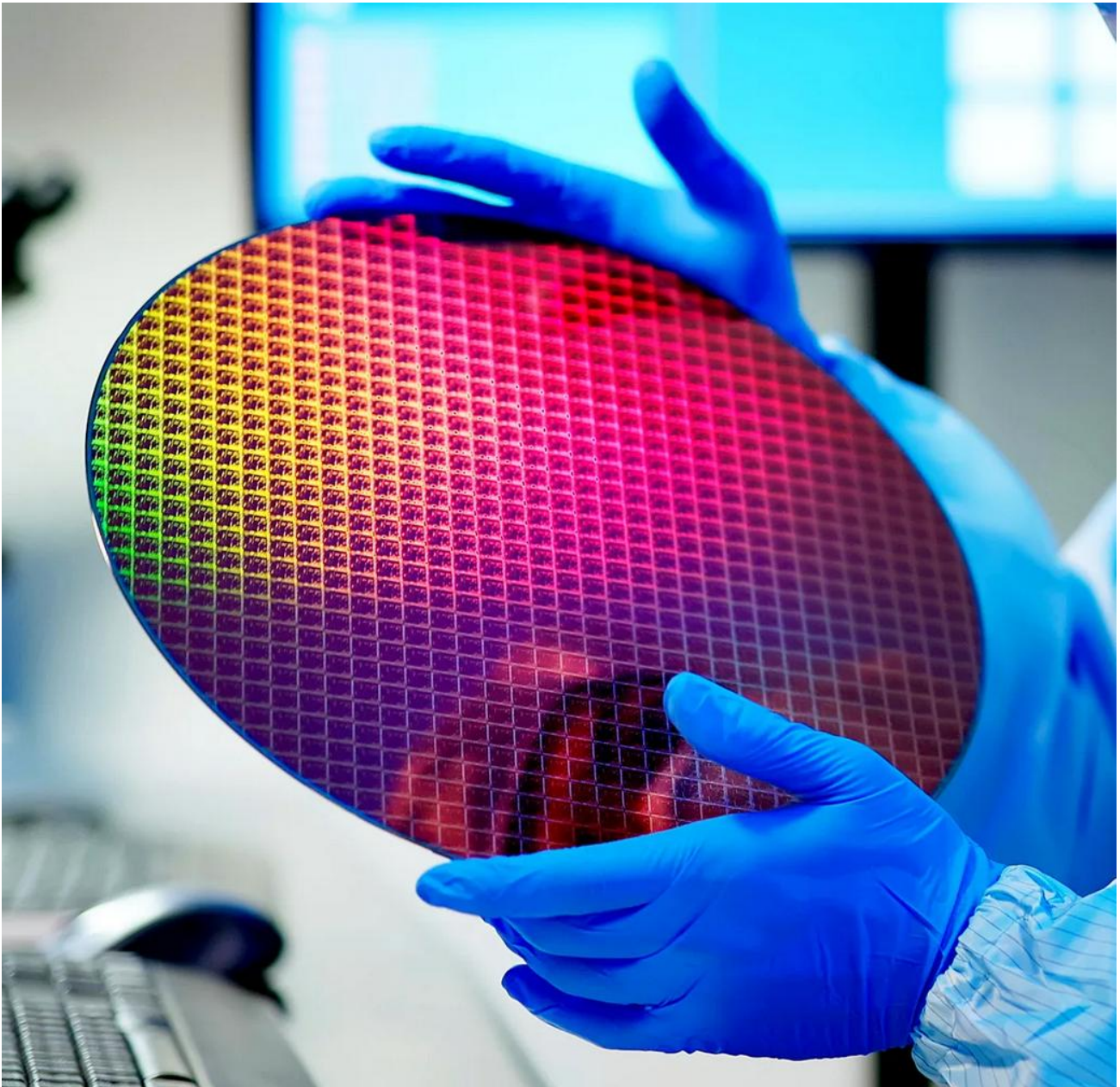


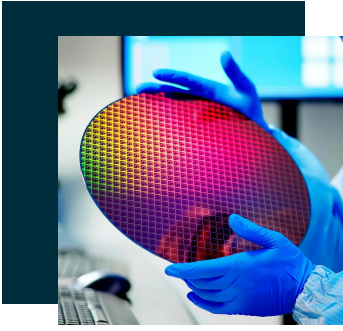
Southeast Asia: Rising Pillar in Global Semiconductor Ecosystem **Strategic Opportunities in SEA's Semiconductor Manufacturing Industry**

