

2024

P3

Lessons learned:

Semiconductor Procurement Strategy for Automotive OEMS

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P3 Insights

The semiconductor crisis of 2021 opened many eyes within the automotive industry to the significance of semiconductors, leading companies to reevaluate their procurement strategies in this unique sector. P3 supported its customers during those challenging times and effectively mitigated the impacts of the supply shortage.

Although market tensions have somewhat subsided, it remains crucial to extract valuable lessons from the crisis and embrace a strategic approach to semiconductor procurement.

Through in-depth expert interviews spanning the entire semiconductor value chain, P3 has developed a customized procurement strategy for automotive OEMs in the semiconductor market. We are thrilled to share this strategy with anyone interested in the subject.

Management Summary

Key goals of semiconductor procurement:

(1) Prevent production downtimes, (2) avert revenue losses and (3) boost innovation

Internal strategic measures:

(1) Increase chip standardization, (2) enhancing transparency, (3) hiring specialists, and (4) managing inventory

External measures:

(1) Improving forecasting, (2) enhancing supply chain transparency, (3) prioritizing supplier reliability over price, (4) diversifying the chip supply chain, and (5) adopting single sourcing for complex parts or dual sourcing for standard products

External measures that include cooperation with semiconductor producers:

(1) LTSAs (long-term supply agreement), (2) improve communication, (3) direct procurement from IDMs (integrated device manufacturers), (4) and cooperation in innovation and ramp up of capacities



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Changes in the Semiconductor Market and Procurement of OEMs

2021

Semiconductor supply chain crisis

- COVID-19 lockdowns in Malaysia, Vietnam, and Thailand, Chinese province and port closures due to COVID-19.
- Force major events like The "Ever Given" tanker blockade in the Suez Canal, snowstorms, and the Renesas fire, caused significant disruptions.
- Increase in demand of semiconductors due to progress in digitalization. E.g. digitalization of work (home office), 5G etc.
- Semiconductor producers re-allocated capacities towards other, for them more profitable industries (e.g. consumer electronics), due to order cancellations by the automotive industry, in the beginning of the crisis.

2022

Slowly back to normal

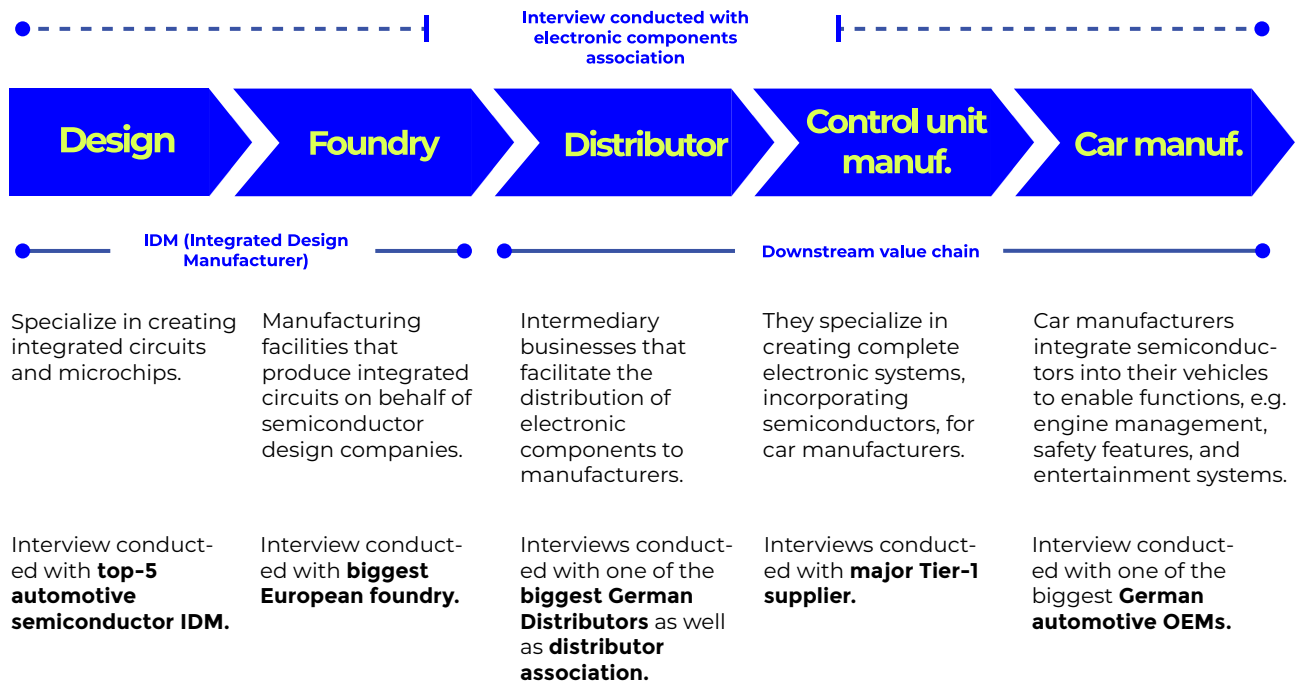
- Increase in communication between automotive OEMs and semiconductor producers to ensure supply and technological partnership.
- OEMs increased transparency in their semiconductor portfolio by approaching their Tier-1-N suppliers.
- Automotive industry is gaining more technological insights and is trying to understand the unique characteristics of the semiconductor industry further.

