

Building World-Class Automotive Supply Chains in India

Bolstered by a dynamic industry, it is time for India's automotive manufacturers and suppliers to step up to the challenge.



The Indian automotive supply chain is expected to evolve significantly because of the dynamic industry environment and C-suite executives' changing expectations about their supply chains. While the supply chain has done a great job making products available to customers at all corners of a vast country, new competencies will be needed to ensure the supply chain becomes a source of competitive advantage for the industry.

The Confederation of Indian Industry (CII) and A.T. Kearney conducted a joint study to answer two questions: What trends will shape the future of India's automotive supply chain? And what must the industry do to grow, gain a competitive advantage, and become world class?

This report highlights the key findings. Based on A.T. Kearney's experience helping Indian automotive players transform their supply chains and interviews with C-level executives and supply chain professionals, the trends most likely to impact the automotive value chain are outlined in this report. Also discussed are the imperatives that all key industry stakeholders—including original equipment manufacturers (OEMs), suppliers, and logistics service providers—must focus on to ensure the supply chain evolves to meet or exceed world-class standards.

Finally, the report provides action steps to prepare for the future. We hope you find it interesting and insightful.

The authors wish to thank the organizers of the seminar and acknowledge the support and input from all participants who were instrumental in developing and publishing this report.

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Executive Summary

The Indian automotive industry is experiencing an interesting evolutionary phase. The long-term growth story is strong, but short-term volatility is creating an environment of uncertainty. Most global OEMs view India as a strategic market of the future, and as a result, competition is intensifying.

The automotive supply chain has a big role to play in this evolution. C-suite executives expect their supply chains to be a source of competitive advantage, which means going beyond meeting basic standards of performance such as connecting supply to demand at optimal costs. Bolstered by a dynamic industry environment, now is the time for India's automotive supply chain to evolve to world-class performance levels.

Based on A.T. Kearney's extensive experience in the Indian automotive sector and detailed conversations with C-level executives and supply chain professionals, we have identified seven industry trends that are likely to have an impact on the evolution of the automotive supply chain. We also recommend seven actions to ensure the supply chain is prepared to support growth and competitiveness.

The following trends are likely to affect India's automotive supply chain:

Long-term secular growth and volatility. While India is on course to become the world's third-largest auto manufacturer by 2020, short- to medium-term volatility in an uncertain economic environment will continue. The challenge for supply chain professionals will be to build a supply chain that is prepared to manage long-term growth but is also flexible and responsive enough to handle short-term volatility.

Escalating costs of supply chain operations. India's logistics costs as a percent of sales are at least 30 percent higher than those in China and other large automotive markets because of inefficiencies and high inflation in cost drivers such as fuel and wages, which are expected to escalate. The industry will need to contain costs to protect margins.

Increasing product proliferation. The automotive supply chain needs to gear up for the likely explosion in the number of products—from around 165 to about 300—over the next six to eight years as the market grows and customer segments evolve.

Growth of exports. Forecasted double-digit growth in exports from India in this decade, especially in compact cars, two-wheelers, commercial vehicles, and components, will require a more globally integrated and tailored value chain.

Shortage of talent to fill key roles. As supply chain functions become more strategic, the industry is likely to face a major shortage of senior professionals with strategic and functional supply chain management capabilities.

Regulatory challenges and opportunities. Impending regulatory changes around implementation of the Goods and Services Tax (GST), recall management, and sustainability will require specific competencies and a supply chain redesign.

Fast-growing aftermarket. Strong double-digit growth in the aftermarket, driven by more vehicles produced and on the road, will offer opportunities for OEMs and large suppliers.

These trends offer substantial challenges and opportunities. To reach world-class status, the industry's stakeholders will need to take several actions:

Accelerate collaboration across the value chain. While the automotive industry already has high levels of collaboration across the value chain, it is time to evolve to the next level. OEMs will need to lead efforts to achieve common goals and develop long-term win-win partnerships with other stakeholders. Enhanced collaboration will be required in three areas: improved supply planning across multiple horizons to address volatility, increased leverage of OEM-supplier strategic relationships to improve time to market and faster product scale-up, and evolved OEM-supplier partnership models to optimize inventory and throughput.

Innovate in cost management. Reaching the next level of cost efficiencies will require more focus on commercial innovations and aggressively managing idle capacity. Suppliers and OEMs will need to restructure their relationships and pricing contracts. The key will be a strong emphasis on strategic supplier relationships, which will support innovative ways to share risks through joint investments in tools and dies, tiered pricing strategies to manage the risks of fluctuating demand, and a shift to “one part, one vendor” mode to provide economies of scale. In a volatile market, suppliers must actively manage the cost pressures of underused capacity, which is the largest supply chain cost, driven by high capital intensity and high interest rates in India. Suppliers will need flexible shift-deployment strategies to contend with short-term volatility, and they will need to manage risk by building flexibility into production lines and postponing production-line investments to closer until actual needs arise.

The challenge for supply chain professionals will be to build a supply chain that is prepared to **manage long-term growth** but is also flexible and responsive enough to **handle short-term volatility**.

Proactively manage complexity. Product proliferation will drive complexity, and the supply chain will need to gear up to manage it well. The supply-planning process will need to be tailored to handle multiple-part classes in a segmented fashion. Use of sophisticated IT-driven solutions in information sharing, planning, decision support, and monitoring inventory will help address this challenge. In the long run, OEMs are expected to step up their product design and engineering processes to control proliferation-related complexity. Concepts such as delayed differentiation and late customization, modularization, commonality for features that are not visible to customers (below the skin), and portfolio complexity management will be increasingly adopted.

Develop tailored value chains and competencies for exports. To fully exploit India's export growth potential, the internal supply chain needs to be integrated with the external network. Developing a customized value chain will be essential to address complex international supply chains impacted by long planning and delivery lead times, the demands of market-specific regulatory compliance, combinations of completely built units (CBU) and completely knocked down (CKD) exports, and a need to plan based on shipping schedules. Further, there is a need to

focus on developing specific outbound CKD management competencies by creating a separate function to manage CKD strategy, assembly, and supply chain operations and evaluating options to outsource to specialized third-party logistics providers for end-to-end solutions. To increase component exports, suppliers will need to scale up their global footprint, integrate with the global network of large OEMs, and ensure quality and process consistency for parts manufactured at different locations.

Reconfigure and elevate the supply chain organization. The industry will need to rethink and promote the supply chain's role and organizational profile, with the supply chain defined and positioned as a strategic element with a clearly defined path to the executive level. Further, OEMs and suppliers will need to take proactive steps to ensure long-term skill development by providing adequate training and effective knowledge management to capture functional expertise.

Prepare for regulatory challenges and opportunities. Evolving government policies and regulations such as the GST, regulations on recall management, and sustainability initiatives will affect the supply chain. The industry needs to be prepared to invest in and redesign its supply chain to drive efficiencies after the GST is in place and conform to any legislations that focus on recall management and sustainability.

