Singapore: building a port customers could trust

Country case / Review draft / Evidence cut-off 7 October 2026

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A decision case for Sri Lanka's next maritime investment

MacroLens Research | Research cut-off: 7 October 2026 Original case analysis, not a Harvard Business School publication. Historical evidence with a present-day decision. Proposals are analytical judgments, not official targets.

Abstract

Singapore's port strategy offers Sri Lanka a case in coordinated execution, not a blueprint for copying megaprojects. The country committed early to containerisation, joined trade agencies through TradeNet, separated maritime regulation from a corporatised terminal operator, and expanded capacity through successive investments. Its Tuas project combines consolidation, automation, industrial proximity, and workforce training. Official throughput figures show commercial scale, but do not identify how much each policy contributed. Congestion during the Red Sea disruption exposes the limits of even a mature hub and the value of spare capacity and coordinated arrivals. Colombo already has a substantial container business and expanding terminals. Its next gains should be tested through service reliability, interoperable information, transparent concessions, and logistics services that retain income locally. Large investments require credible demand, affordable financing, environmental safeguards, and measurable benefits. The lesson is to build a dependable operating system around the port before treating capacity as prosperity.

Opening: a record port, and ships still waiting

In May 2024, Singapore faced an uncomfortable test of its hub strategy. Ships diverted around Africa were arriving in bunches. The Maritime and Port Authority (MPA) reported that, where arrival schedules could not be adjusted, container vessels waited about **two to three days** for a berth. Most container vessels still berthed on arrival; the delay figure was conditional, not the average for every ship. [S7]

Singapore reactivated older berths and yards at Keppel, added workers, coordinated arrivals with shipping lines, and moved to commission new Tuas berths sooner. MPA reported weekly container-handling capability increasing from **770,000 to 820,000 TEUs**. These were reported capabilities, not an audited estimate of additional traffic caused by the measures. [S7]

The country did not abandon its new port. It also did not behave as though a new port made spare capacity, workers, or coordination unnecessary.

Colombo experienced congestion during the same disruption. Its choice is more specific than whether to "become Singapore": after adding terminals, how can Sri Lanka turn capacity into dependable service and durable domestic income? [S10]

1. The Sri Lankan decision

Ports are a closer comparison than Singapore's savings or exchange-rate arrangements. Colombo already serves container shipping and transshipment customers. Singapore also depends heavily on onward cargo: MPA reported that around **90% of its 2024 container throughput** was transshipment. [S5]

The case compares operations and investment choices, not whole national development models. The countries do not have interchangeable geography, capital, labour markets, or shipping networks. A port customer can compare turnaround, missed connections, charges and onward services; this gives Sri Lanka a concrete learning problem.

Assume a policymaker must choose the emphasis of the next maritime package:

- Further physical expansion based on projected traffic.
- A port-wide reliability and information programme around existing and new terminals.
- A broader maritime-services strategy alongside terminal operations.

Case judgment: make reliability the immediate organising priority, complete commercially justified capacity already underway, and develop adjacent services selectively. This is sequencing, not an argument against infrastructure.

The case does not estimate project returns. That requires terminal-level costs, traffic commitments, concession terms and financing assumptions not established here.

2. The original problem: location was not enough

In a retrospective account at Tuas's opening, the Prime Minister's Office records the decision to build Tanjong Pagar Container Terminal in **1966**, followed by its opening in **1972**. It describes containerisation as an uncertain bet requiring large capital outlays. [S1]

The strategic problem was how to remain useful when shipping technology changed. Standardised containers required compatible equipment, terminals and processes. Singapore subsequently expanded at Keppel, Brani and Pasir Panjang; Tuas moved the strategy toward consolidation of container operations. [S1, S4]

Two ideas recur: anticipate the next operating requirement, and coordinate the services around it. Historical records establish decisions and stated intent, not what would have happened without them. Success afterward cannot prove the original bet was optimal.