2023+

Strategic approach

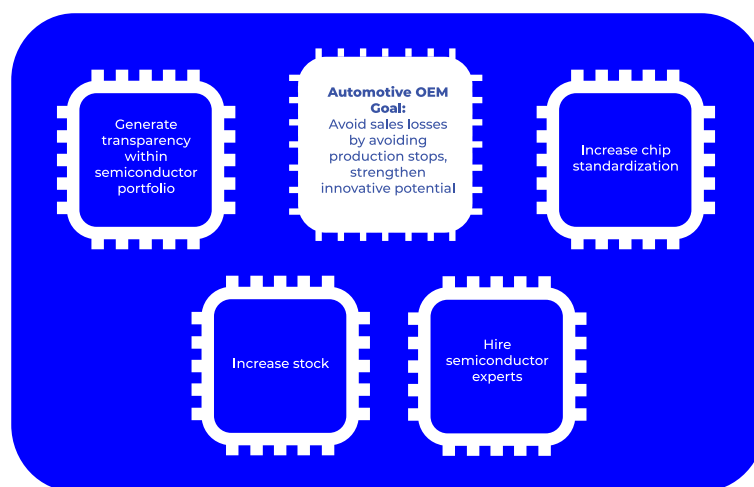
Now there is a need for a strategic approach to semiconductor procurement