Semiconductors have grown to become one of the most ubiquitous components in the modern world. They are numerically the most manufactured device in human history and are the cornerstone of modern electronic devices from smartphones to industrial computing.



Building Resilient and Diversified Supply Chains

The dependence on regional manufacturing clusters and escalating US-China trade tensions threaten to increase global chip shortages once again. Building a more resilient supply chain is essential to ensuring global economic security and enabling continued innovation in the semiconductor industry.



Rising Pillar in Global Semiconductor Ecosystem Global Supply Chain Developments

The Evolution of the Semiconductor Supply Chain

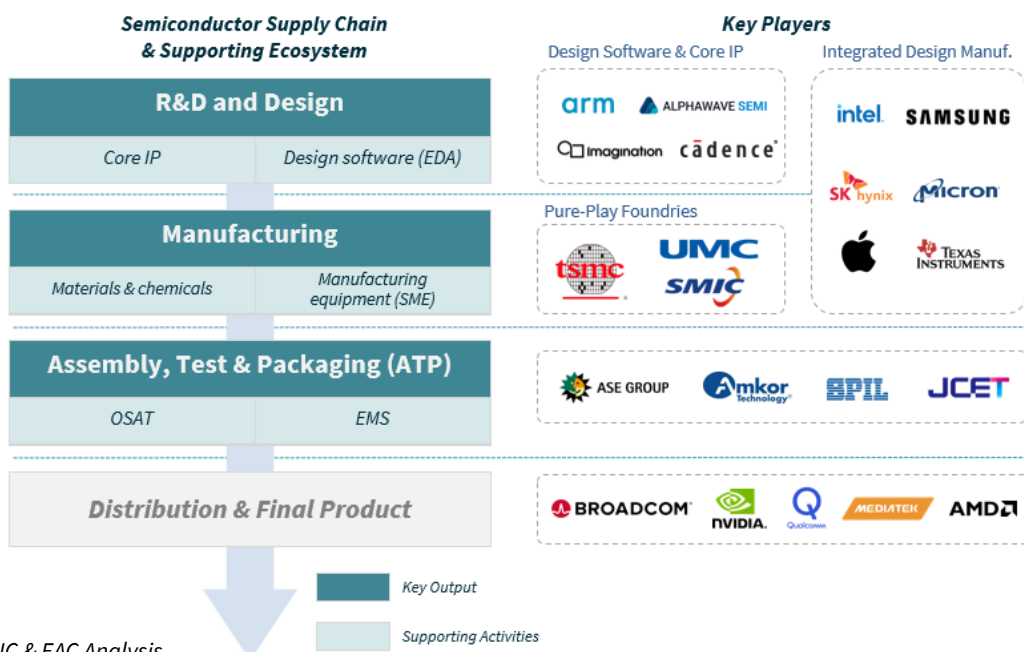
Semiconductor manufacturing involves a global network of countries and companies specializing in key inputs at every stage of production. Throughout a production lifecycle, a single chip travels across 70 countries spanning 40,000km before reaching a consumer.

In the early days of the semiconductor industry between the 1950s and 1970s, leading firms were heavily integrated into the supply chain. Texas Instruments, IBM and Fairchild Semiconductors were heavily involved in the design, fabrication, packaging and distribution of chips. This level of vertical integration allowed Integrated Device Manufacturers (IDMs) to develop their own manufacturing processes and protect their core IP, which came at the cost of significant up-front investments in leading-edge manufacturing facilities.