3. What Singapore did, and when

Date	Action	Significance and evidence limit
1966; 1972	Tanjong Pagar decision; terminal opening.	Prepared for containerisation. Official retrospective chronology, not a contemporary investment appraisal. [S1]
1989	TradeNet launched.	National single window for import, export and transshipment documentation. Shared processing matters more than a shared website. [S2, S12]
2 February 1996	MPA formed, consolidating maritime regulatory functions.	Created a common regulatory institution. Its independent effect is not quantified. [S3]
1997	Corporatised PSA Corporation received an MPA public licence to provide port facilities and services.	Distinguished regulator from operating corporation. Corporatisation does not establish private ownership or competitive market structure. [S3]
2012	Tuas consolidation plan announced.	Connected capacity, land use and terminal configuration. [S4]
February 2015; November 2021	Phase 1 reclamation began; reclamation completed.	Long delivery lead time. [S4]
December 2021; 1 September 2022	First Tuas berths operated; official opening.	Staged delivery. Opening was not completion of the entire project. [S4]
May-July 2024	Older capacity reactivated, workers added, arrivals coordinated and commissioning accelerated.	Contingency operations alongside long-term consolidation. [S7, S8]
August 2025	All bunker suppliers had implemented digital bunkering, according to MPA.	Adoption evidence, not a net-return evaluation. [S6]

TradeNet: unify the transaction

Singapore Customs describes a single declaration submitted to relevant agencies, application tracking, and a common reference number. Applications can be approved, pending or rejected; digitisation does not remove regulatory checks. [S12]

Analytical lesson: a portal cannot fix incompatible agency data, duplicate submissions or separate physical approvals. The useful design feature is a transaction that retains its identity and status across agencies.

No current numerical permit-speed claim is used. Older official promotional estimates have insufficiently clear observation dates and scope for a present-day comparison. Permit processing is also not total cargo dwell time.

Tuas: capacity inside an operating model

MPA describes a staged project designed for **65 million TEUs of annual capacity at completion in the 2040s**. This is a future target, not current throughput. Its stated model includes remote automated equipment, electrified yard transport, digital vessel coordination and proximity to western industrial districts. The opening speech describes worker retraining. [S1, S4]

Mechanism hypothesis: these investments complement one another. Automation needs maintenance skills; capacity needs scheduling; industrial proximity needs workable access. The evidence does not quantify those complementarities.

The undated Tuas page still carries old near-term commissioning expectations. This case uses its broad design and long-horizon target, not those expectations as proof of October 2026 completion status.

4. Measured outcomes, not a causal verdict

Exhibit A. Official port volumes

Indicator	Singapore	Colombo
Calendar 2024 container throughput	41.12 million TEUs [S5]	7,792,069 TEUs, later official baseline [S9]
Calendar 2025 container throughput	44.66 million TEUs [S6]	8,291,178 TEUs [S9]
Growth, 2024 to 2025	8.6%, officially reported [S6]	6.4%, desk calculation
Calendar 2024 transshipment share	Around 90% [S5]	No verified comparable full-year share used here

Desk calculations: Colombo growth is (8,291,178 / 7,792,069 - 1) x 100, rounded. Singapore's 2025 volume was **5.39 times** Colombo's: 44,660,000 / 8,291,178. A scale comparison is not a target.

TEUs are twenty-foot-equivalent container units. Throughput counts handling activity, not unique shipments or national value added. These are different port systems and calendar-year totals, not evidence about current 2026 volumes.

Source reconciliation: SLPA's January 2025 release gave the 2024 Colombo total as **7,782,776 TEUs**; its January 2026 release used **7,792,069 TEUs**. The desk-subtracted difference is **9,293 TEUs**. CBSL PULSE 2025 supports the latter total rounded to thousands. The sources do not explain the change. This case consistently uses the later baseline rather than silently mix it with an earlier terminal breakdown. [S9, S10, S13]

Beyond containers

MPA reported **56.77 million tonnes of marine fuel sales in 2025**, estimated annual business spending of around **S$5 billion** by key maritime companies, and more than **200 international shipping groups**. These show a wider business base, but are not GDP, exports, government revenue or net domestic income. [S6]

Singapore achieved substantial commercial scale alongside institutional and operational adaptation. The evidence is consistent with complementary investments supporting its position, but does not isolate TradeNet, Tuas, corporatisation, location, network advantages or regional trade growth. No policy-specific GDP or throughput multiplier is justified.

