SOUTHEAST ASIA AND AUSTRALIA INSIGHTS

MANUFACTURING EXCELLENCE: UNLOCKING THE VALUE POTENTIAL IN THE SOUTHEAST ASIAN MANUFACTURING SECTOR FOR INVESTORS AND BUSINESS OWNERS

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Introduction

Manufacturing investment opportunities in Southeast Asia are on the rise, attracting keen interest from investors across various sectors. However, the potential for value creation and growth can be hindered by operational inefficiencies. To unlock substantial value and position investments for long-term success, it is essential to identify, quantify and resolve operational inefficiencies, for which, rigorous assessment and operational due diligence are important.

1 The Opportunity in Southeast Asian Manufacturing

Three factors today drive the investment potential for manufacturing companies in Southeast Asia.

The evolving dealflow landscape of Southeast Asian manufacturing

The manufacturing sector in Southeast Asia presents a compelling investment opportunity for private equity investors. From 2018 to 2022, industrial deal volume grew at a 36 per cent compound annual growth rate (CAGR),[1] driven by private equity investments. This aligns with the worldwide transition toward capital-intensive models, shaped by both structural and geopolitical dynamics. Capitalizing on the region's robust manufacturing sector presents enticing prospects for value generation and favorable investment returns.

Leveraging strong manufacturing export growth in Southeast Asia

Southeast Asia's evolving manufacturing landscape showcases robust export growth. From 2018 to 2021, the region's global manufacturing exports experienced eight per cent CAGR,[2] with its share of total exports to the U.S. and E.U. growing from 22 to 25% in the same period. Investors can capitalize on the region's manufacturing excellence and export prowess. With operational improvements and best practices, businesses can achieve sustainable growth and deliver enhanced value for investors.

Operational improvement can result in more than 20 per cent improvement of EBITDA

In short holding periods, effective strategies can drive substantial EBITDA and enterprise value growth. Key levers include margin expansion, cost efficiencies, supply chain effectiveness and working capital enhancements. Focusing on these drivers enables portfolio companies to achieve measurable results in a short timeframe. During economic uncertainty, these operation levers also help mitigate risk and have yielded EBITDA improvements exceeding 20 per cent,[3] enhancing both corporate value and profitability.

[1] MergerMarket (as of 5 Sep 2023)

[2] UN Comtrade

[3] A&M Pathway to Profitability Q&A Series

2 Key Steps to Unlock Potential Value

In our experience working with many manufacturing plants in Southeast Asia, we have encountered prominent challenges in operation expenditure (OpEx) and cash and capital expenditure (Cash & CapEx).

In OpEx, when we compare the overall equipment efficiency (OEE) of Southeast Asian plants to those in China and Japan, we consistently observe a 6-10 per cent OEE gap. This gap is driven by factors such as inexperienced labor, labor-intensive processes, frequent changeovers, and significant maintenance downtime. To effectively narrow this gap, the deployment of automation and IoT technology emerges as a critical lever for boosting labor productivity, streamlining production line automation and minimizing manual labor. This becomes increasingly vital as manufacturing operations ascend the value chain, demanding higher OEE levels to unlock synergistic benefits.

Regarding Cash & CapEx, we have observed a significant increase in inventory levels due to extended supply chain lead times and financial pressures experienced by customers. Given the dominant influence of China in the supply ecosystem, effective logistics and inventory management present notable challenges. To overcome these challenges, implementing fundamental principles such as FIFO (first-in, first-out) and JIT (just-in-time) methodologies serve as the initial step. Additionally, the adoption of digital management tools like RFID, inventory & SKU management systems can enhance inventory control.

Further, we have noticed a lack of effective CapEx management leading to underutilization of manufacturing plants and, subsequently, low return on investment (ROI). Leveraging demand sensing is crucial for optimizing asset ROI, particularly in response to fluctuating demand patterns. As customers increasingly seek smaller batch orders with faster turnaround times, the utilization of AI-based demand sensing tools in conjunction with an agile production process becomes essential for unlocking capacity potential and maximizing asset ROI.

