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Rethinking supply chains in turbulent times



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The era of ubiquitous computing and AI has unleashed bulls for the semiconductor market globally, but especially in ASEAN. The region has done very well for itself in this market, growing from almost nothing two decades ago into the world's 2nd largest exporter of semiconductors with a 22% market share. The industry has driven foreign direct investment in multinational supply chains around the region, creating jobs, growth, and the potential to think about innovation based on real regional ecosystems. With production growth forecast to double to \$1 trillion by 2030, the future looks bright indeed.

But as headlines remind us every day, 2025 is definitely not the time for business as usual. ASEAN has become a growth and investment bright spot given tensions between the US and China, a youthful tech-savvy population, and relative political stability. And yet today, with a trade surplus of some \$220 billion vis-a-vis the US, ASEAN's rise to opportunity could also become a liability.

How should ASEAN, with its powerhouse semiconductor supply chain, be preparing? A recent meeting on FDI into multinational supply chains in ASEAN, convened by the United Nations Commission on Trade and Development (UNCTAD) in Bangkok, sketched an industry at a turning

While the semiconductor and electronics leaders in ASEAN—including Thailand, Malaysia, Philippines, and even Singapore—have each managed to grow their local ecosystems to capture one or two of the four essential phases of semiconductor manufacturing, each was also struggling with similar sets of issues: human capital and talent; the inability of any single country to capture all four phases of the chain and thus compete with China; and difficulty with translating multinational investment into locally-driven indigenous innovation.

The answers could be those that ASEAN is uniquely able to fulfil: to work collaboratively to join up nation-based semiconductor strategies to create synergies and a deeper regional ecosystem that fosters ASEAN-based supply chains rather than strictly national ones. To do this, one representative of a pan-ASEAN semiconductor association highlighted the importance of removing “hidden borders,” trade barriers that add complexity, administrative burden, and time to the regional flow of goods.

Truly seamless movement of goods is a standing ASEAN goal: the region has made good progress on tariffs, but there’s much potential to speed up the move towards paperless trade and the digitalisation of border processes. A commitment to doing so—for instance, in the vision to enhance the regional single window—would send a positive signal to investors looking for synergies beyond national borders.

Creating a regional supply chain that demonstrates the resilience and transparency needed in today’s trade and tariff environment requires not only the free flow of goods but also the free flow of data across borders. More ASEAN nations are aligning their national legal frameworks to the Model Law on Electronic Transferable Records (MLETR)—with Thailand’s bill being considered and Malaysia and the Philippines also making preparations. This will facilitate the transition from documents to data in trade—but the benefits can only be fully derived with a seamless flow of data across supply chains. Notably, the free flow of data is also the key to driving further efficiencies in finance and faster payments (most notably to regional suppliers) and to closing the still significant trade finance gap faced by small- and medium-sized enterprises.

These actions to remove administrative burdens at the border, digitalise border processes, and enable digitalisation across the entire supply chain could significantly boost the capacity of regional semiconductor supply chains not only towards cost efficiency but also in terms of the ability to withstand shocks and sudden geopolitical shifts. These are gains that have been proven time and again in a variety of industries and economies (see KTTDE on the frontlines for more).

Digitalisation is also key to building auditable tracks and traceability, which are needed to navigate across any border where customs officials demand to know where the good has been and in whose hands. The same data can also be a baseline for carbon accounting records that will eventually become the ticket to entry into the European market under the Carbon Border Adjustment Mechanism (CBAM).

In short, as ASEAN moves to complete its Digital Economy Framework Agreement, its supply chains also face new emerging challenges of their own, not just related to tariffs. This article touches on semiconductors, but similar scenarios are arising, whether for garments and consumer products or other highly export-intensive industries. Digitalisation won’t be the only answer, but it is definitely part of the package of tools that will be needed to navigate through these turbulent times.