Supplier of the Future

The CEO Agenda – A roadmap for supplier success in the next decade

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OESA

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Contents

What happened to the rules of economics?

Market growth, OEM consolidation, cost pressure, more of the value chain controlled by suppliers … almost everything that has happened in the worldwide automotive industry in recent years was predicted.

The automotive industry has just emerged, at least in the mature markets, from an unprecedented period of volume expansion, and the share of the average vehicle value provided by suppliers has reached 70%, according to some analysts. This would seem to be an ideal situation for suppliers, one in which the supplier industry should thrive.

Yet, this has not happened. What we witness instead, is an industry that struggles to get the right attention from the capital markets, with very few successful and solidly profitable players that stand out in a landscape dominated by companies with either razor-thin margins or losses even in booming volume-years.

Though many struggling suppliers have returned to profitability this year, uncertainty still reigns, as the expansion cycle – at least in the mature markets upon which the industry still depends – is in doubt. As one top executive we interviewed candidly admitted, “We just cannot predict where our industry will go – we think it will go in a certain direction, but we realize it could be the opposite. We place our bet, but it could go either way.”

This study should help suppliers place the right bets, and it looks as if our efforts could not be more timely. From July to October 2002, we conducted 140 individual interviews with executives representing a diverse cross-section of the supplier base and of the leading OEMs across America, Europe and Asia. The results follow.

Acknowledgments

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A – Executive Summary – Value can be created, but only with significant effort

Financial analysts have been unable to send very positive messages about the automotive industry to Wall Street and the other major stock markets for some time now. Leaving exceptions of excellent performance aside, the industry as a whole has not been among the favorites of private and institutional investors in recent years. Too much bad news about disappointing results, unmatched forecasts, unsuccessful mergers, huge overcapacities, tremendous price competition in the markets, high investment requirements to get the product on the road, highly unsuccessful vehicle designs, and even the headlines about a "broken" business model have pounded this industry for some time.

With this study, we want to describe a scenario of how we believe the industry will, or simply needs, to develop over the next decade, as it continues to face tremendous challenges and paradigm shifts. Our intent is to provide a window into the key strategic decisions that suppliers in North America, Europe and Japan must make, and to define a list of actions to guide them forward.

As in previous Roland Berger studies about the automotive industry, and after conducting more than 140 interviews with industry executives from across the world, sharing our perspective with many of the industry's leading experts, we embarked on a quantitative assessment of the industry to build a solid business case for our scenario.

Our main conclusions are:

- The industry business model can be improved. It is not our intention to paint a rosy picture and play down the enormous challenges that lie ahead for OEMs and suppliers alike. Costly and disciplined actions will be necessary to successfully master these challenges, and not everybody in the industry will survive. There are still many suppliers in the market that can provide the necessary technology and manufacturing capabilities. Unfortunately for some, with emerging markets like China increasingly coming into the picture, more will come. Nobody in this industry has a lifetime assignment – not even the most technologically advanced suppliers. Nobody is indispensable. But, and this is the good news we submit, suppliers have the opportunity to adapt their business models to the new and future requirements. The key questions are just "who will?" and "how fast will they do it?"
- Potential for improving profits does exist within different supplier clusters along the value chain. Without predicting a new industry boom, suppliers in

different regions can expect to return to the better profitability levels they have experienced in the past by adapting their business model and carrying out the required actions and measures quickly, consistently and comprehensively.

- To return to higher profitability levels, suppliers will need to be more focused and efficient than ever before. Regardless of the region and their position in the value chain, success for suppliers will depend upon eliminating non-value-added resources and focusing on what they do best, i.e., being a system integrator, a technology-driven supplier, or an expert in highly efficient manufacturing and supply processes.

To define the road that suppliers in North America, Europe and Japan must travel over the coming decade, we started our research by identifying the key industry drivers, focusing on those that are likely to have a lasting impact:

1. OEMs must and will become more flat, agile and responsive to changes in the marketplace

In an increasingly volatile and fragmented market, the speed of organizational change is a competitive advantage. In the coming years, we will witness OEMs embracing organizational models that will allow them to further extract costs from the value chain and to become more responsive and agile.

2. OEMs accelerate the streamlining of their global structures and further leverage their global affiliates

After the wave of consolidation of the second half of the 1990s, and after harvesting the low-hanging fruits of purchase-bundling and overhead reduction, OEMs will accelerate the leverage of their global structures far beyond sourcing. Integration will extend to design and development processes, manufacturing networks, logistics, and IT systems.

3. The OEMs battle over market share and expansion intensifies, with no end game in sight

With stagnating growth rates expected for the triad markets, OEMs will intensify their market share battles in non-traditional regions and increase the number of launches in mature regions.

4. OEMs continue to focus on external and internal cost-cutting initiatives

Cost-cutting initiatives will not subside but are likely to move to another level. From pure price-down requests, OEMs will focus on achieving cost savings through part sharing and commonization within their own network as well as in collaboration with other OEMs. At the same time, OEMs will need to increase the flexibility of their manufacturing plants to rapidly adapt and switch production volumes to meet actual market demand.

5. OEMs continue to shift responsibility and risk to the supply chain

The overall balance of responsibilities will continue to tilt toward suppliers. What OEMs will shift to suppliers will not be as much additional product content (e.g., manufacturing outsourcing), but rather product lifecycle responsibilities and the associated risks.

6. The complexity, speed and scope of innovation complicates OEMs' technology assessment

Ever-shortening innovation cycles and the ever-increasing spectrum of available choices make technology decisions extremely complex and investments difficult to justify. OEMs need to increase the leverage of internal and external resources through networks of cooperation with technology specialists.

7. Strategic brand management becomes a top priority as OEMs attempt to protect market share and margins

OEMs who have built broad brand portfolios will struggle to effectively balance the trade-offs between cross-brand synergies and product differentiation requirements.

8. Regulations alter market dynamics and push technology and risk management to the limits

Regulators increasingly influence market dynamics and development. Regulations generate both opportunities and costs, and unless proactively addressed, will increase risk for many players in the market.

Maneuvering through this dynamic landscape will be a treacherous endeavor for OEMs and even more of an adventure for the supplier community. This is nothing really new for this 'old' industry: the automotive world has always been about change and new challenges, often driven by new product and process technologies, and these days more and more by fierce competition and pricing pressure. Although one always feels that the current changes are more severe and far more 'life-threatening' than ever before, something seems to be true about this impression today. The supplier industry must embrace change and "fix" its business model quickly. Or – as mentioned above – there will always be plenty of alternatives from which OEMs can choose.

We believe that with the proper vision and strategy in place, and the necessary resources for implementation, supplier executives can successfully accomplish the task of steering their companies back to product and process excellence. And, of course, back to profit levels that are far more appreciated by Wall Street and private investors than the levels witnessed today.

We therefore continued our research and defined a roadmap for superior supplier performance in North America, Europe and Japan over the coming decade. There are 12 distinct and relevant areas for each of the three categories of suppliers – system integrators, technology satellites and process satellites – which describe this roadmap:

1. Suppliers need to develop their own long-term visions

Without a clear vision, a supplier's capabilities and resources will be diluted and inefficiently utilized. Successful suppliers will balance a long-term perspective with the ability to react to crises whenever they arise.

2. The breakdown of the classic supply base pyramid into a satellite community

The traditional industry structure will shift to a model polarized around system integrators and technology- and process-focused "satellite" suppliers. For each kind of player, focusing on core capabilities and shedding marginal ones will be key to future success.

3. Suppliers need to decentralize decision-making and responsibilities

Suppliers will move from hierarchical organizations to more decentralized entrepreneurship models, similar to their OEM customers, but likely in less time. Cost

and profit responsibilities and business decision-making will be pushed further down the organizational hierarchy of supplier companies. Transparency of cost and profits – especially profits by program and customer – will become a key element to manage these future structures successfully.

4. Suppliers need to establish global structures

As OEMs start to leverage their affiliate networks beyond procurement, it will become vital for suppliers to establish global interfaces to their customers. To manage an account globally, major changes will be required for supplier organizations and processes.

5. Suppliers need to develop more diverse customer portfolios

Building a more diverse customer base will become a necessity, either by penetrating existing OEM customer affiliate networks more deeply or by targeting new ones. Considerable sales and marketing and product development resources will be dedicated to achieve this goal. Payback can only be expected in the mid-term.

6. Suppliers need to define new business models to handle both high- and low-volume programs

Significant investments will be required to enable supplier plants to deal with diverse programs. Together with these investments, the complexity of dealing with multiple programs will force suppliers to rethink their internal skill set.

7. Suppliers need to increase manufacturing flexibility and value chain connectivity to face continuous requests for cost reduction

Pressures on supplier costs are not at all likely to ease and can only be countered by a continuous effort to take waste out of industry processes and create a more flexible and collaborative value chain. Successful suppliers will continually innovate and adopt effective methods to optimize their business processes.

8. Suppliers need to take on more product creation and lifecycle responsibilities

In the next wave of outsourcing, OEMs will shift more product lifetime responsibilities, from design and development to warranty and liability costs to their

supply base. To handle these increased responsibilities effectively, most suppliers will have to fill significant gaps in their organization and internal processes.

9. Suppliers need to develop business models and capabilities along more focused technology portfolios

Defining the area of technology in which to focus and the portfolio that surrounds it are the fundamentals of a successful technology strategy. Well-defined technology roadmaps are core blocks of this process. Rebalancing internal skill sets and leveraging co-opetition networks will be necessary steps for suppliers to compete.

10. Suppliers need to develop technology solutions within partnership communities rather than in-house

The high investments and risks associated with technology selection and development will drive the industry to a model based on networks of innovative, but financially independent suppliers. Project-based collaboration partnerships will be just an interim solution. Mid- to long-term relationships will dominate cooperative efforts.

11. Suppliers need to learn to support their customers' brand efforts through adequate component and system technology

Suppliers need to deepen their understanding of how their products influence the brand attributes and consumer preferences of their customers and incorporate this perspective into their technology strategy and product development approach.

12. Regulations create additional opportunities and threats for suppliers

Few suppliers currently go beyond a "waiting" mode to anticipate potential opportunities and threats from regulatory rulings. This must change for suppliers of systems that are likely to be heavily affected by regulations.

All of these facts will have a significant impact on the revenue stream, the cost structure, and the bottom-line of all types of suppliers in the three regions covered by the study. The same is true for the automotive supply base in South America and China (refer to Chapter D for more insights on these emerging markets).

As in previous Roland Berger studies, we therefore ran a number of financial scenarios to assess how suppliers will be impacted on their bottom-line by these industry trends and changes. Based on the results of our multidimensional revenue, cost and profit simulation model, we expect:

- Across North America, Europe and Japan, system integrators and "satellite" suppliers to see pre-tax profits increase over the next decade, but at a different pace and at different rates across categories and regions.
- System integrators in North America to grow pre-tax profits to 6.9 percent by the end of the decade, compared with 5.2 percent in Europe. In Japan, they will improve slightly above their current profit levels of around three percent after a slowdown in the next several years.
- Technology satellites across all regions to be the main winners in terms of an improved bottom-line, with pre-tax profits in 2012 ranging from 5.9 percent in Japan, to 7.4 percent in Europe, to 9.6 percent in North America.
- Process satellites to also experience pre-tax profitability growth in every region.
- Profitability growth to be largely driven by the rationalization of, and shifts within, the supplier cost structure rather than by revenue growth potentially triggered by a broader customer portfolio or a better utilization of available technology.

Finally, we have translated the opportunities that we have identified into a hands-on "to do" list for any industry CEO to verify his or her company's readiness to define and face the challenges ahead and act to overcome them. Following this roadmap to success will be crucial to remain in business, although each supplier has to define its own one based on its status quo, product portfolio, technology reach, global presence and customer base.

As mentioned above, we do not foresee an 'easier' future for any of the supplier categories, in any of the regions. CEOs have to achieve these goals with the right measures at the right time. It may sound easy now, but unfortunately it's not!

The good news is that the payback will be well worth the effort, and …

… we are here to help!

B – Drivers that will define the industry

Predicting change in the automotive industry has become an extremely complex exercise. With this study, we aim to help suppliers clarify what will drive change in their industry in the years to come and in doing so help them focus on the key strategic and operational decisions they will need to make.

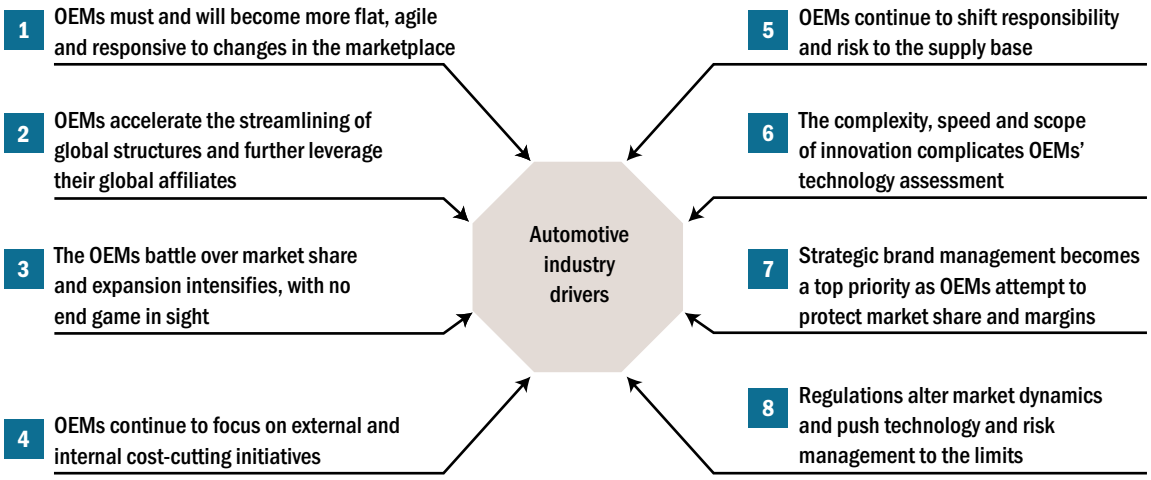
We identified the drivers shaping the industry in the years ahead.

During the course of this project, we have tried to identify which drivers will play the most significant role in shaping the industry in the years ahead. These drivers are primarily OEM initiated, but the influence of governments and regulators should not be underestimated.

Two facts are clear: the ability to master change will increasingly be part of the decision-making process, and the focus on efficiency will continue to be the top priority for the automotive industry as a whole.

The industry is burdened with overcapacity, and growth is not a given anymore, at least not in the triad of mature markets upon which the industry heavily relies. Top-line growth will be fueled by new markets and protected by the ability to handle volatility.

OEMs, consumers and regulators will drive the industry development along eight dimensions



Although differences across regions exist and will continue to exist, we have identified eight drivers that will shape the worldwide automotive industry, primarily initiated by OEMs, but increasingly influenced by consumers as well as by regulators. Below we highlight these key drivers and introduce what we perceive as the most relevant and challenging implications for the supplier industry in North and South America, Europe, China and Japan.