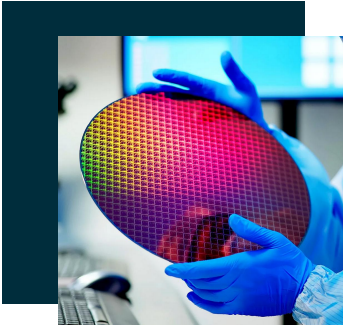
By the 1990s, the ‘fabless’ model began to gain traction due to rising costs in developing and maintaining competitive fabrication foundries. By reducing the vertical integration requirements to remain competitive, firms were able to focus on key inputs such as R&D, optimizing fabrication processes and developing increasingly advanced manufacturing equipment. This concentrated focus has driven exponential value creation across the semiconductor supply chain.

As of 30th January 2025, Nvidia and TSMC remain among the world’s most valuable companies with respective market capitalisation values of \$3 trillion and \$1 trillion, despite a combined \$570 billion market capitalisation drop in the same month triggered by the Chinese AI startup DeepSeek.

THE SEMICONDUCTOR SUPPLY CHAIN TODAY



Source: CSIC & EAC Analysis



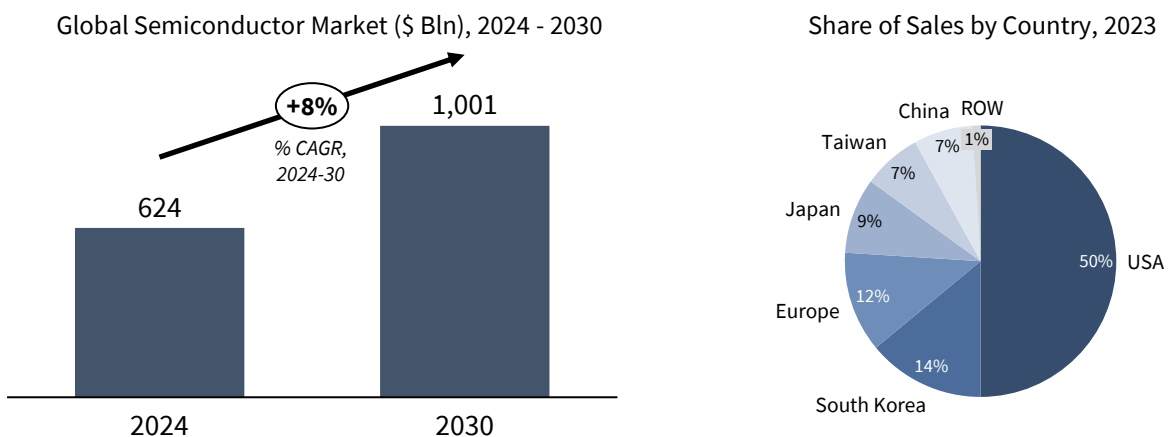
Rising Pillar in Global Semiconductor Ecosystem Industry Outlook, Key Players & Challenges

Semiconductor Market Outlook & Key Nations

Semiconductors have become essential for everyday electronics such as smartphones, televisions and personal computers, as well as for advanced technologies like medical devices, industrial equipment and communications infrastructure.

By 2030, the semiconductor market is expected to reach \$1 trillion in revenue, which will be largely attributed to logic, memory and analog segments. The US dominates the industry in technological innovation and revenue terms, with American firms investing on average 19% of revenue into R&D while capturing half of the industry’s sales. Key East Asian countries such as South Korea, Japan and Taiwan collectively capture 38% of industry revenue, with the region being a key source of raw materials, a leader in the memory chip segment, and where the most advanced chips are fabricated.