Record annual traffic can coexist with periods of poor service. Both must be measured.

5. Why the system appears to have worked

These explanations separate documented arrangements from hypothesised mechanisms.

A credible capacity path

The strategy ran through successive expansions and staged consolidation. Singapore's July 2024 parliamentary reply said Pasir Panjang would remain operating until at least **2040**, preserving capacity through the Tuas transition. [S1, S8]

Hypothesis: shipping lines are more willing to organise networks around a hub they expect to remain usable as ships and volumes change. A published expansion path can help, but delivered service must earn confidence. This case cannot measure that effect.

Common rules and accountable operations

MPA consolidated regulation; PSA's licence identified an operating corporation. TradeNet supplies a common declaration platform. [S2, S3]

Hypothesis: clear responsibilities and shared information reduce coordination failures. Copying Singapore's exact legal structure is not proven necessary. Sri Lanka needs to test whether its arrangements provide transparent regulation and commercially accountable operations.

A wider service proposition

Singapore's strategy connects ports to industry, training, documentation and bunkering. Its fuel business and maritime-company spending indicate services beyond the container lift. [S1, S4, S6]

Hypothesis: services delivered around a port call increase usefulness and opportunities for local income. Poorly chosen services or subsidies can instead consume capital. Gross spending cannot settle the balance.

Workers inside technological change

Official accounts give examples of retraining for remote equipment and describe training partnerships and data-skills programmes. These establish programme design and implementation, not the total effect on wages, displacement or productivity. [S1, S6]

Hypothesis: maintenance and operating skills make new technology usable. Sri Lanka's test should be sustained uptime and a workable labour transition, not novelty of equipment.

6. What went wrong, and what does not transfer

Congestion exposed vulnerability

In July 2024, the transport ministry reported about **90% of container vessels arriving off-schedule**, versus about **77% in 2023**. These percentages describe vessel scheduling, not transshipment shares. [S8]

The response needed old assets, people and coordination. The ministry reported improved average waits that month, but did not supply a comparable numerical before-and-after series in the cited reply. This case cannot calculate a delay reduction or assign it to one measure.

A successful reference country does not make a megaproject low-risk

Tuas requires reclamation, specialised equipment and a long transition. The selected sources do not establish its final financial return, optimal scale or full lifecycle environmental impact. [S4] Sri Lanka must independently test demand, foreign-currency exposure, debt service, environmental effects and alternative uses of capital.

Networks cannot be ordered into existence

Colombo can improve service but cannot compel shipping lines to preserve routes. CBSL warns that location alone may not preserve Sri Lanka's position as competing regional ports develop. [S10] Singapore's established network is an outcome to study, not an input Sri Lanka can assume.

Automation is not an employment guarantee

Official accounts emphasise better jobs and retraining, but do not establish total worker displacement or the distribution of benefits. [S1, S6] Sri Lanka should prepare workers and measure outcomes, not promise every automated function produces a better-paid replacement.

A single window needs implementation, not announcements

Sri Lanka's WTO notification records **31 December 2030** as the definitive implementation date for the single-window measure. Progress reported on **24 September 2025** referred to a blueprint, implementation arrangements and remaining funding and technical needs. [S11]

This is notification evidence, not a live October 2026 audit of every agency. It supports verifying integration, not claiming Sri Lanka has no electronic systems.

7. What Sri Lanka can take: conditions before imitation

CBSL describes Colombo congestion emerging from May 2024 and subsequently easing. It reports initial CWIT operations beginning in late February 2025, and a rebound from May 2025 supported by added capacity. Its **15 million TEUs capacity projection for end-2026** is a forecast, not confirmed installed capacity or actual traffic. [S10]

The next problem is how to make the expanded system work together.