1. OEMs must and will become more flat, agile and responsive to adapt to changes in the marketplace

In the traditional triad regions (North America, Europe and Japan), markets are saturated, overcapacity is the norm, and competition is fierce. The once promising economic situation is at best uncertain, and consumer preferences are increasingly volatile.

In recent years, OEMs have pursued aggressive growth strategies through consolidation aimed at achieving scale. Simultaneously, they have continued to outsource vehicle content in order to reduce fixed assets and improve efficiency internally.

The industry focused on reducing costs, but organizational layers and inefficiencies have not disappeared.

In an unpredictable market, the speed of organizational change is a competitive advantage. But while the industry, at the OEM level, has focused on reducing costs and achieving external and internal synergies, organizational layers and inefficiencies have not necessarily disappeared.

In the coming years, we will witness OEMs embracing organizational models centered around horizontal processes rather than functions, helping them not only to extract costs from the value chain, but also to become more responsive and agile internally. By doing so, they will be able to reduce their own costs, like the supply industry has been doing for a long time now.

We expect the impact will cascade down the supply chain, with two major implications for suppliers:

> **More than ever, it will be critical for suppliers to develop their own long-term vision.**

> **Internally, and along their own supply chains, suppliers will implement decentralized decision-making and responsibility, promoting entrepreneurship, "profitability ownership" and agility.**

2. OEMs accelerate the streamlining of global structures and further leverage their global affiliates

With the dust from global consolidation seemingly settled, OEMs have now reached global scale and have now initiated efforts – in some cases only years after the acquisition or merger – to capture the cost benefits from their ambitious M&A activities.

Initiatives to achieve synergies are well under way but have until now focused primarily on leveraging procurement power through bundling activities and streamlining procurement organizations. We believe this is just the tip of the iceberg – commonization and part sharing between vehicle lines, platforms, business units/brand entities and even between OEMs or OEM groups will increasingly become the focus, providing the opportunity for suppliers to participate in larger programs, but also the risk of becoming dependent on fewer big programs.

OEM efforts to leverage global structures will go far beyond sourcing, and will extend to the integration of development capabilities and processes, manufacturing networks, logistics and IT systems across regions, brands and legal entities.

Synergies in procurement are just the tip of the iceberg.

As a consequence, the role of individual suppliers will likely be recast, as they continually adapt both their capabilities and organizations.

We believe that OEM efforts to further streamline and leverage their global networks will lead to two major implications for the supplier industry:

Leveraging global structures will go far beyond sourcing.

> **The breakdown of the classical pyramid structure: systems integrator and satellite networks will arise.**

> **Suppliers will establish global structures, as opposed to a simple "global presence," that mirrors their OEM customer networks.**

3. The OEMs battle over market share and expansion intensifies, with no end game in sight

The average annual growth rate of the traditional triad market is projected to be less than one percent over the next decade, with certain markets actually shrinking. The intensity of the battle among OEMs to protect both market share and volume has reached fever pitch and will likely further intensify.

While price wars, fought with low rate financing and rebates, have become commonplace in North America – and we see a similar trend emerging in Europe –

they are still perceived as a short-term weapon. In the longer-term, OEMs will intensify their market share battles in two main directions.

In mature markets, they will offer more derivative models and more frequent "refreshments" in traditional vehicle segments, while constantly striving to develop new "segment busters"[1] to ignite emotions with a variety of fresh vehicle concepts.

OEMs will intensify their market share battles in non-traditional regions and increase the number of launches in the traditional triad.

In addition, OEMs will increasingly rely on non-traditional markets, such as China, to protect and grow their overall global volumes.

The resulting implications for suppliers are dramatic, both in terms of evolving their business models and reducing the risks associated with relying on a limited number of OEM customers or markets. Major implications for suppliers include:

> **The need to develop more diverse customer portfolios, both to reflect changes within each OEM's affiliate network and to reduce dependence on a single OEM and region**

> **The need to create new business models to handle both high- and low-volume programs**

4. OEMs continue to focus on external and internal cost-cutting initiatives

Rampant overcapacity, coupled with stagnating growth rates in traditional bread-and-butter regions, are reason enough to predict that cost-cutting initiatives will not at all disappear from OEMs' priority lists.

Unlike Japanese OEMs, who have for decades been focused on internal cost reductions and are more advanced in their commonization and flexibility strategies, North American and – to some extent – European OEMs have traditionally had a more external focus, and have pursued supplier price-downs as a way to reduce their costs.

OEMs will concentrate on achieving cost benefits beyond pure price-downs.

In the future, given the direction in which OEMs' product and manufacturing strategies are evolving, cost-cutting is likely to move to another level. From the pure price-down requests of recent years toward the supply base, OEMs will increasingly concentrate also on achieving cost benefits through, e.g., part sharing and commonization across vehicle lines, platforms, business units or even across OEMs and through the installation of flexible manufacturing processes that allow rapid reaction to market changes.

[1] "Segment busters" refers to newfangled products such as compacts, minivans and cross-over vehicles.

Targets for carryover components and systems in new programs will be raised and specific objectives to standardize components will be assigned to suppliers, reducing development costs and time-to-market, while increasing component volumes and revenue potential.

At the same time, however, OEMs will further develop their ability to rapidly switch manufacturing volumes between models and thus expose suppliers to more volatility and uncertainty.

We see one main consequence for suppliers to consider in the years to come:

> **More flexible and interconnected value chains will need to be developed by suppliers (up and down the value chain) to handle ongoing cost cutting initiatives**

5. OEMs continue to shift responsibility and risk to the supply base

The massive outsourcing of design, development and manufacturing responsibilities to the supplier base over the last decade has failed to achieve all of the expected benefits and efficiencies for the industry. In Europe and in North America, largely because of union-related constraints, multiple layers of engineering functions still exist within the OEMs, negating the potential cost savings from outsourcing.

This situation fuels speculation about whether or not outsourcing will go any further. In fact, many in the industry now predict a swing in the outsourcing pendulum as OEMs realize that they might have gone too far, destroying their ability to control their product, without freeing up as many internal resources as they had hoped.

Even if these predictions prove correct and some OEM "insourcing" happens, the overall balance of responsibilities will continue to tilt towards the supplier base, with one difference: what OEMs will shift to suppliers will not be so much additional product content responsibility but rather product lifecycle responsibilities and the resulting risk.

Even if some "insourcing" happens, the balance of responsibilities will continue to tilt toward suppliers.

Pushed by market competition and facilitated by regulatory initiatives, suppliers' responsibility will increasingly be extended along the vehicle's lifecycle. While we believe that OEMs will progressively move from tactical to strategic sourcing based on total cost and no longer just on component price, suppliers need to adequately assess the implications of this broader responsibility.

> **Product lifetime responsibility will increasingly be passed by OEMs to the supply base.**

6. The complexity, speed and scope of innovation complicates OEMs' technology assessment

Technology will probably play the largest role in reshaping the industry as a whole, and is likely to present the most complicated set of issues and opportunities for suppliers to solve.

While the average vehicle life grows, technology innovation cycles continue to shorten. Combined with the ever-increasing spectrum of available choices, this makes OEM technology decisions extremely complex and the sustainability of investments tougher to justify, as payback periods shorten.

In this scenario, the prevailing business model will be based on OEMs leveraging internal and external resources and skills through complex networks of cooperation and partnerships with technology specialists.

OEMs will leverage internal and external resources and skills through cooperation and partnership.

The impact of electronics – already pervasive in today's vehicles and expected to become even more so – is reshuffling the range and balances of competencies and resources necessary to design, develop and produce a vehicle. What used to be clear separations between systems and related technologies are quickly being replaced by a vast array of interdependencies.

The engineering landscape within OEMs will change in response, rapidly shifting towards electronic and system integration competencies and resulting in major implications for the supplier industry:

> **Suppliers will need to carefully select technology/application portfolios to adapt their focused business models and rebalance their internal skill sets.**

> **Technology solutions will be developed more by communities or networks of suppliers rather than individual companies.**

7. Strategic brand management becomes a top priority as OEMs attempt to protect market share and margins

Unlike many market analysts, we do not envision vehicle manufacturers to become pure brand managers, but we do expect strategic brand management to rise higher in their priority list than it already is.

Similar to many other industries, traditional buying segments disappear: the once clear distinction separating large categories of customers are quickly blurring, replaced by fragmented clusters that are difficult to identify and to conquer.

OEMs who have in the recent past built broad brand portfolios will struggle to find a balance between cross-brand synergies and differentiation. We suggest product innovation and technology will play a major role in solving this dilemma.

We expect strategic brand management to rise higher among OEM priorities.

> **Components' technology becomes an essential factor to support brand attributes and differentiation.**

8. Regulations alter market dynamics and push technology and risk management to the limits

After technology, regulation is probably the most difficult driver of change for the automotive industry to get its collective arms around. From WTO accession of China and the Block Exemption amendments in Europe, to the TREAD Act in the U.S. and emissions standards in California, regulation simultaneously poses both potential opportunities and concrete risks.

Regulations reshape markets, forcing companies to adapt their strategies to make decisions in a compressed time frame. This in turn pushes traditional products and processes to the limits, as companies struggle to meet regulatory deadlines or gain first mover advantage. The end result is increased risk for many, but also increased opportunity for companies that successfully monitor and respond to regulatory changes.

Most suppliers struggle to understand the full implications of regulatory decisions.

To date, the majority of suppliers seem to be progressing slowly on the learning curve, still struggling to understand the full implications of regulations and develop and implement coherent strategies to address regulations.

> **Regulatory efforts will open opportunities but primarily will create additional threats for the supplier community.**

C – Impacts on the worldwide supply base

Having identified the main drivers that will shape the automotive industry in the years to come, this section is focused on how the drivers will impact the supplier industry, both at a strategic and an operational level, while highlighting the differences that might exist across the three main regions: North America, Europe and Asia.

While these impacts cannot represent an exhaustive list of issues facing the supplier industry over the next decade, we feel that they do capture the key challenges that suppliers will need to overcome in order to not only survive, but also thrive, in the future.

The industry trends will have major implication on the supplier base

1. Suppliers need to develop their own, long-term vision

As OEMs continually strive to become more flat, agile and responsive, so too must their suppliers. Without a clear vision a supplier's capabilities, activities and resources will become diluted and inefficiently utilized: in a nutshell, uncompetitive.

Over the years, many automotive suppliers have developed cultures that are largely reactionary to OEM demands. The manufacturing environment, historically the cornerstone of a supplier's business, required a reactionary mentality. An hour of unscheduled production downtime, due to a part shortage or a quality issue, create potential losses of millions of dollars, never to be regained. The ability to react to manufacturing issues was, and still is, paramount.

Over the years, suppliers developed cultures that are largely reactionary to OEM demands.

Going forward, the industry faces a considerable challenge of being able not only to react to the daily needs of its customers, but also to stay on a proactive or strategic course. Many supplier businesses have grown primarily around one (or two) OEM customers. In the past, setting the future direction for a supplier was simply a sub-set of that one OEM's vision.

- As suppliers serve a more diversified customer base and take on even more design and development responsibilities, the need to be both proactive and set an independent vision, while remaining responsive, becomes essential.

Following the traditional approach, many suppliers still find it difficult to define the matrix of products that "they" want to offer and the markets or customers that "they" wish to serve. Issues can cascade through the organization that can often follow short-term customer whims and the majority of internal actions end up being – more often than not – troubleshooting. The organization quickly becomes a victim of external conditions.

Suppliers' top priority: defining the strategic matrix of products and markets

Products \ Segments	Car	Transporter	Trucks medium/heavy	Ambulance body builder	Cargo body builder	Construction machines	Military	Small bus	School bus
Body structural parts	!	➡	➡	➡	➡	➡	?	!	?
Auxiliary parts	!	!							
Plastic parts			!			!		!	
NVH systems		!	?			X	?	!	
Interior components	!		!						
Doors	X	↷	X					?	X
Roof hatch		?	?					?	?
Cabin			X						
Electrics/electronics	!	!							

X Exit ! Invest ➡ Hold ? Investigate ↷ Enter

Supplier priorities

- Select the most attractive market segments!
- Define the right customer segments' portfolio!
- Select the technologies where leadership can be achieved!
- Select the right partnerships!
- Exit from non-strategic markets!

- Successful supplier organizations will be able to balance a long-term perspective with the ability to react to crises whenever they arise. Focusing the organization on a common vision with a core set of capabilities, skills, resources and technologies will be vital.
- Products and markets have to be clearly prioritized by attractiveness (like expected growth, entry barriers, profitability, etc.). The example of a heating/cooling system manufacturer reveals the complexity of such decisions.
- Suppliers need to appraise in advance if their growth strategies are affordable. A constant cash flow is vital for survival.

Current market position has to be appraised based on both competencies and existing market share. Suppliers must objectively consider where the current perception of their market position is, based on facts, not fiction. Armed with current and future market information, they will be able to chart a course.

While a clear vision of the areas where leadership can be achieved is important, equally fundamental is a plan to eliminate those activities and functions that are not essential. We have often seen companies who are able to clearly identify their core and non-core businesses or processes, but struggling when it comes to act consistently.

A plan to eliminate non-essential activities and functions is as essential as a clear strategic vision.

The benefits of conscious and careful effort to eliminate process redundancies and non-value-added activities will benefit both manufacturing and overhead costs. We expect that the highest potential for improvement will be found by system integrators who have typically grown by acquisitions, rarely followed by effective integration plans.

Leading suppliers will position themselves with a clear vision of future products, customers and markets, and clear plans on long-term revenues and profitability. Only this clarity of objectives will enable them to focus their resources and organization, thus allowing, as one leading supplier executive noted, to “reduce the complexity and enable the organization to do things faster and more efficiently.”

2. Breakdown of the classic pyramid structure.

The supplier industry is traditionally described as a pyramid, highlighting the role of system integrators as the primary interface to OEMs, and the perceived lower value-add provided by lower tiers of suppliers. This structure implies that information and relationships primarily flow vertically (from the lower tiers through system integrators) and that the further down the pyramid, the majority of suppliers become interchangeable.

The ripple effect of relatively recent OEM consolidation, higher consumer pressures, and rapidly changing technology will play a major role in redefining the structure of the supplier industry worldwide.