Enhance capabilities to exploit aftermarket opportunities. Going forward, we expect to see enhanced play by OEMs and large suppliers with proprietary technologies in the aftermarket. OEMs will need to develop shared goals and objectives with their strategic suppliers to enhance the performance of the aftermarket supply chain. OEM-supplier collaboration will involve aftermarket supply discussions along with original equipment (OE) parts supply, dedicated aftermarket capacity planning, win-win commercial agreements along gain-sharing principles, transparent information sharing, pipeline inventory, and ordering schedules. OEMs and suppliers will need to set up dedicated, vendor-managed spare-parts warehouses at key nodes of the network to ensure prompt, pull-based replenishment. Information generated by a robust IT system can be leveraged for stock-keeping unit (SKU) planning and inventory management. Leading OEMs and suppliers have already developed infrastructure and technology systems to track parts consumption through unique identification of mechanics and retailers and coding of spare parts. As a next step, mining this consumption data can influence supply chain reach decisions, apart from loyalty programs.

An Essential Cog in the Growth Wheel

The Indian automotive industry has seen sustained growth over the last decade (CAGR of 14 percent) and is now the sixth-largest in the world, with about 35 domestic and global OEMs competing for every percentage point of market share. The industry is going through a rapid evolution in terms of shorter product life cycles, new customer segments, and demands from customers who want more product choices.

The value chain is also maturing. Today's CEOs and COOs view the supply chain as a strategic function that should deliver a competitive advantage. These new expectations, coupled with evolving industry dynamics, are triggering a transformation.

In this paper, we look at the trends that will affect the automotive supply chain and identify the best ways to pursue growth and competitiveness.

Trends Impacting India's Automotive Supply Chain

Seven industry trends are reshaping the country's automotive supply chain (see figure 1).

Long-term secular growth and volatility

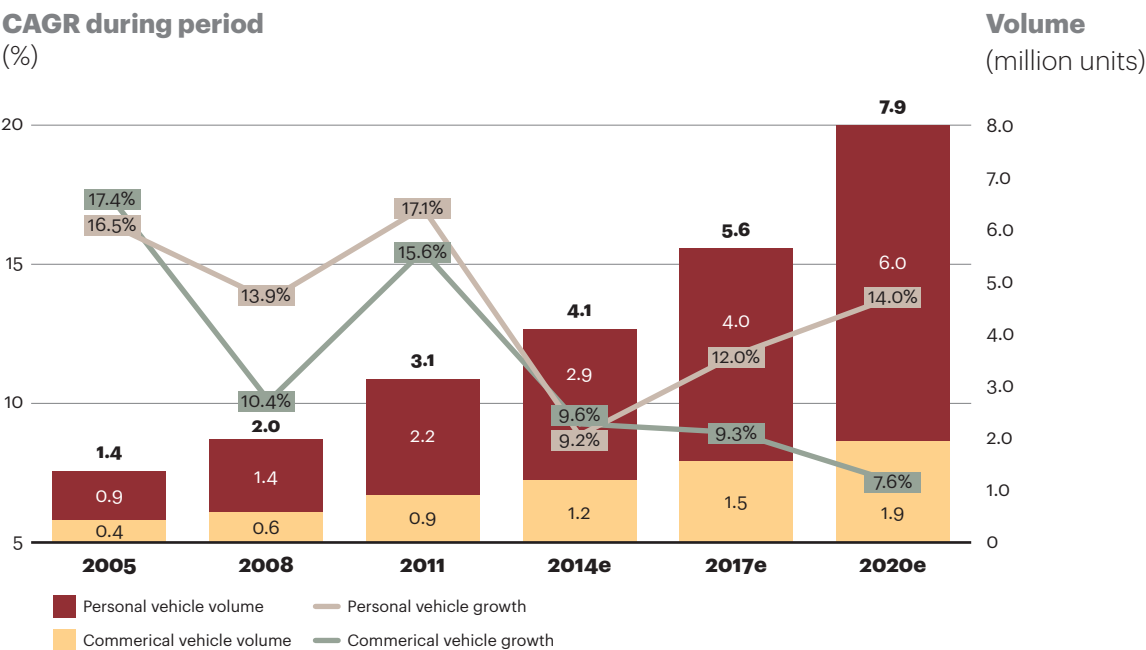
India's automotive industry is expected to emerge as the third largest in the world by 2020, with strong growth potential. Production volumes are expected to increase from 20.7 million units in 2013 to 36.4 million units by 2020, at a CAGR of about 8 percent. However, short- to medium-term demand will continue to be volatile amid prevailing economic uncertainty (see figure 2). As the head of procurement at a leading OEM said, "Volatility is the biggest problem in today's environment." Volatility erodes the value of forecasting, production planning, and scheduling and creates problems with under- and overcapacity.

Figure 1
Seven trends will transform India's automotive supply chain



Source: A.T. Kearney analysis

Figure 2
India's automotive demand will continue to be volatile



Note: numbers are rounded

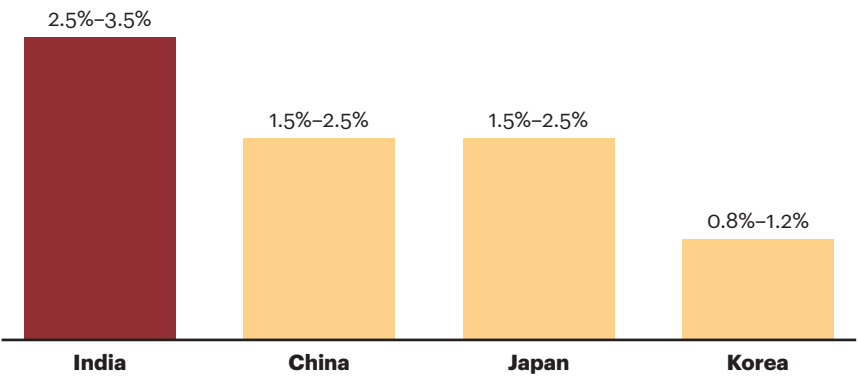
Sources: IHS Global Insight; A.T. Kearney analysis

Escalating costs of supply chain operations

The cost of logistics has a big impact on the supply chain because of India’s predominant use of road transport. Logistics costs as a percent of sales are about 1 to 1.5 percent higher than in other Asian markets (see figure 3). Fuel and wages, which drive up road transport costs, are expected to increase (see figure 4).