SEMICONDUCTOR MARKET DEVELOPMENT & COUNTRY CONTRIBUTION

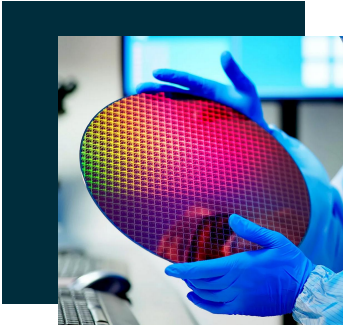


Source: Omdia (2024), Semiconductor Industry Association (2024)

Challenges & Opportunities in Southeast Asia

The surge of Artificial Intelligence across consumer and enterprise applications and the resurgence of Cloud Computing have substantially increased the demand for the most advanced chips. Meeting this demand remains a key challenge on the back of geopolitical trade tensions, global supply chain complexity, and effectively managing inventory adjustments from sudden shifts in supply and demand.

Semiconductor suppliers have begun looking towards Southeast Asia (SEA) to mitigate potential risks and reduce adverse impacts on their operations. SEA is a key manufacturing hub and major exporter of chips to the US and Europe; the region is well positioned to contribute to a more resilient semiconductor supply chain.

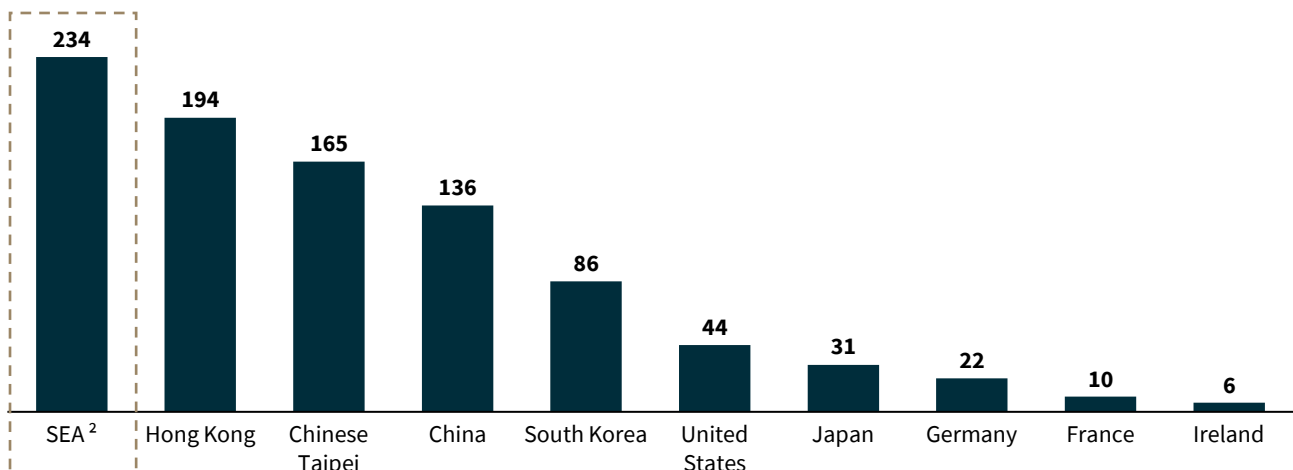


Rising Pillar in Global Semiconductor Ecosystem Push towards Supply Chain Diversification in SEA

SEA’s Pivotal Role in Global Semiconductor Trade

Southeast Asia (SEA) has quietly emerged as a key manufacturing hub for the Semiconductor industry, accounting for one-fifth or \$234 billion of global exports in 2023. Singapore and Malaysia dominate manufacturing output in SEA, driving 78% of regional export value for Integrated Circuits. Vietnam and Thailand are seeking to strengthen their position in the global supply chain, attracting investments from global firms in recent years.