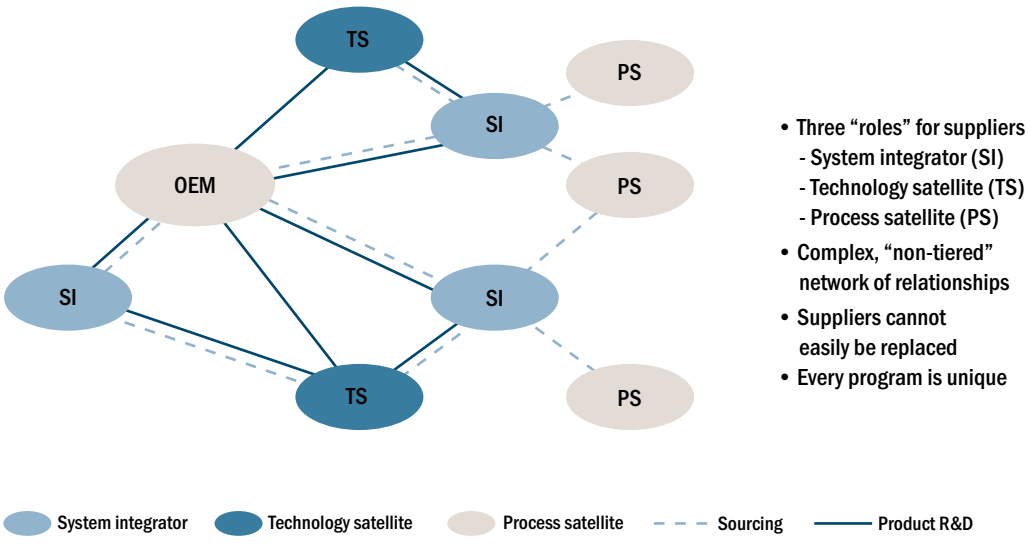
We see the classic pyramid structure shifting toward a model polarized around system integrators and "satellite" suppliers. In this model, system integrators will continue to be defined by their ability to integrate – and more importantly, add value to – subsystems provided by other suppliers. The other players, the satellite suppliers, will be defined by their focus on either product or process innovation.

The classic pyramid will shift toward a model polarized around systems integrators and "satellite" suppliers.

Technology satellites will be product innovation specialists, concentrating on a range of unique technologies. Process satellites will be process innovation specialists, concentrating on the low-cost and high-volume manufacture of commodities. Both will be necessary partners for OEMs and system integrators, but the nature of their relationships with OEMs and their respective competitive advantage will differ fundamentally.

Three major factors will drive this new structure. The first is the further transfer of responsibilities from OEMs to their supply chain. The second is OEMs' further integration of their affiliate networks, which will lead to more widespread part commonization and sharing. Last but not least, the growing system and technology complexity which will continue to fragment competencies across multiple players who master smaller portions of the highly complex development process.

Both OEM integration and technology complexity push a new model for the suppliers industry



- Three "roles" for suppliers
  - System integrator (SI)
  - Technology satellite (TS)
  - Process satellite (PS)
- Complex, "non-tiered" network of relationships
- Suppliers cannot easily be replaced
- Every program is unique

The satellite model more accurately captures the role and the value that can be added by different suppliers:

- Technology satellites will have relationships with system integrators and also directly with OEMs. While supply chain and procurement transactions will in the future mainly flow through system integrators, product development links will be direct with OEMs, partially shielding technology satellites from direct price pressures in the short term.
- Process satellites, on the other hand, will in the future work mainly through system integrators and will face the price pressure passed down from the OEMs, just as it happens today for their direct relationships to OEMs.
- We expect both types of satellite suppliers – based on their respective strengths – to develop relationships with a broader portfolio of customers.
- The new model might lead – in the long run – to a situation where satellite suppliers will be less easily replaceable. They cannot simply be substituted, since at every level the number of available alternatives will be more limited especially if – as expected – the industry shake-out will continue through elimination of low performers.

Both types of satellite suppliers will develop relationships with a broader customer portfolio.

The implications for the industry are far-reaching:

- The satellite model provides an impetus for every supplier to urgently define a clear long-term strategy, reflecting the area in which it chooses to compete – technology or process innovation, or both for leading system integrators. Lack of vision and focus will expedite the suicide process of poorly run suppliers.
- A supplier's relevance in the value chain will not be determined primarily by size, but rather by its "role." While we do expect consolidation of the industry in terms of overall number of players, we do not see further waves of consolidation driven primarily by the goal to achieve scale. Instead, we can expect a reshuffling of the industry, driving players to focus on a specific role or set of competencies.
- With roles more focused and less interchangeable, suppliers can expect the OEM-OES relationship to become longer-term and more collaborative, although not less competitive and still driven by cost-down pressure.

The satellite model provides an impetus for every supplier to urgently define a clear, long-term strategy.

The clear focus and competitive advantage implied in the definition of a satellite hints to the urgency for systems integrators to move rapidly and concentrate on value-added activities. The threat of a shake-out will only be eased if value-added is proven to the OEMs.

- Although this new model does not determine – per se – an overall industry growth, it will cause a re-distribution of its cost structure. System integrators are likely to experience the strongest shift: while their material costs will grow following increased outsourcing to satellites, we can also expect a change within their R&D costs, with pure product development capabilities increasingly replaced by integration skills.
- The net effect on system integrator margins will be a positive one: relying on satellite supplier technology or process-focus, they will leverage external investments to access development and manufacturing capabilities without burdening their balance sheet.

3. Decentralized decision-making and responsibility need to be implemented

As one of the executives we interviewed noted, every OEM has a "flat and responsive organization at the top of his agenda. The difference is in which way each one of them will involve suppliers to achieve this."

The truth is that OEMs do not operate in a vacuum, and agility of their organization cannot be achieved unless a similar transformation takes place along the entire supply chain.

OEMs do not operate in a vacuum. Agility of their organization cannot be achieved separately from their supply chain.

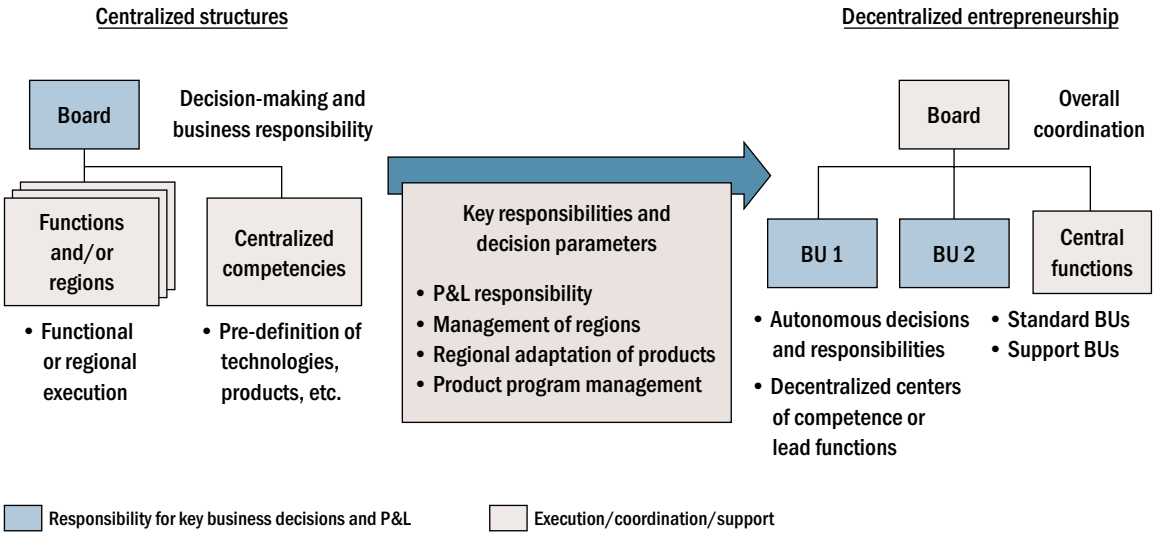
Forced by OEMs' pressure, pushed by their need to safeguard margins that are razor-thin, and driven by a clear vision about their role and their value propositions, suppliers at every level will focus on eliminating redundancies, process duplications and non-productive functions from their organizations, thus becoming more responsive to market fluctuations.

- Internally, and along their own supply chains, suppliers will implement decentralized decision-making and responsibility, promoting entrepreneurship, cost reduction, "profitability ownership" and agility

While these efforts will involve all categories of suppliers, we expect them to have the strongest potential to impact results for system integrators. Their position in the supply chain makes their role critical in extracting inefficiencies from the industry system but also the ones that could draw the highest benefit of reducing process inefficiencies and eliminating organizational layers. Similar benefits can be expected for satellite suppliers, but to a lower degree, given their relatively smaller size and more focused range of activities.

- Like OEMs, but faster than OEMs, suppliers will move from hierarchical organizational structures to a more decentralized entrepreneurship model, in which decision-making migrates to those who are close to the market and in which clear cost and profit responsibilities are cascaded downward in the organization.

Suppliers will implement decentralized entrepreneurship in their organization



- This drive for flexibility will push key responsibilities downward, allowing suppliers to respond more quickly to market fluctuations.
  - > P&L responsibilities will be delegated to individual business units or other levels in the organization. The profitability of customers and their programs need to become more transparent to enable this shift.
  - > Cost reduction responsibilities will be delegated to the lowest possible levels and likely be on everyone's agenda.

The dilemma between developing global processes and interfaces to mirror OEM customers avoiding the creation of additional layers will be solved by suppliers implementing "lead functions" models across divisions or regions.

4. Global structures need to be created to interface global customers.

As OEMs accelerate the leverage of their affiliate networks across the globe, suppliers will be expected to continually mirror their evolution.

In the aftermath of the massive consolidation of the last two decades, the concentration of procurement power by OEMs was the first visible effect for suppliers. Renault-Nissan provides a prime example: they jointly purchase over 30% of their goods and service and are in the process of increasing this share to 70%. Consolidation of sourcing activities – through different organizational solutions –

has driven many suppliers to create key account management positions and organizations. Installing a key account management function and having affiliates or partnerships across the world, is often believed to be enough to manage an account globally. The truth is, that the global leverage of today's OEM organization and networks has just started and that most suppliers still have many steps ahead in order to align their organizations to their customers now truly in the process of becoming global.

Global leverage from OEMs has just started and most suppliers still have many steps ahead in order to align.

Suppliers will be affected in many areas:

- OEMs will expand their organizational leverage beyond procurement to include product planning, R&D and production networks. Parts and systems commonization will be vitally important and – as we discuss in a separate section – suppliers will play a major role in driving this evolution.
- As this process accelerates, it will become vital for suppliers to deploy dedicated engineering and product development resources close to decisions' stakeholders that are dispersed across OEMs' affiliates network. The actual organizations will vary from case to case and often commodity by commodity, to mirror each OEMs' own way of interfacing their suppliers.

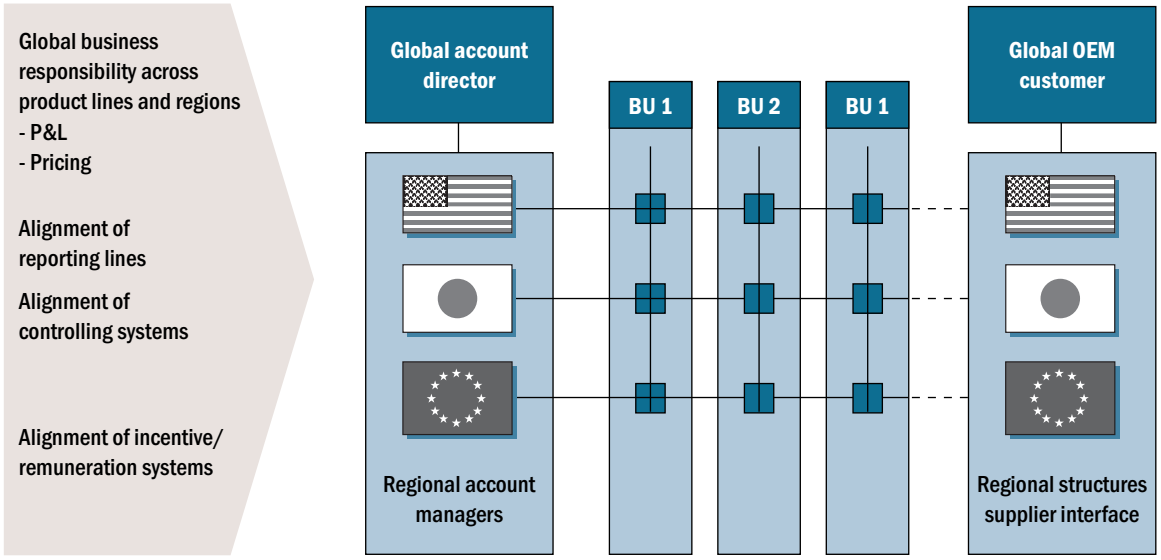
As OEMs leverage expands beyond procurement, suppliers deploy resources close to decision-making centers across the world.

- Establishing organizations that are effective in managing customers on a global scale is an expensive move: we estimate that both Sales & Marketing and product development costs of OES will grow because of the additional resources required, and that a significant payback – in terms of actual additional business – will only be achieved in the long run.
- To manage an account globally, creating a key account director position is only the beginning. To make this effective, major changes will be required to the OES organization and its processes.
- Global account management will likely be charged with a clear P&L responsibility for its account. This involves aligning the decision-making power over product pricing and margins. The real challenge comes when responsibility crosses product business units or regions, which is more often the case with today's profit centers within large OES organizations.
- Alignment of reporting lines: a global account manager needs to control regionally deployed sales groups that are located close to customers and decision centers. Different organizational options can be implemented, but some level of hierarchical reporting needs to be established to ensure effectiveness.
- Reporting tools and controlling also need to consistently support and align with global responsibility. This represents, in most cases, a huge effort, given the existence of the multiple legacy systems, especially for those companies that have grown through acquisition. Generally, the global sales process must be transparent to ensure consistency in prices and conditions.

- Rewarding tools and methods should consistently reflect this new organization. Ultimately, implementing true global account management involves realignment of the entire suppliers' organization – by breaking the internal silos of old.

Implementing true global account management involves realignment of the entire supplier's organization.

Implications of global account management



The effort and organizational disruption seems huge, but the rewards could be significant. Suppliers that can effectively manage and support a customer globally are the ones, that, in the long run, will be exposed to both new opportunities and markets. But, since OEMs will actually expect their suppliers to effectively act globally, the window of opportunity to create a "first mover" advantage is rapidly shrinking, and suppliers who do not take advantage of it will actually soon be in a "follower" position. As one executive states, "The pace of change is faster than most suppliers think. Companies that stand out are basically those who can effectively manage global program management. They are the ones who get awarded programs."

OEMs will expect suppliers to act globally. The window of opportunity to create a "first mover" advantage is shrinking.

5. Developing more diverse customer portfolios becomes a top priority

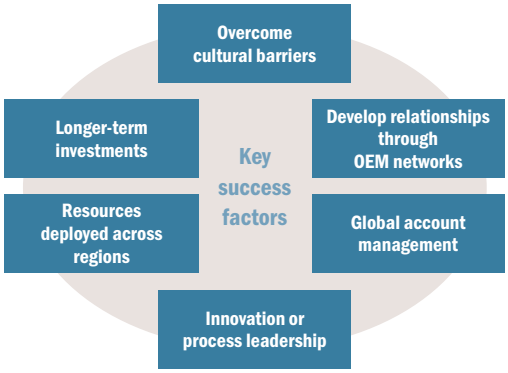
Market share battles at the OEM level will cascade to suppliers, increasing the already intense efforts to diversify customer portfolios. In the past, thanks to both regional "silos" within OEM organizations and expanding markets, suppliers have been able to concentrate and thrive with few, often just one, OEM customer(s), with a strong focus on their domestic market.

This is traditionally most evident for North American suppliers and less evident for large European suppliers. But even Japanese suppliers we interviewed reported being increasingly encouraged by their OEM customers to increase their business with other OEM competitors. Nissan's drastic reduction of their supplier base and refocusing of their sourcing policies was obviously a major trigger for this shift.