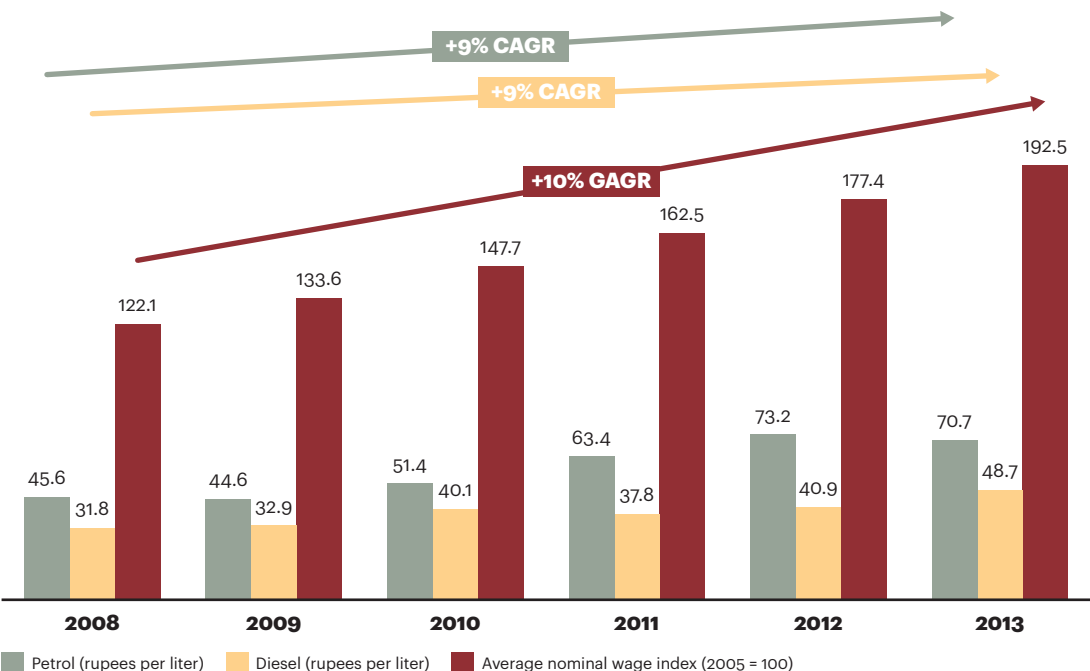
Figure 3
Logistics costs are high for India’s automotive supply chain

Logistics costs as % of sales



Sources: Annual reports; A.T. Kearney analysis

Figure 4
Rising fuel prices and wages will drive up automotive logistics costs



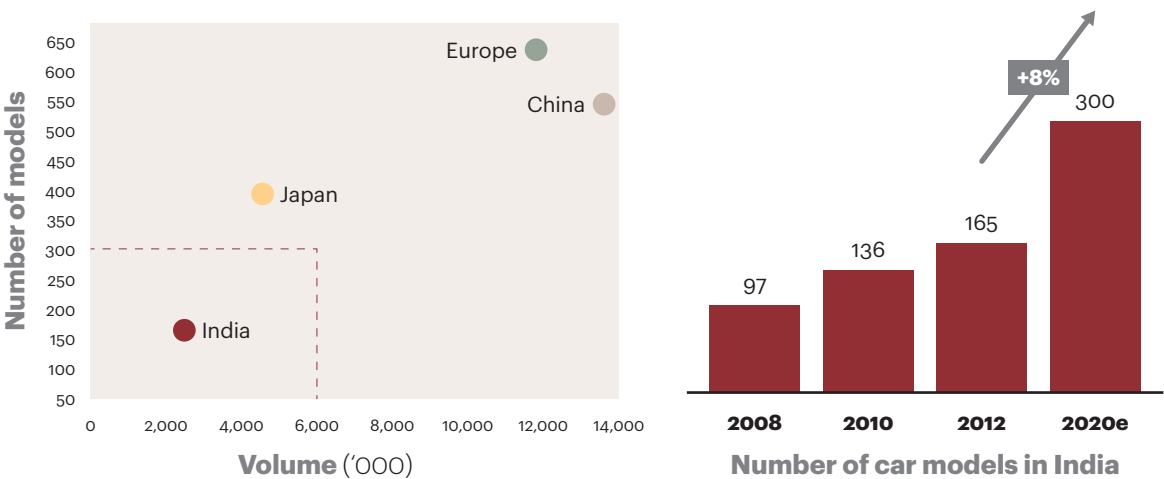
Sources: Reuters, Economist Intelligence Unit; A.T. Kearney analysis

“The key challenge for the supply chain going forward will be the ability to manage costs,” said the CEO of a leading auto component supplier. “There is an almost 10 to 15 percent anticipated year-on-year cost increase in logistics, driven by rising fuel prices and driver unavailability.” Because of stiffer competition, automotive companies will find it hard to pass these increases on to buyers. Proactively managing costs will help protect margins.

Increasing product proliferation

India is seeing a rise in the number of car models, and this is expected to nearly double by 2020 (see figure 5). This trend will be driven by three factors:

Figure 5
The number of car models in India is expected to skyrocket



Sources: IHS Global Insight; A.T. Kearney analysis

- Changing customer demographics and expectations: Sharper customer segmentation will be needed to tap into the potential of new segments (for example, the Renault Duster compact sports utility vehicle and the Maruti Ertiga multipurpose vehicle). Shorter replacement cycles for personal vehicles will mean more frequent platform refreshes and variant launches, and commercial vehicle customization is expected to grow with higher penetration of OEM-developed fully built vehicles and modularization capabilities.
- Increasing competition: Multinational OEMs will enter and expand in India, building on their successful product launches in other geographies. To compete, they often offer variants with differentiated positioning.
- Coexisting older platforms: Differing emission norms for various parts of the country makes withdrawing models with older powertrain specifications difficult for fear of eroding market share. And unique customer characteristics in India often lead to the co-existence of older, successful platforms alongside new variants. For example, the Maruti 800 continued to exist alongside the Alto for years despite both models addressing similar customer segments.

The industry will need to proactively manage the complexity that comes with product proliferation.