EXHIBIT 1 | Enhancing Manufacturing KPIs: Success Stories Across Industries
(Per cent improvement from last 6–12 month baseline)

Value Levers	Key Topics (not exhaustive)	Baseline metric	Aggregated (All sectors)	E&E (incl. Semis)	Auto & Components	Chemicals	Apparel	Healthcare Eqmt & Svcs/ Medtech	F&B	Consumer Goods	Energy	Pharma	Metal, Material and Mining
Opex	Labor productivity	Throughput per headcount	3–35%	10–15%	20–35%	8–14%	11–25%	8–12%	10–20%	20–25%	3–5%	3-9%	7–15%
	Overall equipment efficiency (OEE)	OEE, % of available time	2–40%	5–10%	17–35%	2–5%	20–33%	10–15%	30–40%	12–22%	10–15%	5-15%	8–22%
	Planned and unplanned maintenance downtime	Hrs per month	4–30%	5–10%	10–17%	10-15%	4–8%	10–15%	25–30%	10–15%	7–12%	6-15%	15–30%
	Setups/ Changeovers	Hrs per month	2–20%	3–5%	8–17%	2–14%	8–17%	NA	2–7%	15–20%	NA	4–15%	8–15%
	Process cycle time	Hrs per process	3–20%	5–7%	3–8%	5–15%	6–11%	5–8%	4–8%	5–8%	NA	5–8%	5–13%
	Quality and defects	% of scrap and rework	1–40%	6–15%	30–40%	1–5%	5–9%	5–10%	11–25%	10–15%	NA	3-10%	3–8%
	Yield	Product/ raw material	1–20%	1–5%	3–9%	5–8%	4–11%	5–10%	15–20%	9–14%	2–3%	5–8%	1–5%
	Energy, utilities, other overheads	Energy and utilities unit consumption	2–28%	4–8%	3–7%	10–15%	15–28%	NA	2–5%	13–21%	NA	3-7%	7–22%
Cash & CapEx	Inventory	Inventory turnover	5–31%	5–10%	14–28%	11–16%	22–31%	8–14%	18–27%	14–28%	22–30%	8–14%	17–30%
	Return on investment	ROI = (Net profit over lifespan – initial investment) /initial investment	2–9%	2–8%	4–9%	6–8%	3–7%	2–6%	4–6%	3–7%	2–3%	6–8%	3–8%
	Turnover ratio	Revenue per asset	2–18%	2–5%	8–17%	10–15%	5–9%	3–7%	3–7%	5–12%	2–3%	4–15%	13–18%
	Asset lifespan and reliability	Asset working hrs/ asset lifespan	2–25%	4–13%	8–14%	14–25%	10–21%	5–12%	3–6%	19–25%	NA	14–25%	10–25%
	Capital budget variance	Budget – actual	2–28%	5–12%	8–14%	10–17%	11–20%	9–18%	9–17%	8–15%	2–18%	10–17%	8–28%

Having navigated the primary challenges, investors must now deploy powerful levers to address the identified issues and drive both immediate and long-term impact. We have identified a range of levers that can be effectively pulled to tackle the specific manufacturing assessment findings.