SEMICONDUCTOR¹ EXPORT VALUE BY SEA & KEY NATIONS (2023), \$ BILLION



1) Exports comprising Integrated Circuits products (HS 8542)

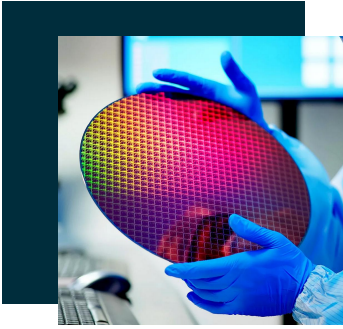
2) SEA ‘Big 6’ countries comprising Singapore, Malaysia, Thailand, Indonesia, Vietnam and the Philippines

Source: ASEAN Statistics Portal, International Trade Centre

Semiconductor Expertise in SEA

Malaysia’s Semiconductor industry has a rich background spanning over five decades. In 1972, Intel launched its first overseas production facility in Penang, Malaysia. Since then, the country has become a strategic hub for the world’s leading firms such as AMD, Lam Research, Texas Instruments and most recently, Nvidia. Historically, Malaysia’s semiconductor exports were driven by its expertise in assembly and packaging services, providing the country with a 13% share in global back-end manufacturing. In 2024, The Malaysian government announced the Strategic Semiconductor Plan to develop a more robust ecosystem, along with plans to build a dedicated R&D park to move up the value chain and attract leading design firms such as Arm and Qualcomm.

Singapore’s Semiconductor industry began in the 1960s with the establishment of Fairchild’s production facility in 1969. Over the decades, the country evolved into a major R&D and equipment manufacturing hub for the industry. Today, Singapore accounts for 11% of the global Semiconductor market making it one of the leading players in the industry and is home to over 60 semiconductor companies, including major players like GlobalFoundries, Micron, Applied Materials and ASML.



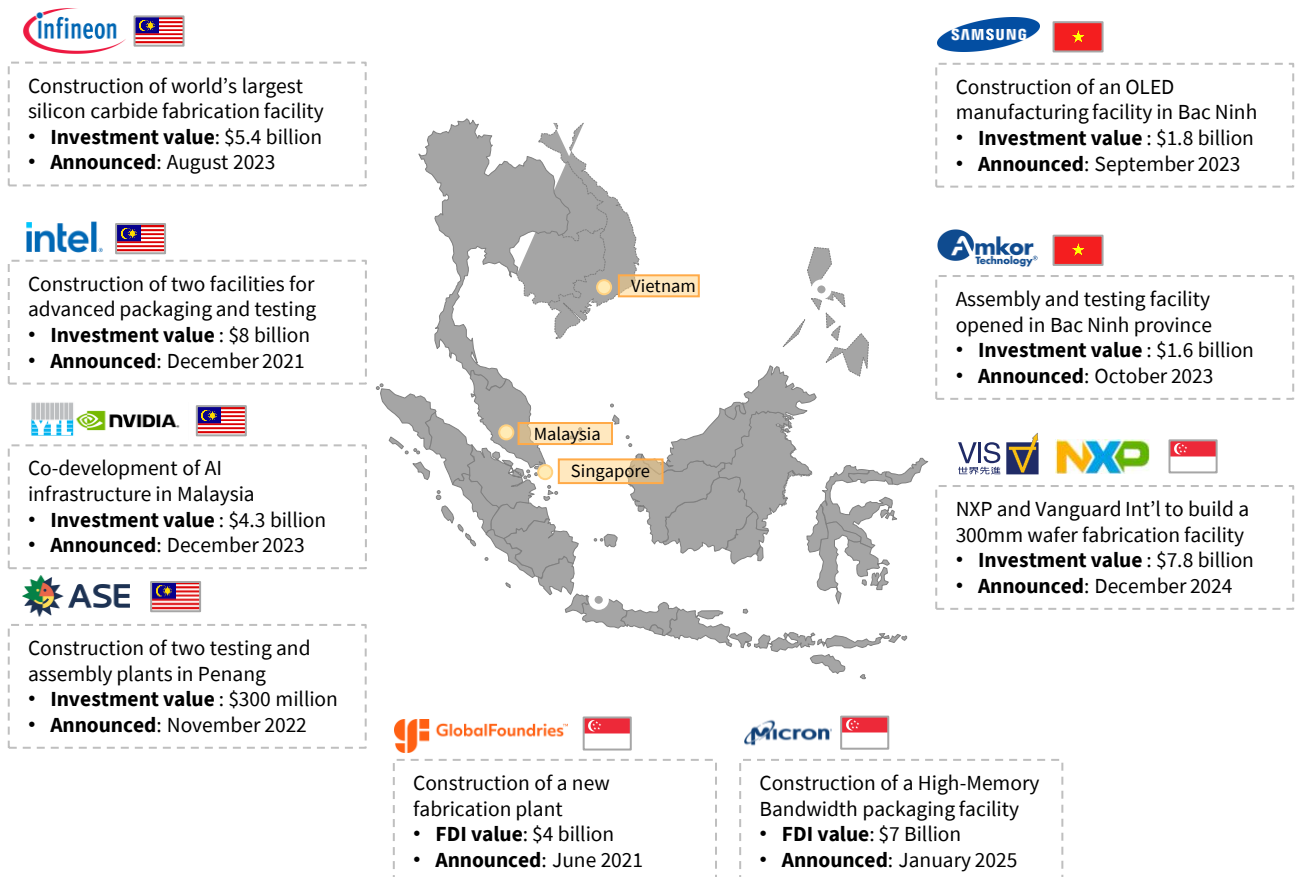
Rising Pillar in Global Semiconductor Ecosystem Big Bet: Supply Chain Diversification to SEA