Growth of exports

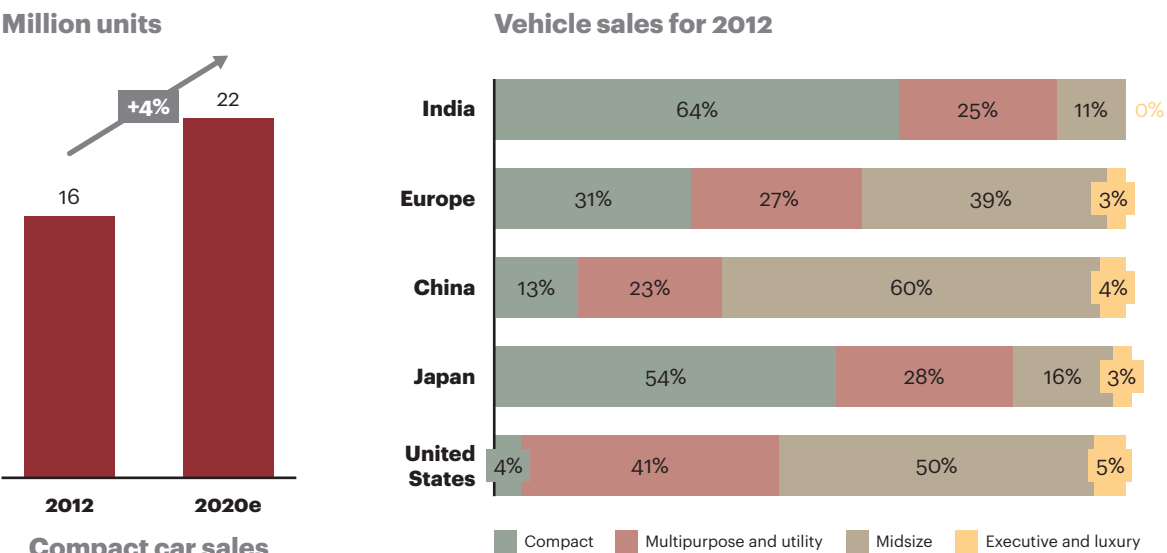
India has seen strong export growth in vehicles and components. Export volumes have grown at 19 percent CAGR, from one million units in 2007 to 2.9 million in 2013, more than doubling in almost seven years.

This trend is expected to continue, due in large part to growth in compact cars and two-wheelers and exports for commercial vehicles and OEM components. Factors that will continue to make India an attractive manufacturing location for global markets are the low cost of product development and manufacturing, proximity to fast-growing Asian and African markets, open policies, strong intellectual property protection, and a maturing component industry.

“Global OEMs are treating India as an export hub for the future,” according to the head of international business for a leading OEM. “At the same time, domestic OEMs are also harboring significant export ambitions.”

Growth in the compact-car segment will be driven by an increase in global opportunities and India emerging as a hub for competitive manufacturing (see figure 6).

Figure 6
Compact car sales are expected to rise



Sources: IHS Global Insight; A.T. Kearney analysis

India already has a competitive design and manufacturing ecosystem for commercial vehicles and two-wheelers, which will continue to drive exports.

Strong growth is also expected in components exports as the supplier ecosystem evolves to support India’s emergence as a global manufacturing hub. The country exported components worth \$9 billion in 2013, and this is expected to reach \$25 billion by 2020 at a CAGR of 15 percent. Growth will also be bolstered by entry and expansion plans announced by most large, multinational, tier 1 suppliers in India. An enhanced, tailored supply chain for exports will be required to realize the market’s potential.

Shortage of talent to fill key roles

The evolution of the supply chain as a strategic function will elevate its role. Key positions will require professionals with well-rounded business management and functional capabilities. Unfortunately, the industry is constrained by the availability of supply chain professionals. To make matters worse, the industry struggles to attract and retain talent, regardless of the pay level, because many prospective employees find the fast-moving consumer goods industry more attractive, according to the CEO of a leading auto component supplier. This talent shortage is expected to become even more acute given the expected growth in the scale of operations for most major OEMs and suppliers.

Regulatory challenges and opportunities

Regulations around the GST, product recalls, and sustainability are likely to have major implications for the supply chain. Implementing the new tax will require redesigning the supply chain from “tax optimized” to “operationally optimized.” Given the rise of product recalls, legislation of the recall-management process is expected, which will impact the reverse logistics side of the supply chain. Sustainability is another concern. The good news is that automotive industry initiatives are largely in line with global initiatives, with many businesses already focusing on sustainability. However, more stringent regulations are expected, and the industry will need to prepare to comply.

Fast-growing aftermarket

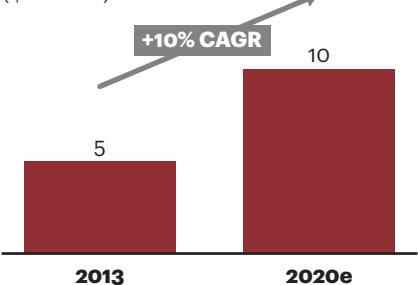
India’s automotive aftermarket is expected to grow at 9 percent CAGR to reach \$10 billion by 2020, led by strong growth in vehicle sales and large vehicle parc (see figure 7).

This offers an interesting opportunity for OEMs and suppliers. “OEMs will increase their focus on the aftermarket,” a senior executive at a large commercial-vehicle OEM said. “They are pushing to rapidly enhance reach and promote their own dealers and authorized service centers.” Indian OEMs, especially in the commercial vehicles segment, have not yet exploited the aftermarket potential as much as their global peers. Aftermarket revenues as a percent of sales are typically 7 to 10 percent for Indian commercial-vehicle OEMs, as opposed to 20 to 25 percent in North America and 26 to 34 percent in Europe.

Figure 7
India’s automotive aftermarket is expected to double by 2020

Aftermarket business growth

(\$ billion)



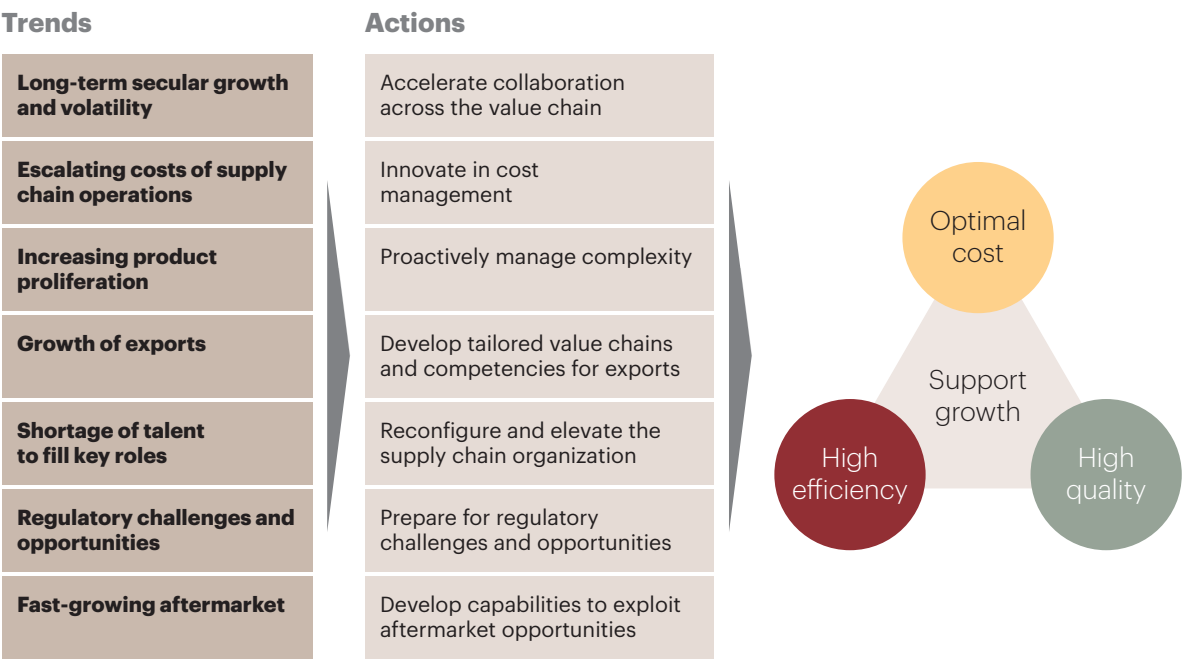
Sources: Automotive Component Manufacturers Association of India; A.T. Kearney analysis