What the Experts across the Value Chain are saying



Procurement Strategy – Measures Derived from Expert Interviews

Visualization of internal strategic measures

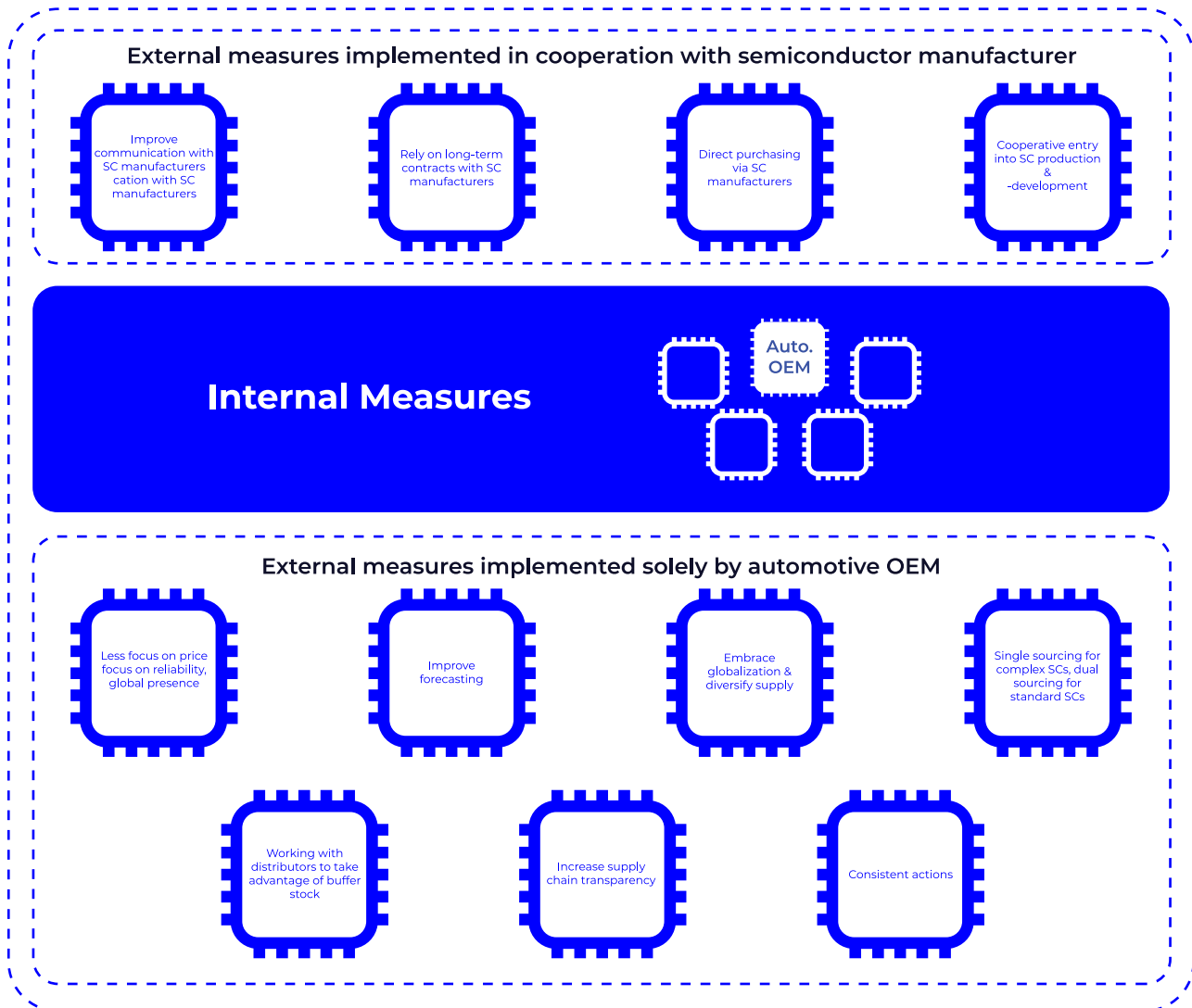


Interpretation

- The developed strategy distinguishes between internal and external measures. The four internal measures to address internal complexity are as follows:
- Increasing the standardization level of chips used by OEMs to reduce variety and, in turn, complexity within the semiconductor portfolio.
- Creating transparency in the semiconductor portfolio to improve knowledge about the components used and identify potential risks within the supply chain.
- Hiring semiconductor specialists to acquire a deeper understanding of technology and the market.
- Increasing inventory stock to enhance resiliency in the event of supply shortages.
- The aim of this set of measures is to address the organizational challenges and peculiarities of the semiconductor industry.