Leading the Charge: Singapore, Malaysia and Vietnam

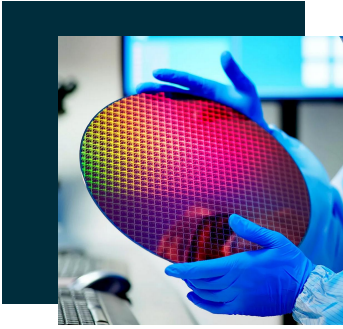
Southeast Asia (SEA) has cemented its position as a global Semiconductor manufacturing and services hub. Malaysia, Singapore, and Vietnam are driving this charge due to their strategic locations, expertise in Semiconductor manufacturing and attractive government incentives.

Malaysia has positioned itself as a neutral hub amid U.S.-China tensions, successfully drawing investments to construct advanced assembly and packaging facilities, as well as becoming a growing player in the regional Data Centre space. Singapore continues to attract substantial foreign investment, securing over \$18 billion in Semiconductor-related deals since 2021. Meanwhile, Vietnam is leveraging its low-cost labor and growing Electronics ecosystem to attract global players. Continued investments by leading firms and increasing diversification of global supply chains offer a promising outlook for Semiconductor manufacturing in SEA.

STRATEGIC INVESTMENTS IN SEA'S SEMICONDUCTOR INDUSTRY



Source: EAC Research



Rising Pillar in Global Semiconductor Ecosystem Challenges & Opportunities

Supply Chain Opportunities and Challenges in SEA

Southeast Asia holds immense potential to become an even greater player in the global Semiconductor supply chain. The region's approach to political neutrality is attracting companies looking to diversify from China, which is further boosted by an efficient workforce and a strong back-end manufacturing ecosystem that ensures shorter production cycles and reliable supply chains. Relatively affordable utilities further enhances the region's cost-effectiveness, making it a highly competitive destination for investments in Semiconductor manufacturing.

Several challenges may hinder the region's potential growth. Fragmented policies across the region create significant barriers for businesses, including difficulties in entity setup and navigating varied regulations and standards. Regional disputes in the South China Sea, which accounts for one-third of global shipping, risk disrupting vital shipping routes. The region's overall lag in high-tech chip fabrication compared to leading East Asian countries such as Japan and South Korea also restricts value chain advancement. Uneven infrastructure and logistical disparities across the region may increase both operational costs and complexity. Addressing these issues are crucial in realizing SEA's potential of becoming a global Semiconductor hub.