More sophisticated products, extended warranties, and higher penetration of authorized service centers will enable enhanced OEM play in the aftermarket. Large component suppliers with a strong current aftermarket presence and proprietary technology, such as Bosch and Lucas-TVS, are likely to continue focusing on the aftermarket, while many other component players may prefer to let OEMs manage the aftermarket if they are suitably compensated for such exclusivity through differentiated pricing for aftermarket supplies. This type of pricing will be essential to support lower batch quantities, diverse packaging needs, and requirements for distribution infrastructure such as warehouses.

How the Automotive Industry Can Evolve the Supply Chain

To deliver the competitive advantage that C-suite executives are expecting from the supply chain, the industry will need to act in seven areas (see figure 8).

Figure 8
Seven moves can give India’s automotive industry a competitive advantage



Source: A.T. Kearney analysis

Accelerate collaboration across the value chain

The automotive industry already collaborates across the value chain from OEMs to suppliers to dealers. Most successful OEMs are practicing concepts such as pull-based replenishment and vendor-managed inventory, which are considered industry standards. As the leading partners in the value chain, OEMs will need to spearhead collaboration efforts to help make the supply chain more agile. Better collaboration among value chain partners will be required in three areas:

Joint supply planning across multiple horizons to address volatility: To manage short- to medium-term volatility, collaborative planning across value chain partners will become more important. “We used to do supply planning with our suppliers once a month,” the head of sales and marketing of a leading OEM said. “The frequency was increased to twice every month to manage volatility. Today, planning with suppliers is done every week, and for certain critical components, we even resort to planning daily to manage volatility.” Transparent information sharing and leveraging data with sophisticated IT systems will continue to enable successful supply planning.

Establishment of win-win relationships and joint goals for long-term plans: Key industry stakeholders will need to identify, articulate, and work toward mutually beneficial goals. For example, forming joint design, testing, and validation teams with strategic suppliers can eliminate duplicate testing and enhance the speed to market.

Enhanced OEM-supplier partnership for inventory and throughput optimization: Suppliers are moving closer to OEM production centers through OEM-led vendor parks. More colocation is expected in upcoming automotive production hubs such as Gujarat and Uttarakhand to ensure successful implementation of just-in-time manufacturing.

Further, OEM-supplier partnerships are expected to evolve to the next level using innovative models such as supply-and-apply concepts, where a tier 1 strategic supplier assembles the component on the OEM's assembly line for parts, including trim, radiators, and even complex systems such as brakes. This will not only optimize inventory, but also enhance productivity as fitment issues can be easily sorted out and manufacturing deficiencies for parts can be identified and corrected much faster.

Innovate in cost management

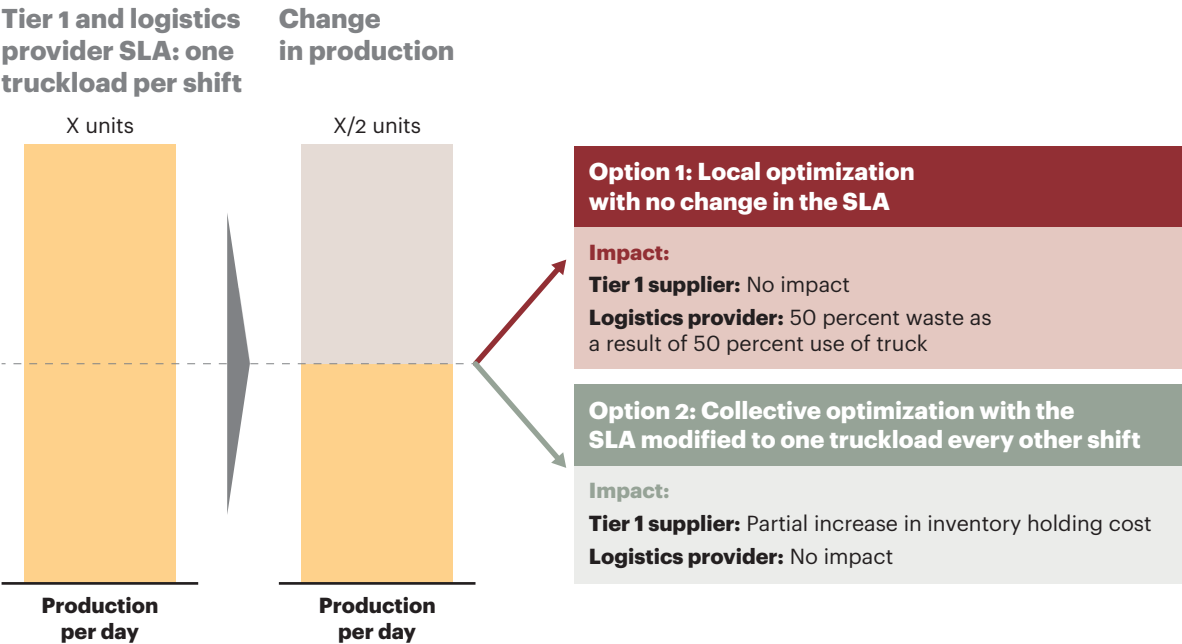
Industry players are continuously striving to manage supply chain operating costs by making existing resources more efficient. The CEO of a leading tier 1 supplier said, “Cost optimization is our key focus area, and every year, we set a target-reduction goal that at least covers the escalating cost.”

Most players are already focusing on loading and stocking efficiency improvements, better route planning, and better recycling. To become more cost efficient, the industry will need to focus on two areas:

Structure innovative commercial arrangements: In a highly volatile industry, innovative and flexible commercial contracts and service level agreements can improve the value chain (see figure 9 on page 11). Suppliers and OEMs will need to restructure their relationships and pricing contracts with a strong emphasis on strategic supplier relationships, which will support innovative ways to share risks through joint investments in tools and dies, tiered pricing strategies to manage the risks of fluctuating demand, and moving to “one part, one vendor” mode for non-critical parts to provide economies of scale. A senior procurement executive at a leading OEM said, “Suppliers are pushing us for volume-based pricing and upfront investments in tooling. Depending on component criticality, we are actually considering this and developing component-specific strategies.”