Procurement Strategy - Measures Derived from Expert Interviews

Visualization of external strategic measures with & w/o SC manufacturer cooperation

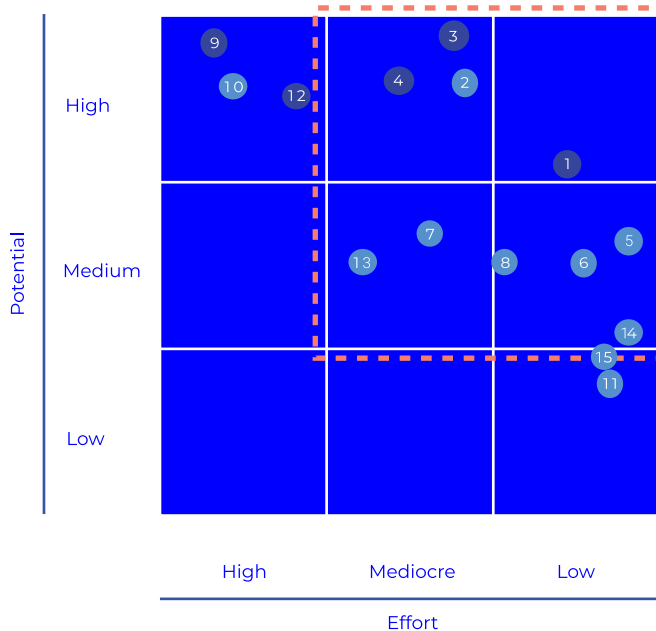


Interpretation

- Our research has identified 11 distinct external measures that vary based on cooperation with semiconductor producers, as well as measures that can be independently implemented. These measures include:
- Forming robust partnerships with semiconductor producers and embracing collaborative procurement methods to effectively manage market volatility and complexity.
- Emphasizing communication with semiconductor manufacturers, long-term contractual agreements, cooperative market entry, and direct purchasing, all of which depend on semiconductor suppliers or partners.
- Maintaining a consistent commitment to prevent system destabilization is of utmost importance.
- The implementation of these strategic measures is anticipated to enhance semiconductor procurement for automotive OEMs, thereby reducing the risk of future crises and procurement bottlenecks.

Focus Topics Evaluation

Potential-Effort Matrix



Field of Action

- 1 Increase supply chain transparency
- 2 Improve forecasting
- 3 Rely on long-term contracts with SC manufacturers
- 4 Generate transparency within semiconductor portfolio
- 5 Consistent actions
- 6 Direct purchasing via SC manufacturers
- 7 Cooperative entry into SC production & -development
- 8 Increase stock
- 9 Hire semiconductor experts
- 10 Less focus on price (supplier selection), focus on reliability, global presence & reliability
- 11 Single sourcing for complex SCs, dual sourcing for standard products
- 12 Increase chip standardization
- 13 Embracing globalization & diversifying the supply chain
- 14 Working with distributors to take advantage of buffer stocks
- 15 Improve communication with SC manufacturers

Conclusion

In today's rapidly evolving automotive industry, a comprehensive and strategic procurement approach is not merely an option, but a fundamental requirement for automotive OEMs. The acquisition of semiconductors, the lifeblood of modern vehicle technology, is a pivotal aspect of maintaining a robust and resilient supply chain that can weather the storm of global disruptions.

Our proposed measures encompass a spectrum of strategic actions that go beyond the ordinary, making them indispensable for automotive OEMs aiming to secure a sustainable future. These measures are not isolated solutions but interwoven elements that demand a synchronized integration into existing procurement and management processes.

At P3, we bring deep expertise and innovation to the forefront of semiconductor procurement strategy. We encourage you to explore our capabilities, where you'll find a wealth of insights, strategies, and advanced solutions that can empower your organization to refine and enhance your semiconductor procurement strategy.

Let's work together to push the boundaries of traditional approaches, helping your company achieve greater resilience, foster innovation, and realize lasting success. Partner with P3 as we chart the course toward the future of semiconductor procurement together.

List of Abbreviations

ECU	-	Electronic Control Unit
IDM	-	Integrated Device Manufacturer
LTSA	-	Long Term Supply Agreement
Manuf.	-	Manufacturer
OEM	-	Original Equipment Manufacturer
SC	-	Semiconductor
w/o	-	without

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