: Impacts and Implications”, International Transport Forum Policy Papers, No. 96 (accessed 24 Sept 2022) https://safety4sea.com/wp-content/uploads/2021/11/ITF-Container-port-automation-2021\_11.pdf

Another assumption of automatising ports is that it would increase reliability, as automated terminals would be able to work constantly, without interruption, even when it is dark. This argument has also increased in relevance recently when port workers in several ports contracted the coronavirus, which reduced the labour capacity of certain ports. On the other hand, various automated container terminals have witnessed challenges with malfunctioning automated equipment, resulting in breakdowns, accidents or irrational routing that slowed down operations. Automation provides less flexibility to deal with unexpected circumstances, such as peaks and troughs related to ever-larger container ships.

3. Labor relations disaster

Link: AFF fiats how, when and where automation will happen and even voids existing labor contracts to make it so

That's what their mandates say. But that's bad because…

Impact: Instant automation without gradual phase-in and input from labor destroys productivity by alienating the workers

Dr. Yvo Saanen 2020. (Managing Director and Founder of TBA, a leading terminal design and simulation company in The Netherlands) APRIL 2020 (accessed 24 Sept 2022) https://tba.group/en/insights/papers/why-port-automation-fails

Port workers and their unions are not foolish or under-informed. The logic is immutable: if the sector or the business suffers, so does job-security. However, managing the transition from strength to skill, from manual to automated and from mechanical to digital requires, well, a human touch. Cautionary tales abound in the automotive sector, none more so than the infamous [Lordstown](https://qz.com/1510405/gms-layoffs-can-be-traced-to-its-quest-to-turn-people-into-machines/%22%20%5Ct%20%22_blank) strikes that befell General Motors in the early 1970s. GM had just launched the world’s most mechanized assembly line, featuring amongst other technologies 26 welding robots. Critically, the company did not view these developments as a chance to ease the significant workload of assembly line workers and simply insisted that alongside the technology the line could proceed to produce 100 cars a day (60 cars a day being the industry benchmark at the time). It’s fair to say a catastrophe ensued: sabotaged cars recalls and $40 million in lost output. What’s interesting though is that in the aftermath, interviewers and analysts discovered that the workers did not have either a problem with the robots or indeed with their pay – in today’s terms Lordstown workers were earning over $28 per hour. The problem, as quoted by one of the strike leaders at the time was, “There’s more to it—how I’m treated. What I have to say about what I do, how I do it.” The opportunity to add thought to one’s job, to master a new skill or puzzle out a challenge remains what makes our work-life interesting, on the production line, in the crane cabin and behind a keyboard. Automated ports will always still require the skills, insights, enthusiasm and experience that so many current workers can bring to the table. Additionally, automation and other associated developments can create a more challenging, dynamic, interesting and ultimately satisfying work-life. Communicating deeply and often about such changes was very-well handled by Hamburg Port, who would regularly [include](https://www.hafen-hamburg.de/downloads/media/dokumente/HHM_POHH-Magazin-1-13-eng_V4.pdf) all workers in the port’s thinking and strategy.