Sweat assets, and build modular, flexible capacity: In a volatile market, suppliers need to actively manage cost pressures associated with underused capacity, which is often the largest hidden cost driver for suppliers given the high capital cost and intensity in India. Two strategies will help:

Figure 9
Flexible commercial contracts can help cut costs



Note: SLA is service level agreement.
Source: A.T. Kearney analysis

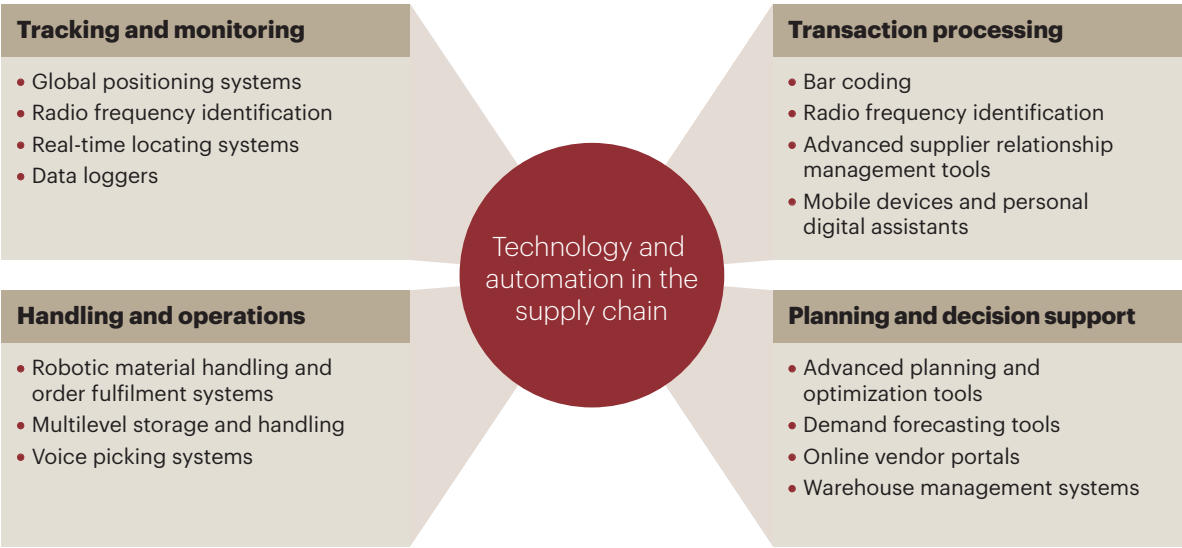
- **Have highly flexible shift-deployment strategy, and delay adding new capacity.** Few suppliers have the ability to adopt extremely flexible shift deployment strategies. They need to be able to seamlessly align their production schedules from four to seven working days per week to deploying one to three shifts on very short notice. This requires careful planning, the support of labor unions, and use of a judicious mix of temporary workers within the confines of labor laws. We expect this trend to pick up across the industry and to be further supported by joint supply planning across multiple horizons by OEMs and suppliers.
- **Think modular and flexible when adding capacity:** Plan for 20-5-1 when it comes to capacity planning: 20 years for land, five years for building and infrastructure, and one year for adding line capacity. While this is a general rule that may vary depending on specific situations, modularity will support phasing of capex and building highly capex-intensive line investments closer to when they are actually needed. Further, lines need to be flexible; industries are advised to avoid large, inflexible capacities for a specific vehicle or platform. This will help suppliers manage utilization even if a particular platform faces low demand. The CEO of a large component supplier said, “Our focus is on tooling and manufacturing process flexibility while building new capacity to produce multiple components on a single line.”

Proactively manage complexity

India will continue to witness product and platform proliferation given evolving demographics and customer preferences. OEMs are becoming more aware of the challenges and have already begun taking proactive steps to manage rising complexity.

A variety of factors make the supply chain complex, and the impact is profound. On the inbound side, effects include high logistics costs, higher component inventories, lack of part availability, and increased obsolescence. On the outbound side are higher inventory levels, potential lost sales, and a rapid increase in spare parts (both high-volume and low-volume irregular use parts). The supply chain will need to improve its planning processes and tailor them to handle different part classes in a segmented fashion. This includes sales and operations planning as well as tailored inventory strategies. Additionally, IT-driven solutions for information sharing, planning and decision support, tracking and monitoring, inventory management, automation in handling and warehouse operations, and transaction processing, many of which are already in use, will need to integrate these tailored strategies to handle complexity (see figure 10).

Figure 10
Technology and automation can help manage automotive product complexity



Source: A.T. Kearney analysis

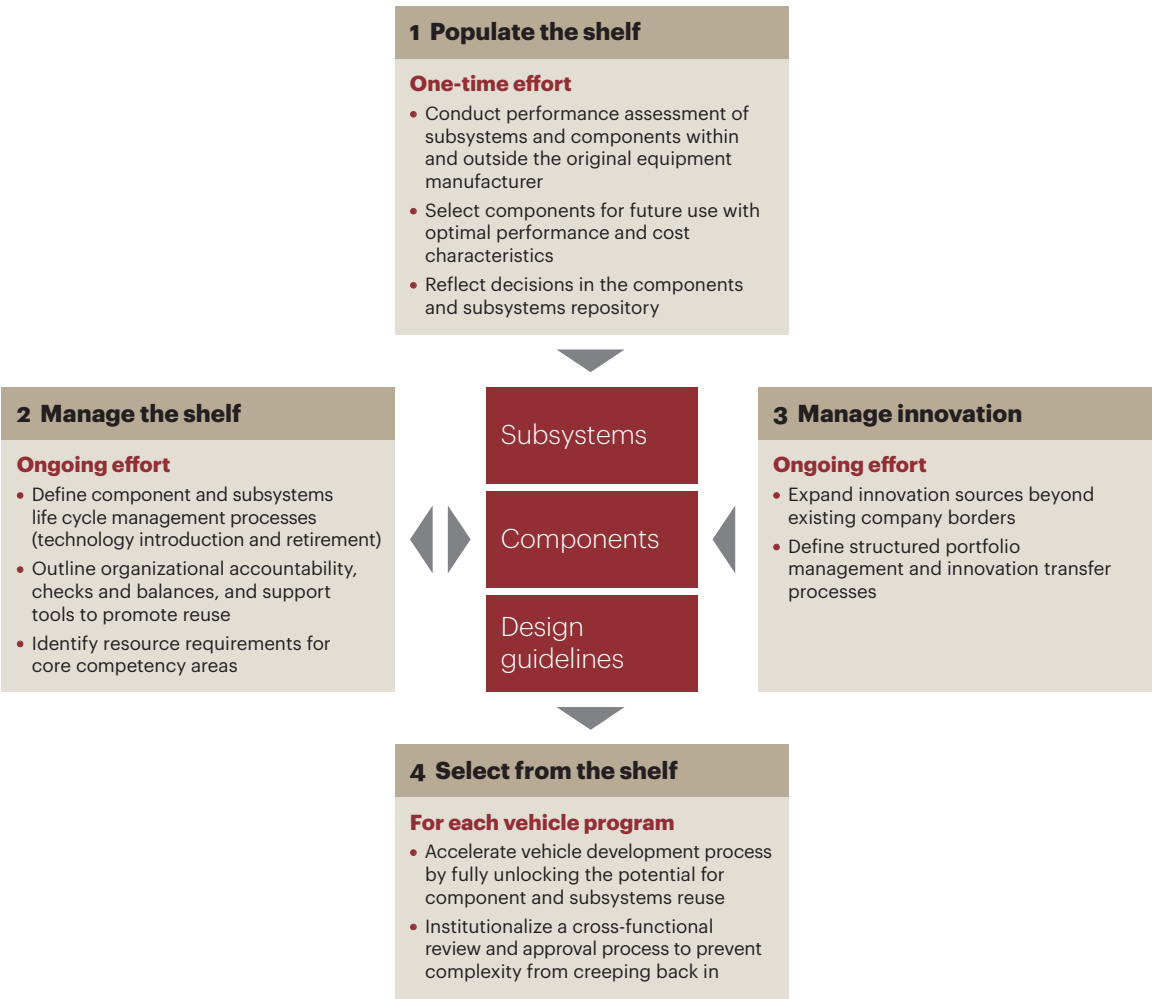
However, in the long term, reducing complexity will be product-driven. The supply chain function, along with procurement, will need to work with product development to implement product-led strategies such as late-stage customization, modularization, and increasing “below-the-skin” commonality (through a common library of parts and a shelf-management process) to manage complexity.