Drivers defining suppliers' future customer portfolios

- Even top OESs still achieve more than 60% of their revenues in their home market
- OEMs' sourcing decision and supplier selection are more and more coordinated across regions, BUs and brands
- Global OEM networks and an increasing number of common parts across regions, BUs and brands force OESs to act globally
- Volatility of markets can quickly change the success of vehicle lines and even of entire OEMs

Goal: diverse customer portfolio



In the short-term, suppliers will have to quickly and effectively work to change their dependence on a small number of OEMs.

- A primary driver will be created as OEMs further push the integration of their affiliates. This provides suppliers with the opportunity, and need, to penetrate the global networks of their existing OEM customers.
- Sourcing decision processes will continue to change and impact suppliers beyond traditional regions and across traditional, formerly independent, customers and brands. The first signs are already visible:
  - > General Motors/Fiat provides a valid example of how suppliers will increasingly be evaluated on a global basis with the inputs of all affiliates being taken into account.

> In many cases today, new programs are awarded by internal "committees" of representatives from different affiliates (e.g., Ford/Mazda).

> The new small vehicle platform jointly developed between DaimlerChrysler and Mitsubishi will re-distribute sourcing decisions, formerly controlled by Chrysler, across continents.

OEMs' affiliates that could be neglected in the past need to be on suppliers' "A" customer list now.

These examples clearly indicate that OEM affiliates that could be neglected in the past clearly need to be on the "A" customer list for suppliers.

As OEMs further leverage their global affiliates, further competition will be created in the form of the established suppliers of those same affiliates. For example, General Motors may further leverage Suzuki for a small car platform, based on Suzuki's track record of effectively designing, developing and producing small cars. Suzuki is likely to favor using their traditional supply base for this new global program rather than using a supplier who has a long tradition with General Motors.

Penetration of an OEM's affiliate network also becomes a necessity driven by parts commonization goals. Leading suppliers will likely play a facilitating role in this process ensuring commonization goals are adhered to.

Building a more diverse customer base seems to be unavoidable.

- Even to diversify customer portfolios within their own region, suppliers will need to be able to interface with customers globally. North American companies will have limited chances to create a significant business with the "new domestic" OEMs unless they are able to develop relationships where strategic sourcing decisions are made, which are often at overseas headquarters in Europe and Japan.
- In some cases, diversifying the customer base might imply redefining a supplier's "role." Some Japanese system integrators that were formerly part of established Keiretsu, for example, are likely to seek diversification by becoming satellite suppliers for new OEMs. The sense of these supplies is that it will be extremely difficult to be a system integrator for more than one OEM.
- For every supplier, acquiring new customers will involve considerable Sales & Marketing and product development resources. Payback can only be expected to become evident after a few years.

Driven by multiple factors, building a more diverse customer base seems to be unavoidable. To achieve this goal, suppliers need to develop and consistently implement strategic and operational plans and ensure that they strike the delicate balance between doing fewer deals with existing customers, and doing more (hopefully profitable) deals with new customers.

The roadblocks most commonly perceived by North American executives relate to cultural barriers, having the right resources, and having the amount of time that is required to develop relationships of significance. We believe that going forward suppliers will have no choice but to define long-term plans and deploy the resources to achieve this goal.

6. New OES business models need to be created to handle both high- and low-volume programs

OEMs respond to stagnating markets multiplying the number of vehicle launches.

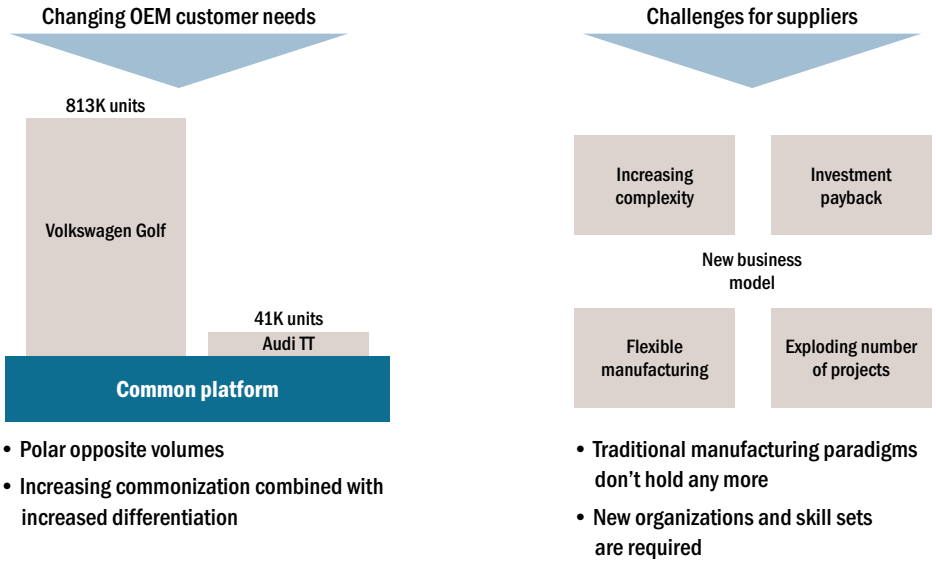
In response to stagnating volumes and increasingly volatile and fragmented consumer segments, OEMs will continue to battle for every last ounce of market share. As a result, the overall number of new vehicle launches will boom: approximately 50 new cars and 70 new trucks (including cross-over vehicles) are expected to be launched into the North American market place between 2003 and 2006. European launch plans are skyrocketing too, with more than 30 new models coming in the next five years from Opel, Ford, Volkswagen, BMW and DaimlerChrysler.

Commonization and manufacturing flexibility make OEMs' aggressive product plans feasible.

Costs associated with these aggressive product plans can be borne by OEMs only if they accelerate two initiatives: parts and systems design commonization coupled with manufacturing flexibility. Both initiatives help define a major paradigm shift for suppliers.

The VW A3 platform, the largest in the world in terms of total units, provides a clear indication of the direction and the challenges that lie ahead: the entire range of models manufactured from this platform totalled just less than two million units in 2001, with volumes varying from as much as 813k units for the Golf to as little as 41k units for the Audi TT.

Suppliers will have a vast array of opportunities – It will be key for them to adapt to match OEM customer needs



From a manufacturing flexibility perspective, Honda's system is considered the benchmark within the industry. Through the integration of manufacturing engineering in design and lofty standardization goals, Honda produces six model derivatives from the same assembly plant in North America.

The implications for the industry cannot be underestimated.

- The supplier base will polarize around two main clusters: "high-volume" suppliers – focused on delivering the approximately 60% of a vehicle value generated by common parts and platforms and "low volume" suppliers, focused on those components that define the vehicles' perceived differentiation. While the former build their competitive advantage on scale and efficiency, the latter focus on manufacturing flexibility and product innovation.
- Leading "high-volume" suppliers will likely act as the main facilitators for parts commonization. Suppliers will be "lured" and challenged at the same time with the opportunity to increase volumes through standardization across vehicles and platforms. While they might be tempted to resist and protect their differentiation, they will be confronted with the alternative of losing the business altogether.
- For all suppliers, there is risk. Platform and commodity content suppliers focused on executing the high-volume model will need to succeed on a decreasing number of bid opportunities, but with huge volumes (500k – 1000k). Derivative content suppliers, focused on executing the small-volume

Both "high" and "low" volume suppliers face risks.

model, or the brand-differentiating content, could easily be overexposed to market fluctuations and volatility.

- Confronted with an increasingly fragmented market, system integrators face the challenge to master both models simultaneously.
- They will increasingly embrace flexible manufacturing systems and create families of products where a core design can form their modular component or system platform from which they can build and customize solutions for different OEM requirements.
- The current business model of many suppliers tends to be based on the sales forecast of their main OEM customer. The volume of parts to be produced depends heavily on the number of vehicles on which those components can be used. To change this business model and reduce the dependency on one OEM, suppliers will increasingly standardize their core parts. Needless to say, not all the parts can be standardized.
- In the upcoming years, significant investments will be required to reconfigure plants to enable fragmented volumes. We therefore expect system integrators to experience higher depreciation rates in the next five years, coupled with an increased volume of material costs generated by rising components outsourced to technology or process satellites.
- System integrators will probably be able to mitigate the impact on material costs through negotiations and by streamlining their own supply chain. However, we do not expect the benefits of more flexible manufacturing plants to significantly impact OESs' cost structure before five years, given the timeframe required to adapt the installed capacity.
- The sheer speed, complexity and number of program launches will require excellent project and program management capabilities on the part of the supplier. These demands will boost the need for some fundamental rethinking in terms of people and processes in order to develop flawless launch capabilities.

System integrators will be able to mitigate the impact on material costs through negotiations and by streamlining their own supply chain.

7. Increased flexibility and interconnected value chains are needed to counter ongoing cost-down initiatives

Cost reduction and price-downs are here to stay.

Reluctantly, we cannot concur with the opinion of many North American suppliers we interviewed who thought price-downs are nearing the end of their useful life.

Hyper competition, overcapacity and high fixed costs are structural reasons that cannot be overlooked, but the incentive tornado that has swept the market for more than a year now provides one more argument: as several OEMs have pub-

We do not believe cost reduction and price-downs will subside.

licly admitted, they have been unable to capture, since the incentive warfare started, the increased margins typically associated with new models in the first months after their launch.

Finally, OEMs' increasing efforts to leverage their affiliates' network will strongly accelerate parts commonization and standardization, which acts at the same time as an enabler and as a tool to push cost reductions further.

Pressures on suppliers' costs will not decrease. A flexible and collaborative value-chain is needed to counter them.

Pressures on suppliers' costs are therefore unlikely to ease and can only be effectively countered by a value chain that is flexible, collaborative and focused on total costs.

Over the past decade, the industry has been nibbling at productivity costs at the component level at a rate of between three and five percent annually. However, the belief of many of the interviewed executives is that there are still major portions of costs to be extracted throughout the entire value chain in the form of productivity issues between OEM and OES, in the OES supply chain, and in other areas like unfinished goods inventory, especially in what were the lower tiers. The challenge is where to find, and how to extract these costs?

Suppliers will continually innovate and adopt effective methods to take costs out of the way they conduct business and the products and services that they procure and sell.

- Initiatives will continue to access low-cost countries. Suppliers face the alternative to lose business to new competition from emerging countries, or to establish their low-cost facilities there – greenfield or through alliances. Although the best location to manufacture for lowest cost will continue to depend on the size and complexity of the final product, most suppliers expect the sourcing trend to continue to leverage Eastern Europe, Asia and in particular, China.
- Manufacturing flexibility will continue to be the linchpin of supplier operational strategies. Fixed asset investments must be wisely spent to create manufacturing facilities and networks that are as flexible as possible and that can be adapted to help produce many different models to help counter the increased volatility of an already cyclical market.

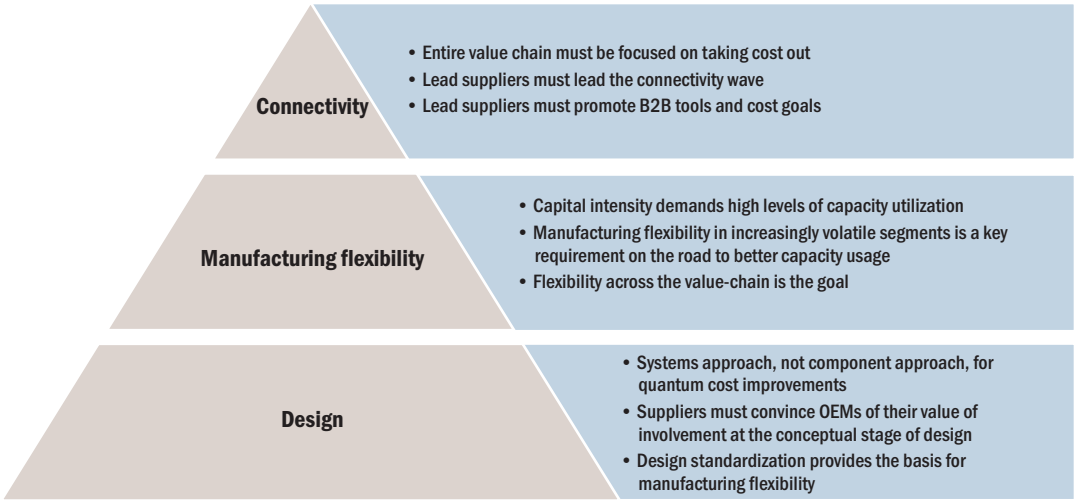
Manufacturing flexibility will be the linchpin of suppliers' operational strategies.

- Higher levels of standardization are a key enabler of both flexibility and cost reduction. The design and manufacturing functions will need to work simultaneously throughout the supply chain to ensure that the maximum level of standardization is achieved. Why should manufacturing facilities, workflows and processes be so different for the same or very similar product groups? Honda provides a world-class example of how standardization of design drives the ability for manufacturing flexibility.
- As we highlighted in a previous section, suppliers can and should play a major

role in promoting standardization.

- To work effectively, this focal shift must happen at both the OEM and supplier levels. The costs that have been extracted at the component level are close to their maximum. The real opportunity now lies at the interfaces of the sub-systems and systems, hence the focus must shift and be considered far earlier in the design process.

Design, manufacturing flexibility and supply chain connectivity are pre-requisite is to supplier cost competitiveness



- The earlier in the design process players are engaged, the more likely a cost-effective solution will be created. It will be the role of both the OEM and the lead supplier to ensure that the right parties are brought together to collaborate when the opportunity exists in the process.
- Implementing flexibility also requires an evolution in terms of multi-functional skills required to the workforce.

Market-driven procurement model is not effective in reducing industry's structural costs.

If the supply base over the next decade is to deliver efficiency improvements for the industry, then sourcing strategies and supply chain relationships can be expected to change along the entire chain.

It is clear from our interviews that executives believe the current market-driven procurement model prevalent in North America, based on piece price and yearly price-downs, is not effective in taking structural costs out of the industry.