A. Make reliability a port-wide product

Proposal: agree a shared operating compact across SLPA, terminals, vessel services, shipping agents and relevant regulators. Name an accountable owner for delayed berthing, missed feeder connections, yard bottlenecks and documentation holds.

Conditions: consistent event data, suitable commercial confidentiality, fair scheduling rules and a regulator able to identify non-performance without favouring a terminal.

Limits: coordination cannot create physical capacity during an extreme surge. Averages hide severe delays; report distributions and disruption periods.

B. Build interoperable transactions, not another portal

Proposal: trace a real shipment through approvals; remove duplicate submissions where lawful; reuse transaction identifiers and expose status across agencies.

Conditions: recognised electronic approvals, common data definitions, audit trails, cybersecurity, reliable fallback procedures and trained staff. Build on national single-window work rather than create a competing system.

Limits: gateway customs clearance and transshipment operations are distinct workflows. Faster permits do not automatically improve berth waits or feeder connections. Preserve safety, revenue and biosecurity controls.

C. Add capacity only when the commercial test passes

Proposal: assess the next expansion against service and sustained demand, not a port-size ranking.

Conditions: credible customer evidence, independently reviewed forecasts, full operating and maintenance costs, competitive procurement, transparent concessions and affordable foreign-currency exposure. Stress-test route changes, weaker traffic, delays and financing costs.

Limits: private participation does not remove public risk if guarantees or foreign-exchange commitments shift downside to the state. Capacity is not revenue; revenue is not net domestic value.

D. Develop adjacent services with paying buyers

Proposal: test bonded logistics, cold-chain handling, repair support, documentation services or quality-assured marine supplies before large public incentives.

Conditions: lawful bonded arrangements, workable land access, utilities, skills, safety standards and customers willing to pay sustainable prices.

Limits: Singapore's fuel volumes are not a Sri Lankan market forecast. Tax concessions cannot replace service quality; imported inputs are not automatically domestic value added.

E. Match automation to a local bottleneck

Proposal: identify the constraint before buying equipment or software. Assess a full operating cycle, including maintenance and outages.

Conditions: technicians, spare parts, power quality, vendor support, procurement scrutiny and a funded worker-transition plan.

Limits: labour markets and terminal layouts change the economics. A narrow intervention may deliver the same service gain as full automation at lower cost.

8. Decision sequence and measurement discipline

This is a proposed sequence, not an official programme or committed timetable.

Establish the baseline. Reconcile traffic definitions and revisions; measure terminal and port-wide service. Separate gateway traffic from transshipment and routine operations from disruptions.

Run an operational pilot. Select an identifiable bottleneck and willing participants. Define success first, record labour and technology costs, and compare with suitable unaffected operations where possible. Seasonality and route changes can confound a simple before-and-after comparison.

Scale after the test. Expand what improves customer outcomes at acceptable cost. Appraise major construction separately; a successful digital pilot does not prove every port investment pays.

Exhibit B. Suggested MacroLens monitoring panel

Measure	Unit and definition	What it tests
Berth waiting	Hours from arrival to berth; median and tail percentile; container vessels separately	Reliability during routine and disrupted arrivals
Vessel turnaround	Hours with fixed start/end events and vessel segment	Whether capacity becomes service
Connection failures	Missed planned connections relative to eligible movements	Transshipment usefulness
Cargo dwell	Hours by gateway/transshipment category and hold reason	Terminal or regulatory constraints
Equipment availability	Available operating hours relative to scheduled hours	Maintenance and automation economics
Effective service cost	Currency per defined movement, including relevant mandatory charges	Whether gains carry an unaffordable price
Domestic income/public exposure	Net service receipts, payroll/local sourcing and guarantees; specify currency and period	Local benefits after costs and risks

No numerical targets are assigned without verified baselines. Throughput should sit beside reliability, costs, retained income and public exposure.

9. Discussion questions

- If Colombo traffic rises while connection reliability worsens, has the strategy succeeded?
- Which bottleneck needs infrastructure, which agency reform, and which operator coordination?
- What evidence justifies the next berth, and what traffic loss makes it uneconomic?
- Who receives expansion's upside, and who bears foreign-exchange and demand risk?
- Which adjacent service has paying customers without permanent subsidy?