Late customization and delayed differentiation: “Product proliferation is here to stay,” the CEO of an auto component supplier said. “Delayed differentiation is one of the key strategies that our company has adopted to tackle complexity.” Toyota, for example, has successfully adopted late customization in its distribution center at Newark’s port, where a number of port-installed options are carried out largely by manual operations using simple tools. The facilities include five production shops handled by about 200 employees, a quality control center, and a car wash. Required accessories are ordered from suppliers just two days before the expected docking date for the vehicles and customization is completed. Many other OEMs and tier 1s have also turned to late-stage customization to manage complexity.

Modularization: In recent years, OEMs have focused extensively on modular platforms, which allow customized solutions for product variants without adding complexity. In particular, modularization is a focus area for commercial vehicle OEMs, which are rapidly moving toward providing customers the option of choosing customized features for the powertrain, chassis, and interiors when an order is placed. This made-to-order approach requires cascading the modular design all the way to manufacturing and key tier 1 suppliers.

Acceleration of “below-the-skin” commonality: Carryover content can be maximized by using existing parts for new platforms and variants, especially for attributes that are not visible to customers (below the skin). One important way to achieve this is by ensuring that the designer’s key responsibilities and accountabilities include requirements for maximizing carryover content. Additionally, a “shelf” of common parts and subsystems in an off-the-critical-path program can ensure that standard parts are readily available to engineering teams (see figure 11). Newly designed processes can help drive usage of parts from the shelf while ensuring that innovation is continuously infused into the shelf.

Figure 11
A shelf system can help ensure access to common parts



Source: A.T. Kearney analysis

Effective portfolio complexity management: OEMs will need to proactively retire older platforms that have been rendered obsolete because of regulation or emission norm changes and then launch new variants. The CEO of an auto component company rightly describes it: “OEMs need to make hard calls and retire vehicles while launching new platforms to address complexity. This practice is prevalent in developed markets. However, India is still hesitant to do so for fear of losing market share.”

Develop tailored value chains and competencies for exports

The automotive industry will need to better integrate their supply chains with external supply networks to exploit the export opportunity. A few moves will be essential:

Develop a tailored supply chain to drive exports: The exports value chain is far more complex than the domestic value chain because of longer lead times, high levels of inventory, the variety of market-specific products needed to achieve regulatory compliance, combinations of CBU and CKD exports, and a need to plan based on shipping line schedules. This requires a completely different OEM approach and is best served by a tailored value chain for exports. “Supply chain planning for international business is very challenging as different geographies have different requirements,” the international business head of a leading OEM said. “It is critical to have tailor-made supply chains for each region. Tight monitoring of forecasts and focus on order to delivery is also critical due to longer planning cycles and lead times.”

It is critical to have **tailor-made supply chains for each region** while monitoring forecasts and order-to-delivery...

Tailoring can be largely virtual, especially for CBU exports with differentiated inventory norms and product flow paths while sharing the same physical assets, such as factory and warehouses. Individual markets may not have scale, but clustering exports for all markets will provide sufficient scale for optimal delivered costs. However, there may be a need to develop a clearly differentiated outbound supply chain within exports for CBU and CKD.

Finally, it is important to align internal and external stakeholders on a segmented supply chain approach by clearly communicating the supply chain objectives, trade-offs, and performance metrics for domestic, CBU, and CKD exports.

Develop specific outbound CKD management competencies: Local and global OEMs will increasingly use India as a core manufacturing hub with CKD facilities set up in high-growth automotive regions, which will drive growth in outbound CKD. OEMs will require substantially improved competencies to manage the complex operations. Two actions will be essential:

- Create a separate CKD organization for finalizing the CKD strategy in terms of the optimal level of value addition in assembly markets, CKD economics modeling, logistics and supply planning, creation of capacities across chosen markets, and CKD kitting and packing facility in India.
- Explore opportunities to outsource entire CKD operations to specialist logistics providers that offer end-to-end solutions.

Partner with upcoming ports to develop infrastructure and competencies to support

increased CBU and CKD exports: The head of the international business unit of a leading automotive OEM said, “Poor port infrastructure has led to a lack of predictability of time to delivery, thereby leading to additional costs from inventory buildup and shipment delays.”

Port capacity is expected to increase in India, led by private investments in new ports and augmented capacity in existing ones. For example, the new Krishnapatnam port on the east coast has good container-handling capabilities, which is likely to drive CKD logistics through this port. OEMs will need to proactively work with port authorities to block capacities and customize the infrastructure to support growth in international business.

Enhance the global footprint and supply capabilities for component manufacturers:

Component manufacturers based out of India will need to integrate with the global supply networks of OEMs that will be increasingly using India as a global manufacturing hub. It will be difficult for component suppliers to get selected for global platforms unless they develop global supply competencies.

“OEMs need to make hard calls and **retire vehicles while launching new platforms to address complexity.** This practice is prevalent in developed markets. However, India is still hesitant to do so for fear of losing market share.”

Large component exporters may need to de-risk part of their supply by creating near-shore facilities aligned to OEMs’ assembly footprint. This will require component suppliers to manage the complexities associated with a global supply chain network. The CEO of one auto component supplier said, “OEMs have started looking at supply risk and asking for a portion of their requirements for high-risk platforms (where the supplier accounts for a large share of supply) to be met from local manufacturing units. They are willing to cover the costs related to the expanded global footprint.”