Although organizations and traditional "cultures" will slow the process change, a value-based, total cost procurement model will become more prevalent in the industry. Over time, this will lead to a better balance between engineering and pro-

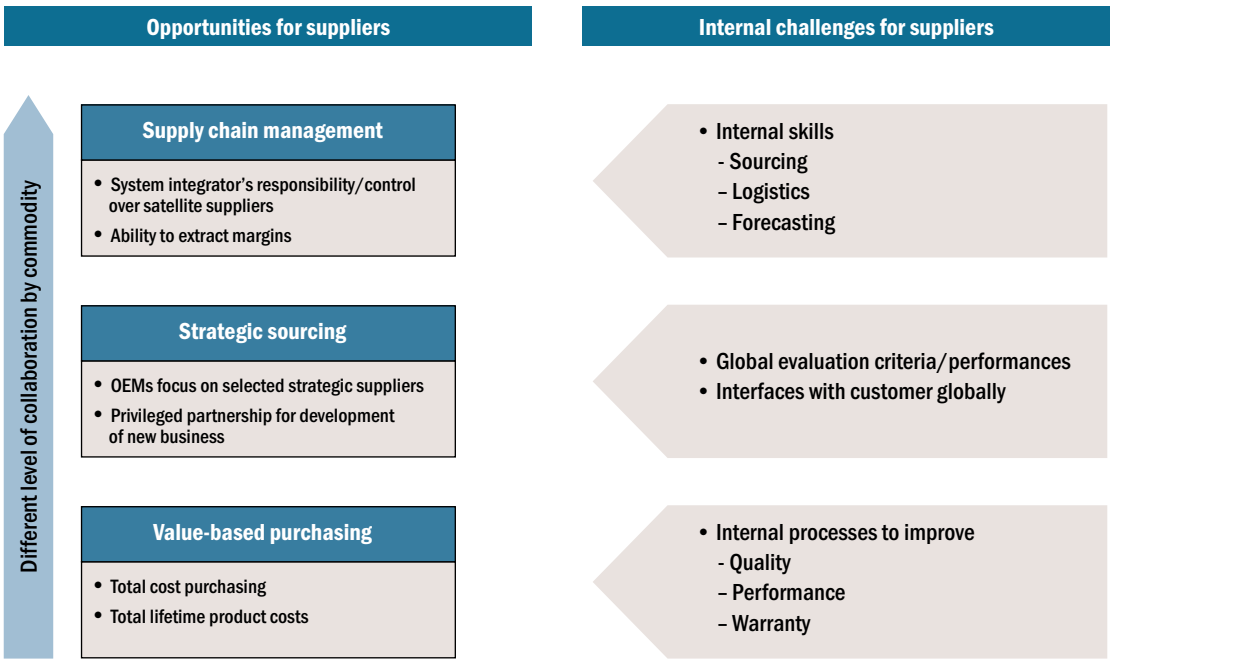
curement in sourcing decisions. While the model provides many advantages, and suppliers seem to see it as a sure step forward, it certainly will not come for free.

Driven by several trends, OEM/supplier collaboration and long-term relationships will improve. Though many in the industry will welcome this change, capturing the benefits will require more capabilities and resources at each level.

- Strategic suppliers will continue to be developed by OEMs but periodically challenged by exposure of the business to the market to ensure price competitiveness.
- Strategic sourcing will become a core capability for larger suppliers. While it promises great benefits, it also demands more of suppliers. OEMs will increasingly focus on developing "strategic" suppliers on a global basis, putting the chosen few on short lists for new business, helping them to beef up capabilities and share systems, processes and responsibilities. To get to this level, suppliers will have to consistently meet global evaluation criteria and score high marks from each OEM network affiliate on a wide range of scorecard categories. Suppliers will face increasing levels of transparency on performance, quality, and support across all regions and products.
- The ultimate level of OEM-supplier collaboration will be achieved when suppli-

While promising great benefits, strategic sourcing demands more of suppliers.

Collaborative relationships place challenging requirements on suppliers



ers effectively lead their own supply chains. The few that reach this level may become truly integrated with their OEM customers. However, to achieve this, they will need to prove their ability to effectively manage other suppliers and develop and master their own sophisticated forecasting, logistics and communication capabilities. Above all, they will need to implement the lessons learned from OEMs about focusing on their own internal competencies while outsourcing non-core manufacturing and functions to their satellites.

8. More product creation and product life-cycle responsibility will shift to suppliers

The outsourcing trend will continue, but with a twist.

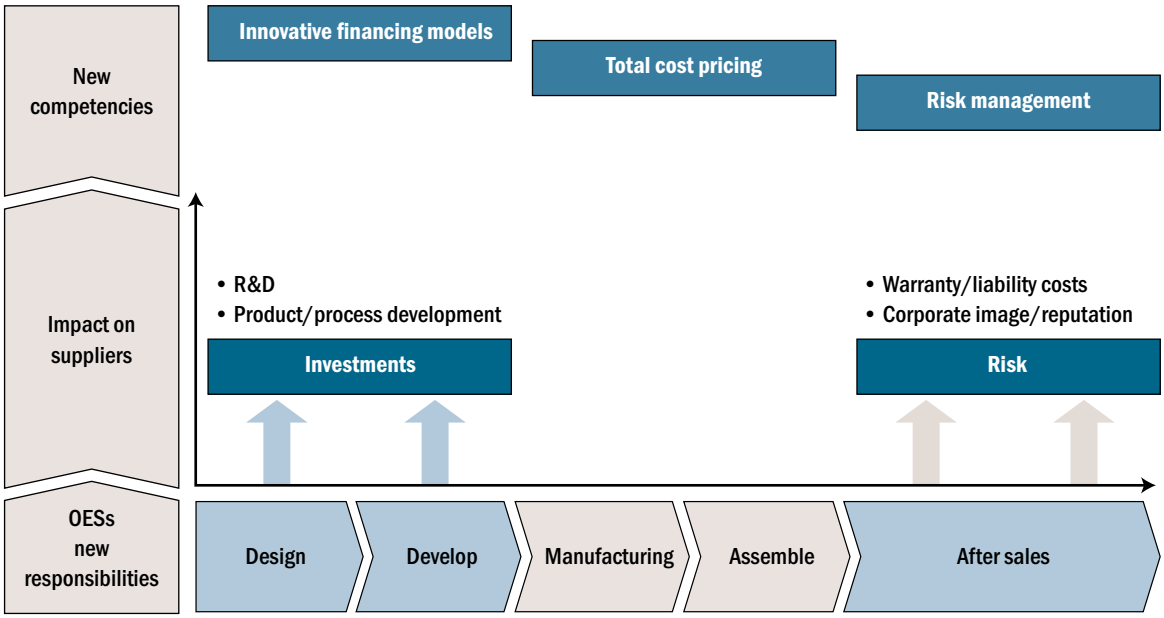
Though the massive outsourcing of content to the supply base has failed in many cases to achieve all of the expected benefits for the industry, and despite the recent discussion of OEM "insourcing," interviewees generally agreed that the trend would continue, but with a twist. In the next wave, OEMs will shift more product lifetime responsibilities, from design and development to warranty and liability costs, to the supply base. In addition, manufacturing responsibilities will continue to cascade down through the supply base, as system integrators and larger satellite suppliers outsource more.

While this trend is very evident across all regions, it needs to be noted here that its actual speed is strongly influenced by the constraints faced by OEMs who cannot, in practice shed their internal workforce at the same pace of their outsourcing.

Many OEMs have started to hold suppliers responsible for some product lifetime costs, but there is much more to come. It is estimated that suppliers currently cover only five percent of the $10bn annual warranty tab in North America, and it is widely expected that this share will rise over the next decade as OEMs attempt to cut costs and simultaneously raise quality. As suppliers take on more design and development responsibility, they will also fund an increasingly higher portion of the industry's R&D efforts. The creation and protection of intellectual property will likely remain one of the hottest areas for debate as technologies become increasingly prevalent.

To deal with the increased responsibility for warranty and liability costs, suppliers will have to considerably improve their understanding of their own product performance over its entire lifecycle.

Suppliers need to install new competencies to manage a wide range of new roles and responsibilities



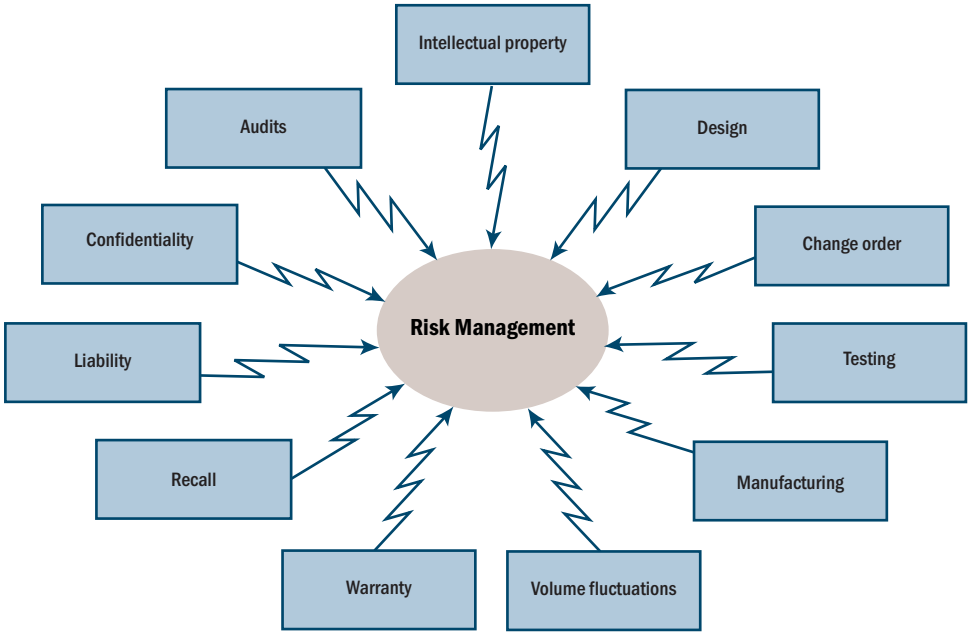
- At the front end, suppliers will need to install precise and robust processes to ensure that their prices include solid estimates of the full lifetime cost of their products. RFQ processing is today often focused on estimating development costs and part price. Going forward, suppliers will need to more carefully assess potential risks and costs they might incur during the product's lifetime and adequately include them in their calculations.
- Future contracts will cover a growing spectrum of issues in an attempt to shield suppliers (and OEMs) from the risks that might arise during the product lifetime. Just as the levels of outsourcing differ significantly from program to program and from OEM to OEM, so will the content of contracts. A wide diversity of terms and conditions will prevail based on many differing factors. The challenge for suppliers as they push to further diversify their customer portfolios, is to effectively comprehend the array of administrative burdens associated with the variety of contracts.
- While the ability to deal with such complex negotiations is widely established with the larger system integrators, smaller players are far less likely to be prepared to manage the complex negotiations that will cascade down to them. To face the risks associated with the future programs they will likely install a new set of administrative capabilities, which in the short-term, will negatively impact the overhead cost structure.

Suppliers install robust processes to estimate product lifecycle costs and risks.

Although we do not underestimate the associated hurdles, the "standardization" of terms and conditions should be a high-profile objective for the industry as a whole, and one that especially small suppliers will have a keen interest to enforce.

While we suspect that most suppliers have many gaps to fill in order to be adequately prepared for these challenges, some leaders have actively anticipated the challenge. One leading North American supplier works closely with dealers to get feedback on product performance (often in exchange for technical advice) and aggressively benchmarks against the competition to improve quality standards. This strong feedback loop allows the company to offer complete systems with full warranty backing to OEMs at substantial savings, transforming a potential threat into a competitive edge.

Risk Management becomes part of suppliers' critical competencies



- Suppliers will dramatically improve their ability to monitor product performance once products are in the field, and to reduce delays in feeding product performance data back into the development and manufacturing process. The time lag today can often be measured in months, forcing many suppliers to establish informal relationships directly with dealers to overcome the lack of transparency in information provided by OEM customers. In the future, innovative suppliers will likely rely on a much more seamless and consistent flow

of vehicle-generated data enabled by emerging telematics technologies. Processes for root cause analysis linked to the resulting engineering changes will also become core.

Suppliers will improve their ability to monitor product performance in the field.

- Since many warranty costs stem from "grey areas" involving some level of system failure, large systems suppliers will likely make sourcing control of their own supply chain a top priority.

In addition to warranty costs, suppliers will be expected to cover an increasing share of R&D costs. The European model, in which costs are commonly paid prior to production, is likely to move closer to the North American and Japanese models, in which costs are included in piece price and amortized over the lifecycle of the vehicle. This will present an enormous challenge for suppliers, particularly small and medium-size companies.

- As a result of the increasing risk associated with lifetime responsibilities, many suppliers will accelerate the creation of risk management capabilities, taking a cue from other innovation-oriented industries (e.g., pharmaceutical).

Suppliers will accelerate the creation of risk management capabilities.

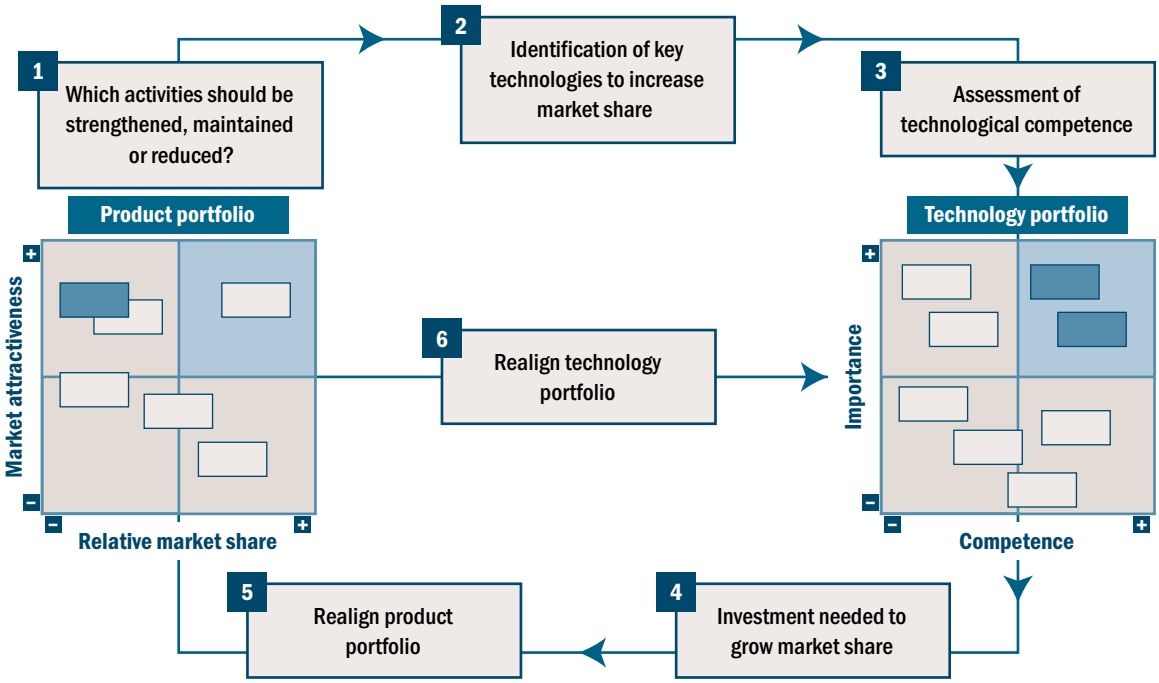
- Suppliers will need to find innovative financing methods to cover the growing costs and match the longer payback period. This is especially true given that many suppliers are already financially weak, suffering from low liquidity levels and shrinking profit margins.
- Larger suppliers, particularly publicly owned companies, will continue to access capital markets or issue bonds. Small- and medium-sized suppliers, will be hard pressed to find the capital to cover the additional financial burdens. These suppliers will need to be especially creative in finding ways to fund their R&D efforts, making use of "sale and lease-back" models, strategic alliances, and third-party R&D companies.