EXHIBIT 2 | Levers to Improve OpEx and Cash & CapEx KPIs

Organization | Process | Technology

Value Levers	Key Topics	Quick-Win Levers	Sustainable Success Levers
Opex	Labor productivity	• Implement standard operating procedures (SOP): Create SOPs for key process steps and train employees to follow the SOPs	• Introduce digital, e.g., light-guided assembly and automation robots/cobots, to reduce processing time and eliminate non-value-added movement
	Overall equipment efficiency (OEE)	• Implementing lean manufacturing principles helps eliminate waste, reduce lead times, and utilize lean tools such as Kanban; daily performance management to sustain the results	• Foster a culture of continuous improvement and Kaizen, encouraging employees to identify and address inefficiencies, implement small incremental improvements, and monitor KPIs to enable sustained improvement in asset OEE • IIOT deployment to track and improve OEE • AI-guided machine performance optimizationt
	Planned and unplanned maintenance downtime	• Utilize AI machine learning tools and IoT sensors to find the trends for failures, thus identifying early signs for preventative maintenance to avoid failure	• Improve crew capability for autonomous maintenance; enable operators familiar with the machine operation to conduct routine maintenance checks and activities to maximize efficiency and results • Apply analytics-enabled problem solving, e.g. to aggregate & prioritize Machine alarms
	Setups/Changeovers	• Implement SMED (Single-minute exchange of die) methodology to standardize changeover steps and prepare according to predefined procedures, enabling quicker and more efficient changeovers	• Introduce AI-based demand sensing tools to improve forecast accuracy and reduce the frequency of changeovers
	Process cycle time	• Utilize IoT motion sensors on the labor-intensive crews to conduct time-and-motion studies and eliminate non-value-added work (i.e., material transfer times, unnecessary travel)	• Improve the engineering design to optimize space utilization, material flow and in-house transportation
	Quality and defects	• Introduce digital quality management system to standardize processes,procedures and controls for quality assurance which includes defining quality standards, conducting regular audits, managing non-conformities, and implementing corrective and preventive actions	• Adapt innovated processes such as additive manufacturing in the key production process to ensure quality adherence • AI-powered optical inspection and automated in-line optical inspection
	Yield	• Reevaluate and optimize processes by streamlining workflows, reducing cycle times, and eliminating non-value-added activities to enhance efficiency	• Implement a training and skills development program, including a 1-on-1 coaching model and skill matrix, to minimize errors and enhance the capabilities of employees
	Energy and utilities	• Engaging in carbon offset programs to compensate for emissions by investing in projects that reduce greenhouse gas emissions to ensure carbon emission adherence	• Introduce heat recovery and waste management system: Capture and reuse waste heat generated during manufacturing processes, reducing energy consumption • Minimize energy spikes using predictive analytics to optimize consumption • Real-time energy data consolidation & dashboarding via IIOT
Cash & CapEx	Inventory	• Improve automation and leverage technology to improve inventory recording, flow, and processing times (e.g., barcode/RFID systems, inventory management system	• Implement AI-demand sensing tools to improve the forecast accuracy and balance the asset throughput by minimizing spikes and troughs
	Return on investment	• Optimize crew workload to reduce overhead costs and incentivize cash of exceeding production volume targets (without compromising on quality)	• Adapt digital performance management tools such as digital OEE dashboards and analytics platforms for production optimization to boost throughput
	Turnover ratio	• Strike a balance between in-house operations and outsourcing by leveraging third-party services to outsource non-value-added activities, thereby improving efficiency and resource allocation	• Maximize asset availability by strategically staffing the crews, optimizing the production schedule, and aligning with demand to increase scheduled time for higher throughput and productivity • Digital integrated business planning and dynamic production scheduling with digital twin
	Asset lifespan and reliability	• Data-driven predictive maintenance: Leveraging technologies such as data analytics, sensors and machine learning enables condition monitoring of assets in real time. By analyzing performance data and identifying early signs of deterioration or failures, predictive maintenance quality can be improved	• Enforce a standard process of asset management: Ask experts to validate the business case, collect feedback from maintenance on the asset lifetime and collaborate with vendors to effectively managed the asset lifecycle • Connected devices to track and measure asset performance and lifespan
	Capital budget variance	• Accurate forecasting and planning: Conduct feasibility studies, engage multiple suppliers and define project objectives and requirements in details to improve forecasting accuracy	• Establish a supplier and vendor management department: Negotiate favorable terms and pricing agreements while establishing clear deliverables and performance expectations. Regularly monitor supplier performance, manage contracts effectively and promptly address any issues to avoid cost overruns or delays

Conclusion

With a clear focus on value creation, A&M empowers investors and management teams to implement operational levers, driving sustainable operational improvements and unlocking the full value potential of their manufacturing investments. By conducting a comprehensive assessment within one to two weeks, A&M enables the prompt kick-off of immediate impact initiatives, setting the stage for accelerated value creation.

Investors can also leverage A&M manufacturing assessment methodologies for operational due diligence work before the investment. A&M's methodologies enable investors to unveil inefficiencies, quantify their impact and implement targeted improvements after making the investment. By maximizing operational efficiencies, investors can unlock substantial value creation, bolster competitiveness and drive sustainable growth in the dynamic manufacturing landscape of Southeast Asia.

TZE YANN TAN
Managing Director

ttan@alvarezandmarsal.com

KAUSHIK SRIRAM
Managing Director

kaushiksriram@alvarezandmarsal.com

TINGFENG YE
Senior Director

tingfeng.ye@alvarezandmarsal.com

TREVOR TAN
Senior Manager

trevor.tan@alvarezandmarsal.com

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