Component suppliers will also need to ensure quality and process consistency for parts made at different locations. “Often, complexity expands at the supplier level as the processes adopted for making similar components are not standardized, leading to quality differences,” a representative from a leading OEM said. “Even if we use the same supplier for the same platform and same part across the world, we get differences due to manufacturing process variations at different supplier locations. Suppliers need to go to a common bill of process to supply global platforms.”

Reconfigure and elevate the supply chain organization

The automotive industry needs to rethink the capabilities required by the supply chain organization, given the changing expectations from the function. Supply chain professionals, especially

in senior roles, will need a good balance between functional and business management skills to design and manage a supply chain that is responsive to a dynamic business environment (see figure 12).

Figure 12
The next generation of supply chain professionals will need a new set of skills

Emerging requirements	Required skills
Create competitive advantage	Strategic mindset: Be able to translate global macro trends into implications for the supply chain
Optimize the value chain	Consultative selling: Work with partners across the value chain using networking and influencing skills
Engage with C-suite executives	Executive communication: Articulate trade-offs and present a comprehensive business case
Manage supply chain risk	Scenario planning: Identify risks and develop mitigation plans
Continuously improve delivered cost, service levels, and time to market	Program management: Launch continuous improvement initiatives

Source: A.T. Kearney analysis

The industry has begun to focus on developing, attracting, and nurturing talented supply chain professionals, but further steps are required:

Elevate the supply chain’s profile and role: The supply chain role in core manufacturing industries is perceived to be fairly tactical and more oriented toward logistics management. Incumbents do not see a well-defined career path ahead of them. Roles should be defined and strategically positioned with a clear progression path to executive-level roles within the organization.

Train and develop supply chain talent: Several OEMs in India have already started investing in dedicated training institutions to ensure a steady supply of quality talent. Collaboration among OEMs, suppliers, academic institutions, and industry bodies will be required to facilitate setting up more such institutions to develop talent.

Effectively manage supply chain knowledge within the organization: OEMs and large suppliers need to invest in strong knowledge-management capabilities to codify and retain the supply chain expertise within the organization.

Prepare for regulatory challenges and opportunities

Implementation of GST: With a prevalent central sales tax and a host of state levies, India’s tax regime has created substantial inefficiencies in supply chain operations. The design is “tax optimized” with a warehouse set up within each state, which impacts overall inefficiencies.

Imminent implementation of the Goods and Services Tax will drive a large-scale redesign in the supply chain to make operations more efficient. The industry needs to prepare for this redesign and for potential upfront investments, specifically in warehouse footprint optimization, recyclable packaging, and containerization.

More stringent regulation of the recall management process: The existing process for product recalls in India is handled by OEMs without any specific guidelines for the recall management process. We expect the government to come up with specific legislations and guidelines for tracking vehicles, communicating with customers, and providing feedback to monitoring agencies. The reverse logistics process, which is not yet well-developed, will need to evolve to improve vehicle traceability. IT systems will have an enhanced role in the future.

Regulations for sustainability: Multinational OEMs and suppliers often deploy global, standardized sustainability initiatives. The challenge is to maintain cost competitiveness amid sustainability efforts. As stricter regulations are applied—for vehicle retirement, packaging, recyclable materials, and renewable energy—the industry will need to ensure compliance.

Enhance capabilities to exploit aftermarket opportunities

Most OEMs and some leading component suppliers have taken several steps to enhance their aftermarket presence and revenue. These include implementing various stages of pull-based replenishment and spare parts branding and ensuring wide coverage in the distribution network.

OEMs that **develop shared goals and objectives** with strategic suppliers can **enhance the aftermarket supply chain.**

To better exploit aftermarket opportunities, OEMs and suppliers will need to achieve the next level of sophistication by focusing on the following key areas:

Use parts consumption data to drive supply chain reach decisions: Leading OEMs and suppliers have already developed infrastructure and technology systems to track parts consumption through unique identification of mechanics and retailers and coding of spare parts. As a next step, mining this data can impact supply chain reach decisions, apart from loyalty programs.

Leverage strategic supplier relationships to improve the aftermarket supply chain: Aftermarket supply planning is more complex than OE applications, given the complexity associated with a wide range of components and lower volumes per part. Some players have achieved high fill rates, as pointed out by the CEO of one of the leading tier 1 suppliers: “Our fill rate is 91 percent within 24 to 48 hours post-ordering for over 35,000 parts, and we manage this through a robust global supply chain with sophisticated backend IT infrastructure.” However, achieving such high fill rates continues to be a challenge for many OEMs and suppliers.

OEMs that develop shared goals and objectives with strategic suppliers can enhance the performance of the aftermarket supply chain. This collaboration will involve aftermarket supply discussions along with OE parts supply, dedicated capacity planning for the aftermarket, win-win commercial agreements along gain-sharing principles, transparent information sharing, pipeline inventory, and ordering schedules.

OEMs and suppliers will need to set up dedicated vendor-managed spare-parts warehouses at key nodes of the network to ensure prompt, pull-based replenishment. Information generated by a robust IT system can be leveraged for SKU planning and managing inventory.

Building a World-Class Automotive Supply Chain

World-class automotive supply chains are essential sources of competitive advantage. The impact of such supply chains is felt not only in containing the traditional elements of logistics, warehousing, and administrative costs, but also in minimizing the costs of inventory holding, lost sales, and obsolescence.

India’s dynamic business environment requires a smart, agile supply chain that can become a real differentiator in the marketplace. The evolution has already started. Players that lead the way will act on the imperatives identified in this paper to accelerate the development of a world-class automotive supply chain in India.

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To sharpen India Inc.'s competitive edge through better logistics and supply chain practices, CII Institute of Logistics (CIL) was established in 2004 by the Confederation of Indian Industry as a Centre of Excellence in logistics and supply chain. At CII Institute of Logistics, we provide a platform for the industry to gain more insights into emerging trends, industry problems of national importance, and global best practices in logistics and supply chain management. We assist the industry in reducing transaction costs, increasing efficiency, and enhancing profitability while informing and providing solutions to macro-level issues.

The Vision

To be the International Centre of Excellence in logistics and supply chain management (SCM) and to facilitate the Indian industry in becoming recognized in global business for its best practices in logistics and SCM.

The Mission

To be a platform for the creation and sharing of intellectual capital associated with reducing transaction costs and improving competitiveness and, in the process, to nurture the skills of logisticians and the adoption of best practices in logistics and SCM through online and offline activities.

For more than eight years, CII Institute of Logistics, the country's premier Centre of Excellence in logistics and SCM, has contributed to a number of exemplary success stories in logistics. With a relentless focus on enhancing logistics competitiveness in the industry, CIL provides a complete range of services, including:

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