9. More focused business models and skill-sets need to be developed along carefully selected technology/application portfolios

Technology provides suppliers with one of the most critical considerations when defining their future strategy. The sheer speed of innovation and number of available options of basic technologies to solve a problem are in themselves difficult issues to master. Complexity and integration of technology make the equation even more difficult as suppliers of different backgrounds may attempt leadership on the same system.

Transversal technologies create a completely new scenario that can potentially redefine the roles that individual suppliers play. The primary driver is electronics, which is rapidly becoming the nervous system of the vehicle. The wiring harness provides a good example. In the past, there have been two relatively "simple" harnesses, one for powertrain and one for interior control. Today, the electronic "back-bone" networks previously unconnected areas of the vehicle, and delivers functions above and beyond the constraints considered by previous generations.

Suppliers need to align their product and technology portfolios

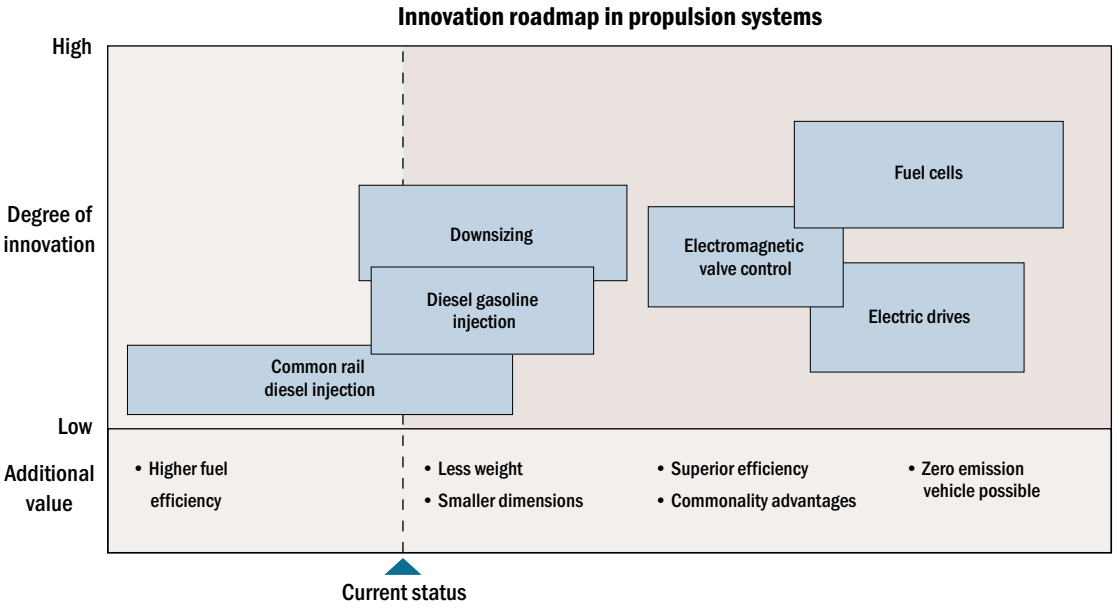


- The traditional clear lines of separation across systems are blurring, creating a more prominent role for "technology domains" defined by clusters of technologies that deliver similar functional capabilities. A "domain" describes a cluster of activities dedicated to the satisfaction of at least one important market need, originating from end-consumer expectations, society requirements and regulations, or OEM demands.
- The application of technology will be less correlated to the physical elements of a vehicle and more to the function, changing the way companies compete. The owner of the largest share of the domain's value is likely to become the leader, but finite R&D funding and competencies will force suppliers to prioritize their resource allocation. Defining the area of technology to focus on and

Application of technology will be correlated to the function, rather than to a physical element of the vehicle.

the portfolio that surrounds that focal point are the core fundamentals of a successful technology strategy. A well-defined technology roadmap is a core building block in this process.

Technology roadmaps are key for suppliers to focus their R&D activities



To compete in this environment, suppliers must address three critical issues:

- The payback of high technology R&D investments will be a major driver, forcing suppliers to thoroughly assess where both their core capabilities and opportunities to lead reside. As some of the executives we interviewed pointed out, investing in high-tech skills might make a supplier the preferred technology partner for a specific OEM, but technology leadership might not automatically command a margin increase that offsets the increased investments.
- A clear understanding of the "collateral" technologies required to deliver the system's function must be developed, and the appropriate network of partnerships defined. The domain leader then has the responsibility for the technical integration of the incidental components and for program management.
- The debate over intellectual property protection will continue and increase as the industry moves to standardization and open architectures. Interlinked components and different technology lifecycles lead to this: controls' software must become accessible for annual updates, electronics systems like infotainment will likely be replaced three or four times in a vehicle's lifecycle. The key

question remains: will open interfaces and IT architectures become closed-loop systems? To counter this, suppliers (and OEMs) will likely introduce lifecycle-related payment models to enable a safer payoff before the next technology switch and hence lower the risk.

Japanese suppliers stated that the direction of new technology is usually decided by OEMs. Japanese suppliers tend not to be required to have marketing functions, and generally they develop new technology according to the requests of their OEM customers. However, it was noted that if foreign OEMs require their marketing capabilities, then it will be necessary for them to develop the capabilities.

As technology changes, so do the competencies needed to execute its development. Many supplier skill sets still stem from the requirements of the past that were determined by the technical functions of the car. Valve train component suppliers have clearly defined skills based around mechanical engineering and thermodynamics. Brake and clutch manufacturers were experts in friction technology, and OEMs acted as the integrator.

As technology changes, so do the competencies needed to execute it.

Mapping the migration is a start. Key transversal technologies will cross each vehicle domain and supplier skill sets will have to be rebalanced in order to provide:

- In-depth technological expertise of "their" domain
- High innovation speed and flexibility to adapt as technology develops
- Integration know-how
- Application know-how, balanced with commercial acumen

Suppliers will face a constant barrage driven by scarce resources as they attempt to change from functional technology experts to domain leaders. Engineering and comprehensive vehicle know-how will be the scarce resource of the future, and the war for engineering talent will continue to intensify. Scarce, adequately skilled human resources will be an additional driver – beyond technology complexity and investments – driving the industry toward a more complex and fragmented network of relationships. Flexible partnerships with other suppliers, targeted acquisitions and close cooperation with the OEMs will provide the additional know-how, required to be a domain player.

Suppliers shift from technology experts to domain leaders.

10. Future technology solutions will be developed by communities or networks of suppliers

The costs and risks associated with developing vehicle systems technology are immense and escalating, making it increasingly prohibitive for individual companies to respond. To compound this further, the much-needed capital for technology will likely remain in short supply.

As the vast array of options for technological solutions only increase, suppliers must find ways to further mitigate their risk. OEMs will clearly remain part of the development process to varying degrees, but much of the detailed technology development and associated risk will likely be placed on the shoulders of the suppliers. Suppliers must develop effective relationships that leverage, not duplicate, precious technology-related investments of many companies, not just their own.

Individual companies cannot sustain costs and risks linked to technology development.

The high financial risk of technology selection and development are driving the industry towards a co-opetition model where value is created through the combination of competition and cooperation. Networks of innovative independent suppliers will help the development of solutions to more manageable costs and risks.

The sustainability and the commercial volatility of a technology solution will continue to be significant considerations for suppliers. The associated risk will be more evenly distributed across the supply chain. System integrators will develop more robust processes to effectively select sustainable technologies and in the process share their risks with development partners.

So, how will the supply base respond?

System integrators develop robust processes to select sustainable technologies.

- In the long run, major portions of the supply community will adapt their traditional value chain to fully networked structures. These structures, if effective, will combine relationships and competencies in a flexible and effective way. Systems integrators will likely establish themselves as major hubs within this network, creating opportunity for new players to act as configurators or intermediates. Advanced IT infrastructures will be a necessary investment.

- Project-based collaboration partnerships will be just an interim solution for common development efforts. System integrators will frequently act as the trigger, as in the case of Johnson Control's "Peer Partnering Program," where JCI acted as the initiator and developer of the network. The creation of such a virtual organization, if executed to plan, will increase capabilities and limit the inflexibility often associated with vertical integration.

- Mid- to long-term relationships will dominate collaborative structures. As the speed of technology change is ever increasing, suppliers will try to create anchor points and peer-partnering relationships. The majority of these partnerships will be backed up by strategic alliance agreement or by joint ventures.

- Suppliers will develop collaborative organizational cultures. Many more relationships will develop between peers, competitors and customers, calling for an approach quite different from the traditional business methods of today.

Collaborative networks will not only be created within the automotive industry, but will also extend beyond the traditional industry bounds and include other industries and academia. Some Japanese companies, for example, believe that establishing collaborative relationships with academia will be one of the keys to accelerate new product development. Unlike American and European universities, Japanese ones tend to be academic-oriented, conducting much more fundamental research in collaboration with industry. Therefore, both Japanese OEMs and suppliers are likely to increase their collaborative efforts with overseas institutions, and to seek new schemes with domestic universities in order to utilize their capabilities in product development.

Collaborative networks increasingly extend beyond automotive industry's boundaries.

11. Component and systems technology become an essential factor to support OEMs' brand strategies

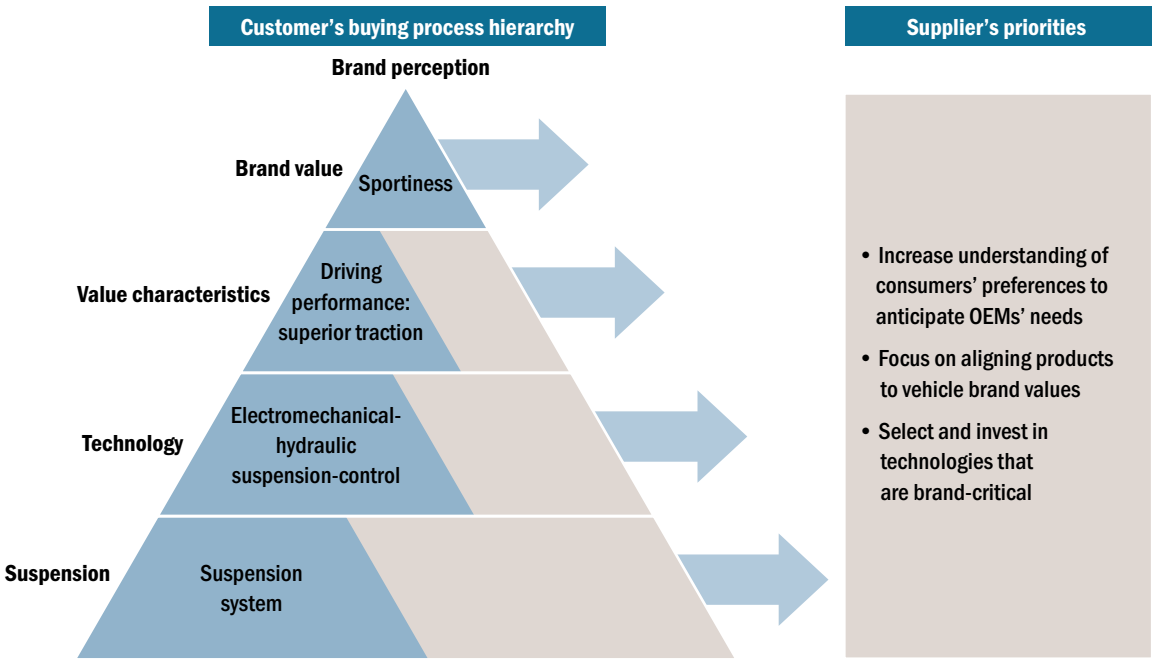
Brands play a fundamental role in differentiating vehicles and in driving OEM market share. Margins will be significantly influenced by the relative strength of OEM brands. Vehicle manufacturers controlling a multibrand portfolio are challenged to solve an increasingly difficult trade-off between cost synergies and differentiation.

New technologies like telematics will help OEMs to establish closer links with their customers, to better understand their preferences and to shorten the time to bring new features to the market. Innovative appealing products will continue to be the main weapon OEMs use to attract elusive customers.

OEMs will dedicate significant resources to clarify and define the blend of attributes that make their brands attractive. The winners will consistently market and engineer these attributes into their products through a combination of systems and features.

Suppliers have the opportunity to be on the critical path of this evolution, as components and systems play a major role in defining a vehicle's perceived attributes. The challenges they face mirror those of their OEM customers.

Suppliers will try to position themselves on the critical path to define brand differentiation



- If a supplied component or system is not critical in advancing the differentiating characteristics of a vehicle, then that product will clearly be positioned on the commonization or cross-vehicle sharing path. As we discussed in other sections, the supplier can expect to be challenged with standardization and carryover goals. On the other hand, "brand critical" components – which clearly contribute to creating differentiation – strengthen suppliers in price negotiations.

"Brand-critical" components strengthen suppliers' negotiating position.

- Suppliers must deepen their understanding of how their products influence brand attributes and consumer preferences, and link this information to their R&D function to drive their innovation process. Successful OEM marketing groups will likely take a larger role to facilitate the distribution of the targeted customer brand attribute information through their procurement, engineering and manufacturing functions.
- Suppliers will also decreasingly rely on the OEMs to understand consumer preferences. The majority of our North American interview partners felt they lack knowledge in this area, and will invest in the future to better understand consumer knowledge and feedback on product performance. The challenge for many remains how to set up the knowledge channels to make this a key part of their innovation process.

- The same need was not – on the other hand – strongly emphasized by our European interview partners. They seem to more heavily rely on their existing market research or OEM data that comes with the product requirements.
- Few suppliers – primarily those who have or target a significant aftermarket business – direct their efforts to establish a "component brand." The vast majority of North American suppliers stated that they will target consumer and brand understanding to "anticipate" OEM needs, thus strengthening their own role as strategic and long-term partners.

Few suppliers direct their efforts to establish a "component brand."

12. Regulations create additional opportunities, but mainly additional threats

If organizational change, global structures, diverse customer portfolios, technological complexity and all of the other issues we have discussed do not give suppliers strategic fits, regulation ought to do the trick. Regulation is a true unknown, and it is here to stay.

Governing bodies at the local, national and international level will continue to exert a major influence on how and where the automotive industry operates. Their decisions – in the form of deregulation and regulation – simultaneously provide new opportunities and more often create new threats for the industry and should be on every supplier's radar screen.

Governing bodies at the local, national and international level will continue to exert a major influence on how and where the automotive industry operates.

China's accession to the World Trade Organization, for example, opens a huge and relatively untapped market for OEMs and suppliers, yet it also poses significant risks such as local partner selection and intellectual property protection.

Similarly, California's stringent emissions standards could prove extremely costly to OEMs and suppliers that have invested little in alternative fuel technologies but may prove to be a boon for companies that have invested in more efficient engine technologies like diesel.

Of course, many regulations impact OEMs and suppliers in different ways. For suppliers, the impacts are primarily product-dependent. Body parts suppliers, for example, will be more worried about steel tariffs, while some electronics suppliers will be more concerned with safety and emissions regulations.

Suppliers take an array of approaches to understand regulations, from doing nothing to doing much. Typically a waiting game is played until a deadline for compliance nears. Few suppliers see the need to explore the implications of regulation and implement consistent strategies for dealing with it.

Suppliers need to closely monitor regulatory development.