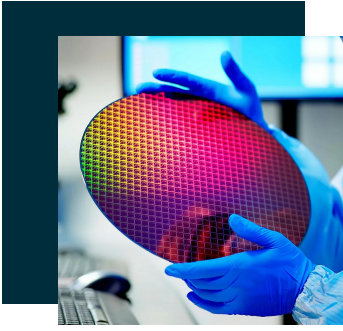
The Bottom Line: How EAC Can Help You

EAC offers comprehensive advisory services across the manufacturing value chain to help our clients thrive in Southeast Asia's dynamic Semiconductor space. Our expertise spans market analysis, competition dynamics and regulatory transparency to unlock strategic insights. Focused insights into market prioritisation, customer mapping, and optimal supply chain positioning ensures efficient and sustainable operations, further aided by the identification of local partners to set up our clients for long-term success in the region.

EAC Support Options Across the Ecosystem



- Market screening and assessment, competition dynamics and regulatory transparency
- Customer mapping and identification, including prioritised '*hunting list*'
- Supply chain optimisation and regional hub evaluation
- Location search and development of local value chain strategies
- Sales and marketing strategy, incl. after-sales service frameworks
- Regional and local partnership development incl. M&A and JV assessments



Rising Pillar in Global Semiconductor Ecosystem Recent EAC Semiconductor Projects in the Region

Over the past years, EAC has successfully conducted projects spanning from embedded computer modules suppliers to automated industrial machinery, embedded computer modules suppliers and suppliers of components for Semiconductor equipment

EAC CASE STUDIES – OUR LATEST PROJECTS



*Supporting a leading Smart IoT solution provider in **Co-operation Roadmap in SEA***

SCOPE & OUTCOME

- ✓ Assessment of underlying macro-economic growth potentials and **electronics engineering market in SEA** (Singapore, Malaysia, Thailand)
- ✓ **Comprehensive screening of potential contract manufacturing and M&A partners** with long-listing of >100 companies
- ✓ **Systematic assessment of strategic partner fit**, resulting in short-list of 60 and on-site visits of 20 players
- ✓ **Guidance in cooperation concept advisory and onsite negotiation support**



***SEA Market Entry Support**
European component supplier for semiconductor equipment*

SCOPE & OUTCOME

- ✓ **Assessment of market dynamics and customer landscape** for semiconductor industry across ASEAN countries
- ✓ **Deep-dive assessment of selected countries** in SEA and customer mapping and identification of key purchase requirements and success factors
- ✓ **Comprehensive competitive analysis** encompassing key competitors' value chain setup, product portfolio focus, strategic growth aims and focus customers
- ✓ **Market entry roadmap** incl. business entity setup, talent sourcing and local partner requirements



***Supply Chain Ramp-up SEA** for supplier of high precision parts for semiconductor manufacturing*

SCOPE & OUTCOME

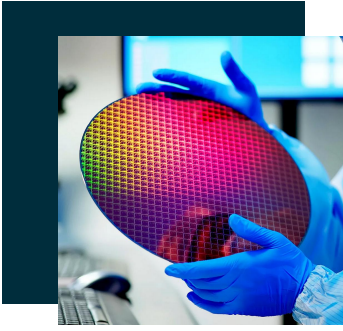
- ✓ **Systematic procurement demand assessment**, definition of technical specs and cost-saving
- ✓ **Screening and assessment of qualified supplier base for engineered components** to support ramp-up manufacturing hub Malaysia
- ✓ **Comprehensive RFQ process and on-site supplier assessment** (production, logistics, quality, process capabilities)
- ✓ **Development of integrated sourcing concept** (*local for local and local for global*) and **supplier on-boarding**



*Leading supplier of electronic components to **build-up a regional SEA assembly plant***

SCOPE & OUTCOME

- ✓ **Common ideation session to assess forward-looking value streams** and supply chain requirements
- ✓ Development of detailed **country and location requirement catalogue** for future investment
- ✓ **Assessment of prioritized investment regions** and indicative simulation of future cost structures
- ✓ **Verification available recommendation of best-fit sites** for final selection



Rising Pillar in Global Semiconductor Ecosystem Benefit from EAC's vast project experience and expertise

Contact our experts directly to explore growth opportunities for your business

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