Conclusion

The transferable lesson is not "build Tuas." It is to treat a port as a continuing promise: capacity, rules, skilled people and coordinated services must remain usable when shipping technology and schedules change.

Colombo already has customers and growing terminals. Sri Lanka should turn that base into more dependable service and measure the income retained locally. Bigger assets should follow a demonstrated commercial and financial case, not substitute for one.

Primary-source register

All links inspected on 7 October 2026. Government records establish what institutions reported; promotional explanations are not independent causal findings.

S1. Prime Minister's Office, Singapore. Tuas opening speech, 1 September 2022. Historical decisions, intended industrial links and workforce examples.
https://www.pmo.gov.sg/newsroom/pm-lee-hsien-loong-at-the-official-opening-of-tuas-port/

S2. Singapore Customs. TradeNet, undated. Launch year and single-window role.
https://www.customs.gov.sg/doing-business/quick-links-for-traders/tradenet/

S3. MPA. MPA's Milestones, undated historical chronology. Regulatory consolidation and PSA licence. https://www.mpa.gov.sg/who-we-are/about-mpa/mpas-milestones

S4. MPA. Port of the Future, undated project page. Tuas design, staging and future annual capacity. Old near-term expectations are not used as current completion evidence. https://www.mpa.gov.sg/maritime-singapore/port-of-the-future

S5. MPA. Strong growth momentum for Maritime Singapore, 15 January 2025. Calendar-2024 throughput, transshipment and operational response. https://www.mpa.gov.sg/media-centre/details/strong-growth-momentum-for-maritime-singapore

S6. MPA. Singapore Posts Record Port Performance in 2025, 13 January 2026. Calendar-2025 volumes, fuel sales, estimated business spending, digital adoption and training. https://www.mpa.gov.sg/media-centre/details/singapore-posts-record-port-performance-in-2025-and-develops-future-readiness-through-industry-collaborations-for-2026

S7. MPA. Extended waiting times statement, 30 May 2024. Conditional delays and reported weekly capability. https://www.mpa.gov.sg/media-centre/details/in-response-to-media-queries-on--vessels--extended-waiting-times-for-berths-in-the-port-of-singapore

S8. Singapore Ministry of Transport. Parliamentary written reply on cargo congestion, 2 July 2024. Off-schedule shares, reactivation and transition policy. https://www.mot.gov.sg/news-resources/newsroom/written-reply-to-parliamentary-question-on-adequacy-of-singapore-s-seaports-to-anticipate-and-manage-severe-cargo-congestion/

S9. Sri Lanka Ports Authority. Colombo's 2025 record, 1 January 2026. Annual 2025 traffic and later 2024 baseline. https://news.slpa.lk/index.php/2026/01/01/port-of-colombo-records-historic-high-of-8-29-million-teus-in-2025/

S10. Central Bank of Sri Lanka. PULSE 2025, section 2.5/Table 5. Covers 2024 and ten months ending October 2025. SLPA-sourced data, congestion, CWIT opening and capacity forecast. https://www.cbsl.gov.lk/sites/default/files/cbslweb_documents/publications/economic_and_social_infrastructure_digest_2025_e.pdf

S11. World Trade Organization TFA Database. Sri Lanka Article 10.4. Implementation date and progress notification G/TFA/N/LKA/5, 24 September 2025. Not a live operational audit. https://tfadatabase.org/en/members/sri-lanka/technical-assistance-projects/article-10-4

S12. Singapore Customs. What You Need to Know about TradeNet, updated 3 August 2026. Transaction identities, agency processing and statuses. https://www.customs.gov.sg/doing-business/quick-links-for-traders/tradenet/what-you-need-to-know-about-tradenet/

S13. Sri Lanka Ports Authority. Early 2024 throughput release, 1 January 2025. Earlier count retained to disclose difference from later baseline. https://news.slpa.lk/index.php/2025/01/01/slpa-records-all-time-high-of-2-41-million-teus-in-2024-amidst-competition/