- At the very least, suppliers will need to monitor regulatory developments and consider the potential impacts (positive or negative) to their business on a regular basis. The U.S. Government-mandated Transportation, Recall, Enhancement, Accountability and Documentation (TREAD) Act, for instance, will soon require OEMs and suppliers operating in the U.S. to report a comprehensive set of data designed to act as an early warning system for defects. It is estimated that the cost of compliance will reach millions of dollars for larger suppliers. Mandates like this and the associated costs should be anticipated as far in advance as possible.
- OEMs and regulators appear to push in the same direction on product lifetime responsibility. The End-of-Life Vehicle Directive passed by the European Union, in particular, will require suppliers to develop solutions to reverse processes and recycle products, or possibly outsource such operations
- Suppliers of systems that are more heavily impacted by specific regulations will have to take a proactive – not reactive – approach. These suppliers must ensure that they give sufficient weight to rulings at a strategic level, since regulation can alter their technology path. A global Japanese supplier we interviewed has dedicated full-time employees around the world to track regulatory developments, which are reported on a monthly basis to the Chairman. Though this supplier does not develop products independent of OEM requests, it does consider regulatory trends as a fundamental input into new product development.
- A clearly focused technology portfolio is, even under this perspective, a valuable tool. The cost of keeping abreast of all regulations that may impact suppliers' core technologies presents a serious dilemma, and a sharper focus will help them reduce the costs associated with it
- Regulatory activities affect all players in a specific region or segment equally; there is no differentiator. We may witness OEMs and suppliers getting together to address some of the regulation concerns, therefore sharing the costs and risks associated with such initiatives.

Rulings need to be weaved into suppliers' long-term planning, since they can heavily affect their technology path.

D – The suppliers' challenges in the emerging markets

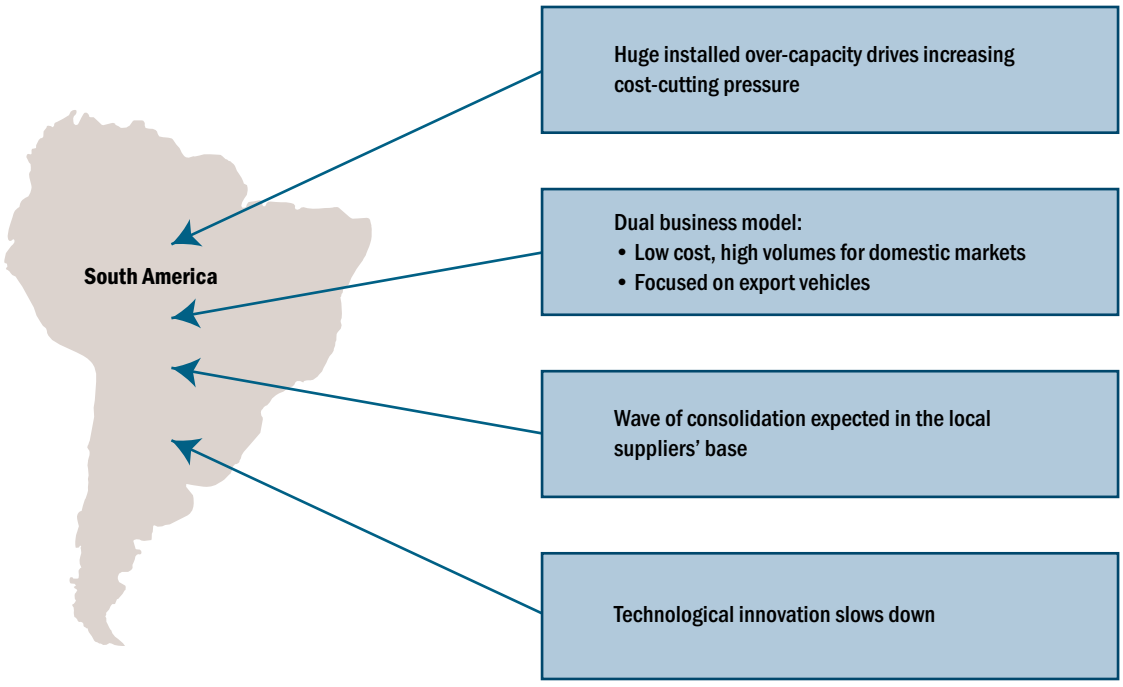
To this point, we have described the situation for suppliers in the mature markets of North America, Europe and Japan. While these markets currently account for the bulk of production and sales for the industry, they are expected to experience little or no growth over the next 10 years.

In this section, we turn our analysis to the supplier industry in two emerging markets, South America and China. Though each is expected to grow in the next decade, each represents very different opportunities and challenges for both local and foreign suppliers.

1. Similar, but different: a snapshot of South America

While the global industry trends we highlight in this report apply to the South American region as well, some unique market elements need to be taken into account as they will influence the implications for the suppliers' industry.

Economic instability defines the industry's challenges in South America



- Rampant overcapacity (currently approximately 40 percent), has been installed by "newcomers" to the region in expectation of strong market growth that has not materialized.
- The global economic slowdown and the financial instability in the region have severely curtailed consumer purchasing power.

Overcapacity and financial instability have curtailed consumers' purchasing power.

Together, these two factors have led OEMs to essentially give up on selling any middle- or high-end vehicles in the region and focus instead on producing high-volume, low-cost cars and vehicles for export. This unique situation of the industry in the region will in some cases delay the impacts we have described on the supply base in South America, and in other cases make them more dramatic:

- The low-cost focus and intense competition will drive OEMs to continue their own aggressive cost-cutting initiatives and push suppliers to rationalize cost structures and optimize processes along the supply chain to an even greater extent.
- Suppliers will need to further polarize their business models to meet the need for low-cost, high-volume components and systems or to serve the needs of the growing export market.
- With the high level of modular production in the region many suppliers have already taken on significant responsibility from OEMs. Over the long-term, OEMs in the region, will attempt to reduce their fixed costs and increase their flexibility by further shifting responsibility to the supplier base. In the short-term, though, we expect them to temporarily bring certain activities back in-house to utilize some of their excess capacity.
- The local supply base will undergo more intense consolidation, compared with other regions, while a wave of partnership agreements and joint ventures can be expected among local suppliers.

The local supply base will undergo intense consolidation compared to other regions.

- The speed of innovation and technological development will be far slower and more focused on process and cost reduction in South America.
- Local regulation will follow global trends, but with a time lag. Still, the increased relevance of export business will make it necessary for the majority of the industry to keep up with regulations affecting components/systems for export vehicles.

2. China: the new frontier for the supplier industry?

The Chinese automotive industry is also a special case. Still small, but expanding at an impressive pace, it will grow by 25 percent in 2002 and likely hit the one million mark. Growth is expected to accelerate even further, as tariffs and trade barriers gradually dissolve in compliance with the country's accession to the World Trade Organization (WTO).

The lifting of market entry barriers radically altered the supplier landscape.

The lifting of market entry barriers has radically altered the supplier landscape in China. Two years ago, Roland Berger surveyed OEMs and suppliers to gauge the impacts of the WTO landmark agreement. For this study, we have again surveyed vehicle manufacturers, local and foreign suppliers, and joint ventures. The outcome essentially confirms our original expectations and highlights the unique set of challenges for the local industry and, conversely, the opportunities for non-domestic suppliers.

- Continuing price deflation intensifies: under increasing pressure from falling prices due to reduction of tariff and import quotas, vehicle manufacturers will continue to pressure suppliers to increase their productivity and lower their prices.
- Decreasing local content: as requirements for local content are gradually reduced, vehicle manufacturers as well as foreign suppliers with local operations will reconsider their sourcing and manufacturing depth. In the long-term, they will only manufacture in China parts and components that are truly competitive in terms of world market standards and costs. Currently, prices for many core components are still 50 percent higher (and sometimes more) than in the world markets. The disadvantage is partly due to smaller scale production and partly to inefficient processes and supply chain management or unproductive structures, which cannot be compensated for by lower labor costs. Foreign vehicle manufacturers can be expected to reassess their sourcing and decide in some cases to resort to imports from other manufacturing hubs in their international supply network.

"First mover" status might turn into a disadvantage for foreign OEMs in China.

- First-mover disadvantage? "First-mover" status may become a disadvantage for foreign OEMs. Many that have been in China for years, like Volkswagen and General Motors, are entangled in a web of local supply contracts or joint ventures that are difficult to change. Newer entrants, such as Toyota, will not be bound by these relationships and can optimize their supply networks from the start, giving them considerable cost and efficiency advantages. These new entrants may provide the best opportunity for foreign suppliers to enter the Chinese market, at least in the short-term.
- Enhancing the capabilities of local suppliers: some multinational OEMs clearly have a strategy to find the right balance between their multinational and local

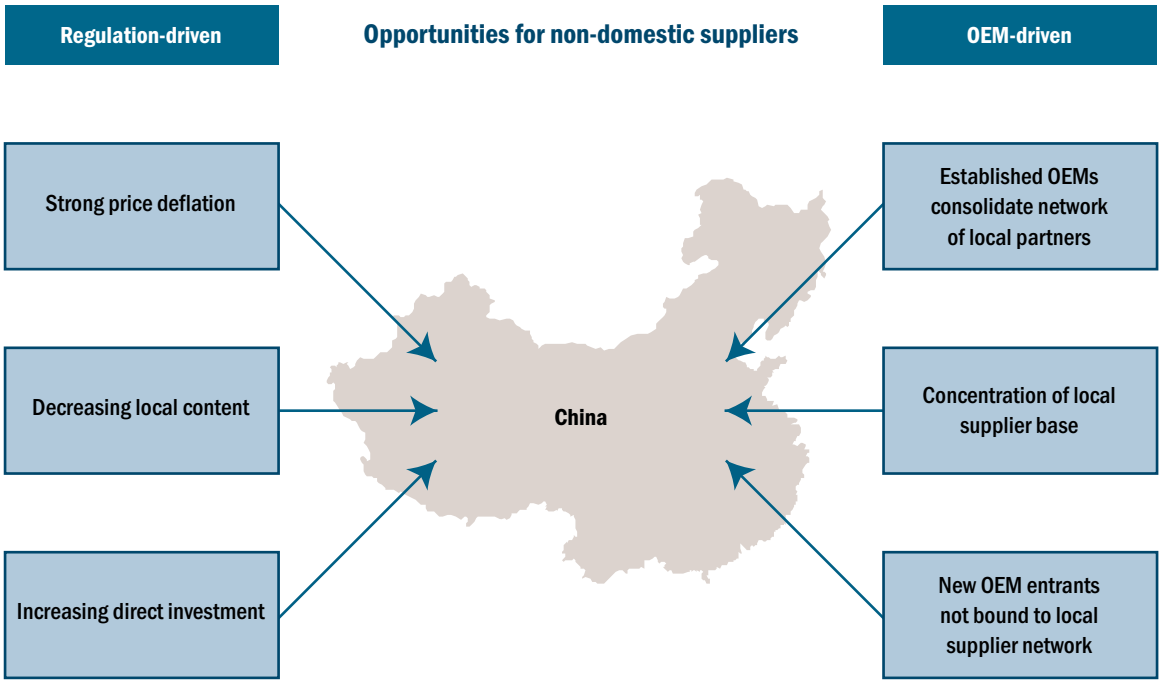
suppliers. They will therefore increase their efforts to support the local, specifically Chinese, supplier industry to enhance their performance in cost, quality and delivery, and to better serve local OEM operations. To achieve this goal they will go as far as sourcing from China to support vehicle programs in both Asia and North America.

- Concentration within the local industry: dramatic consolidation is expected in the local automotive supplier industry. Only those suppliers that have a strong relationship with the leading Chinese OEMs and who have also built critical mass have a chance to survive the shakeout caused by price competition, increasing imports and higher demands from vehicle manufacturers. Few local suppliers will be able to meet competitiveness and supply chain reliability goals and – with some exceptions – only through a contractual partnership with strong multinational players already operating in China.

Few local suppliers will be able to meet competitiveness and reliability goals.

- Increasing direct investments: foreign suppliers will invest heavily in China, encouraged by their OEM customers, the long-term market potential, and low labor rates. Lured by annual growth rates above 15 percent in the medium-term, most foreign OEMs are taking advantage of this opportunity and would like their key suppliers to join them. As the market grows to a point where large-scale capacity is justified, many previously cautious suppliers will also join.

WTO accession redefines suppliers' opportunities in the Chinese market



- Consolidation of sourcing partners: foreign OEMs will also reduce their local supplier network considerably by encouraging their key suppliers to take over system responsibility. This trend will clearly favor large multinational system integrators.

To be successful in China, suppliers will need a structured market entry approach – quite possibly including a thorough due diligence process for local partners – and strong intellectual property protection.

E – Financial implications for suppliers

In the previous sections of this report, we have described in detail the magnitude of change in the automotive industry and how the industry and individual suppliers should adapt their own business model to meet these changes and the associated challenges. To finalize this picture, we describe the effect of these changes on the bottom line of the supply base.

As in previous studies, Roland Berger has developed a proprietary, multidimensional financial model that estimates the consequences on each of the three types of suppliers that will emerge in the industry: system integrators, technology satellites and process satellites.

We created an average P&L for each supplier category.

As a starting point, we have created – based on more than 70 P&Ls of selected suppliers – an "average" 2001 income statement for each of these supplier categories in North America, Europe and Japan. For Europe and Japan, these income statements are based on 2001 and 2001-2002 data, respectively. For North America, we start with data from the first two quarters of 2002 to avoid distortions from using results achieved in an exceptionally bad year like 2001.

Building off of these "average" income statements, we project the outcome of the 12 main impacts, weighted to reflect their relative importance, and come up with average income statements for each type of supplier in 2007 and 2012.

The supplier industry is emerging from an extremely difficult year, which came on the heels of a period of unprecedented expansion. In developing our assumptions, we aim to provide a picture of how the industry might look in the future, based on a realistic scenario – in other words, we do not build our projections relying on volumes of an expansion cycle.

For purposes of comparison, we base our projections on the current vehicle sales mix and industry market shares and do not assume any effects arising from major shifts in foreign exchange rates. We do assume, however, as explained above, that price-downs will not subside in the years to come.

Our consultants and automotive experts in North America, Europe and Japan have fine-tuned the model to reflect the specific characteristics of their respective markets. In this way, we have developed a clear picture of how suppliers might be impacted differently from region to region.

The Big Picture

The industry will not overachieve, but financial performance can be improved.

It is common today in North America to read that the industry business model is "broken." Considering the financial results of the supplier industry in 2001, it would be easy to draw the same conclusion for Europe and Japan. We believe that opportunities and tools are available to "fix" and improve the automotive business model in the long run. Though there is no evidence that the industry as a whole will overachieve financially, we do expect that by taking effective management actions in response to the impacts we have identified, select suppliers and certain categories of suppliers will continue to be able to considerably improve profitability in the coming years, as in the past.

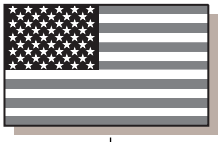
Based on the assumption that the three types of suppliers we have described will follow our suggestions and take the necessary actions to adapt their own business models to their new roles and responsibilities within the emerging supply base network, we have forecasted their potential profitability development over the next decade.

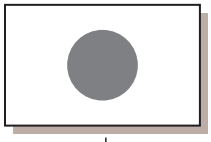
Different growth rates by supplier category and region.

Overall, we forecast that system integrators, technology satellites and process satellites will increase their pre-tax profits, but at different rates across categories and regions, and not in all cases back to the same levels of extraordinary performance seen in the 1990s.

- System integrators in North America will see pre-tax profits grow to 6.9 percent by the end of the decade, compared with 5.2 percent in Europe. In Japan, they will improve to 3.4 percent after a slowdown in the next several years.
- Technology satellites will be the big winners across all regions, with pre-tax profits in 2012 ranging from 5.9 percent in Japan and 7.4 percent in Europe, to 9.6 percent in North America.
- Process satellites will also experience pre-tax profitability growth in every region, but not in all cases to previous levels.

Forecasted pre-tax profitability change (percentage points)





	2002/07	2002/12	2001/07	2001/12	2001/07	2001/12
System integrators	+1.7%	+3.8%	+0.3%	+2.2%	-2.0%	+0.4%
Technology satellites	+2.0%	+4.5%	+1.6%	+3.9%	+0.7%	+3.2%
Process satellites	+0.6%	+1.1%	+1.1%	+2.1%	+0.2%	+0.7%

As we have hinted, this rise in profitability will not come easily – suppliers will have to undertake difficult, costly and disciplined initiatives to realize it. The implementation path will be filled with "sweat and tears" but will in the end provide the opportunity to return their companies to a profit level that Wall Street and other major stock markets will appreciate.

System Integrators

Better profitability requires consistent action plans.

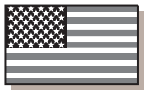
By taking the necessary steps, both North American and European system integrators should return to higher levels of profitability, comparable to those achieved during the boom years of the mid-to-late 1990s. Pre-tax profitability will increase 3.8 percent in North America and 2.2 percent in Europe. In both cases, the increase will be largely generated through a rationalization of and shift within their cost structure rather than from revenue growth.

Japanese suppliers are expected to follow a different trend, beginning with a two percentage point decline in profits in the first half of the decade, followed by a rebound in the latter half of the decade, taking them up to 3.4 percent. This dip will stem from their heritage: in most cases, large Japanese suppliers have not yet built broad system integration capabilities, a goal that they are aggressively pursuing but one that will require them to make major investments over the next several years.

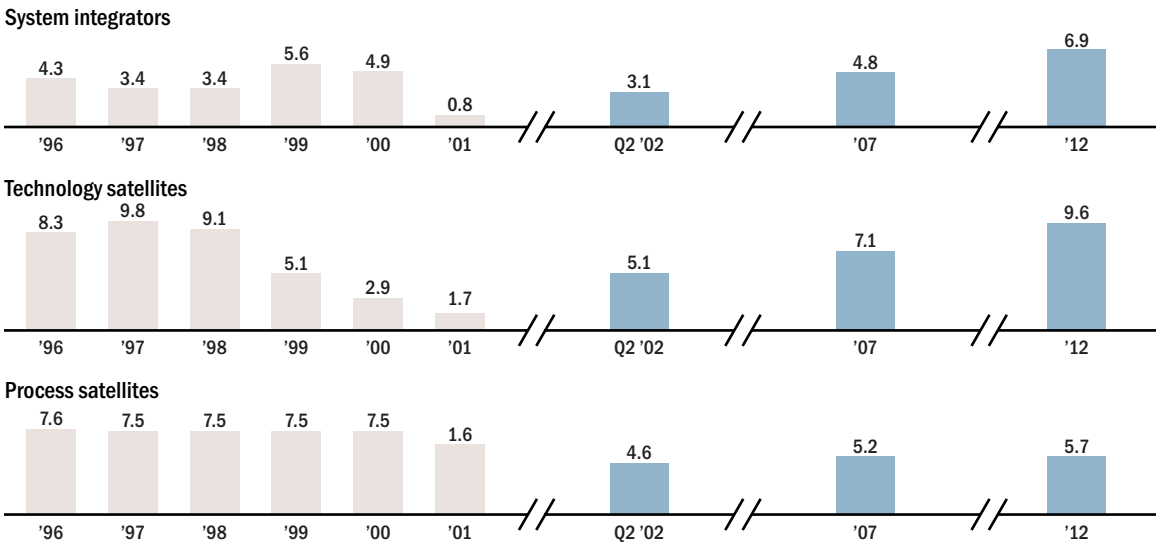
In each region, product development costs will play a major role in determining the level of profitability:

- In North America, we expect a reduction in the share of total costs allocated to product development of up to 20 percent by 2012. This result will come not from a lower level of engineering effort but rather from a significant shift of costs internally and along the supply chain, leading to a more specialized and efficient industry structure without duplicative activities like shadow engineering.
- In Europe, we forecast the share of product development costs to rise in the first half of the decade, as system integrators deploy more internal engineering resources to mirror OEM affiliate networks and diversify their customer portfolios. Overall, however, by the end of the decade, the share of product development costs will decline by almost four percent, as a result of their global engineering presence and a more efficient allocation of product development resources across the industry.
- As Japanese suppliers build their system integration capabilities, the rise in product development costs will outstrip revenue growth. In the second half of the decade, as the industry moves toward a system integrator-satellite supplier network structure, we expect large suppliers to benefit from a more efficient industry allocation of product development resources across the industry.

Suppliers' profitability will increase over the decade to levels historically achieved during strong expansion cycles

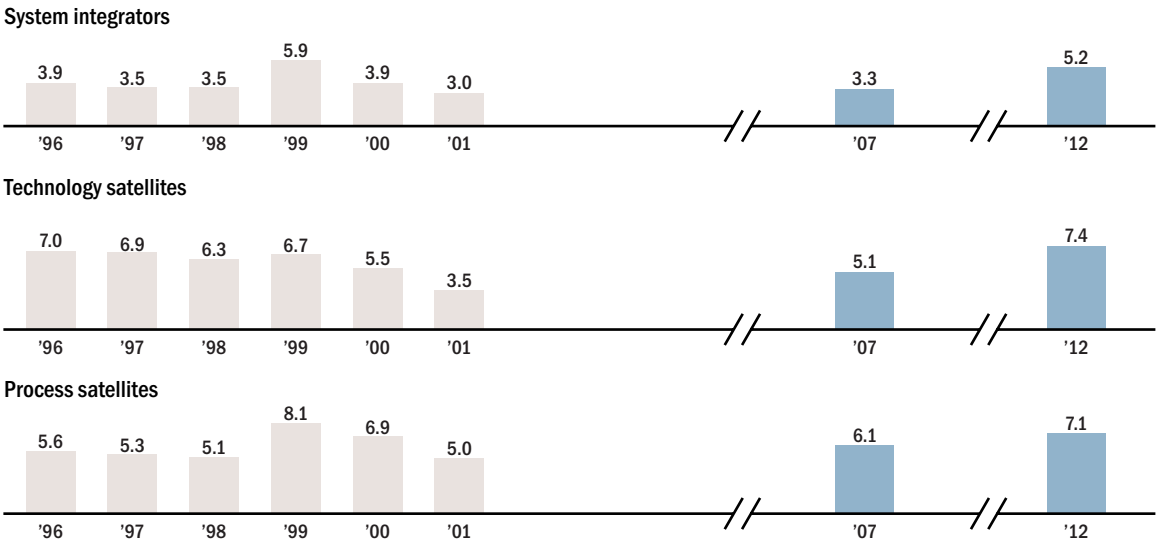


Expected evolution of profitability in the US (PBT %)



Suppliers' profitability will increase over the decade to levels historically achieved during strong expansion cycles

Expected evolution of profitability in Europe (PBT %)



A reduction in the level of manufacturing costs will also contribute to improved profitability for system integrators across all regions. We expect this to occur primarily due to consistent efforts on the part of suppliers to narrow their investment focus, establish more agile organizations that involve flexible manufacturing systems, and shift production responsibilities to technology and process specialists:

- In North America, several developments will help system integrators to significantly reduce the level of manufacturing costs. In particular, suppliers will benefit from clear long-term strategies that eliminate non-core assets, from the shift in technology and process activities to satellite suppliers, and from the implementation of flexible manufacturing systems. Overall, the benefit will be extremely relevant: we forecast a reduction in the level of manufacturing costs of more than 35 percent over the next decade.
- European system integrators will see a similar decrease in the share of manufacturing costs, driven primarily by a sharper investment focus and shift to flexible manufacturing: we estimate a decline similar to that in North America by 2012.

- In Japan, which has a long history of reducing manufacturing costs, we will witness a slower decline in the first part of the decade, reflecting the transition to a system integrator-satellite structure.

Driven by suppliers' efforts to focus their product portfolio and establish flat and agile organizational structures, we expect a decline in the level of depreciation and interest costs, as well as G&A.

More resources will be dedicated to sales & marketing.

Not all costs will decrease over time, of course: we project that system integrators will dedicate more resources to sales & marketing organizations as they accelerate their efforts to create functions and organizations that can interact with their OEM customers on a global basis. This growth will take place in the first part of the decade, across all regions. We expect a rise in the level of sales & marketing costs of three to four percent in North America and Europe, and an increase of 1.7 percent in Japan.

Warranty costs will also play a major role in rebalancing system integrators' cost structures as a higher share of product lifetime responsibility is progressively outsourced by OEMs. We estimate that warranty costs covered by system integrators will rise sharply in the first part of the decade, by as much as 10 to 20 percent in North America, Europe and Japan. In the second part of the decade, we expect growth rates to progressively slow.

Technology Satellites

In our view, technology satellites will benefit the most from the evolution of the industry and the resulting impacts on the supply base over the coming decade. In North America and Europe at least, we estimate that they will reach profitability levels close to those achieved at the height of the expansion cycle.

Product development costs are among the main levers of profitability for technology satellites.

As expected, product development costs are among the main levers of profitability for technology satellites. We forecast diverging trends in the level of these costs across the three regions:

- For North American technology satellites, a consistent reduction in the level of product development costs will come from the industry-wide shift toward network communities. As we have highlighted, the speed of innovation, the level of required R&D resources, and the complexity of technology integration will result in a fragmented network of technology specialists. For each player, this will translate into more focused investments and increased leverage of external product development assets. Because of this, we estimate a long-term reduction in the level of product development costs of up to 15 percent for North American technology satellites.

- In Japan, though we expect that these costs will rise in percentage terms in the first half of the decade, over the course of the entire decade, the level of product development costs will drop by just over four percent. As in North America, technology satellites in Japan will benefit from the trend toward greater sharing of R&D efforts across the industry.
- For European technology satellites, the trend is not so clear. On the whole, we forecast that the typically smaller technology specialists there will see an increase of almost six percent in the level of product development costs. In the first five years, these suppliers will grow their costs as they establish global engineering organizations to mirror their OEM customers and take on more development responsibility from OEMs and SIs. We expect this trend to reverse course in the latter part of the decade, as they will take advantage of a more focused and efficient industry structure and a broader customer base to reduce the level of their product development costs.

We estimate the share of manufacturing costs will decrease in all regions.

In all three regions, manufacturing costs will also have a major influence on the profitability of technology satellites. For suppliers in each region, we estimate that the share of manufacturing costs will decline substantially, driven by a clear definition of a long-term strategy that translates into careful selection of core technologies and the implementation of flexible manufacturing systems to handle growing segment volatility:

- Technology satellites in North America will lead the way, reducing the share of these costs by around 17 percent, according to our estimates. Japanese suppliers will not be far behind, reducing the level of their manufacturing costs by around 16 percent, while we forecast that European suppliers will reduce theirs by nearly 13 percent.

Significant resources will be deployed to mirror OEMs' and SIs' organizations.

Like system integrators, technology satellites in each region will face a rising share of sales & marketing costs, driven by the need to serve their OEM customers on a global basis and diversify their customer portfolios. Given their relatively smaller size and geographical reach, they will need to deploy significant resources to effectively keep up with OEMs' leveraging of their worldwide affiliate networks and to establish relationships with new OEM and system integrator customers:

- We predict that North American suppliers, whose customer base is typically more regionally focused, will see the highest increase in percentage terms, a jump of over six percent. European and Japanese suppliers will see a slightly lower increase of about three to five percent.

Process Satellites

Process satellites will also have the opportunity to benefit from the changes in the industry, though not as much as system integrators and technology satellites. By purposefully choosing a narrow, process-driven role and taking actions to concentrate fully on their own value proposition, we estimate that process specialists will be able to achieve profitability growth over the next decade.

Across all regions, enhanced profitability for process satellites will come primarily from reductions in the total share of manufacturing and G&A costs:

Japanese players face the highest hurdles.

- Japanese players in this category seem to have the highest hurdles ahead of them and are predicted to post only marginal profitability improvements of less than one percent overall. Even more so than their peers in other regions, Japanese process satellites face direct competition from low-cost countries like China, which is increasingly being selected by Japanese suppliers as a base for manufacturing facilities
- A decreasing share of depreciation and G&A expenses will be the main drivers of margin growth for European process suppliers, who will see pre-tax profits grow two percent over the next decade. These benefits will be the outcome of consistent actions to focus investments on a clearly selected range of functions and activities
- As in North America, process satellites in Japan and Europe will also benefit from OEM efforts to increase outsourcing and accelerate part commonization and sharing across vehicles, platforms, regions and business units, which will lead to larger manufacturing volumes for their strategic process satellite suppliers.

Across all regions, process satellites will focus on flat organizations.

One of the key priorities for process satellites in each region will be the consistent implementation of flat organizations, stripping organizational layers and redundant functions. In spite of regional differences, our estimates indicate that this impact will contribute between 0.5 and one percent to their pre-tax profits.

Sales & marketing costs will have an opposite, though not equal, impact on profitability for process satellites, at least in the first part of the decade:

- Although the relative share of these costs is – and will remain – lower than for other types of suppliers, over time process satellites will also be faced with the need to establish functions and groups to interface with their OEM, system integrators, and technology satellite customers on a global basis. We expect that process satellites will deploy these resources with less urgency compared with other suppliers, but still during the first part of the decade.

As anticipated, we expect that suppliers will have the opportunity to improve and sustain profits, even in the future. It is not our intention to paint a very optimistic picture for the supplier industry. But if industry players are willing to "fix" their business model – assuming for a moment that it is indeed broken – and take all of the measures necessary to do so, we strongly believe that the industry has a future beyond the disappointing financial results of recent years.

Our still very conservative, yet essentially positive scenario for suppliers in North America, Europe and Japan – and in some cases also in South America, China and other parts of Asia – defines the opportunity for suppliers to turn a dynamic and complex industry environment to their advantage. To do so, however, will require pragmatic and disciplined but visionary work.

F – The CEO agenda: a roadmap for suppliers' success in the next decade

What measures must a supplier take to achieve the improvement in profitability that we have forecast? Although each company must define its own specific goals and actions to reach them, we have developed a pragmatic "to do" list for executives who want to lead their companies to better results over the next decade.

We don't assume this list to be exhaustive. But we encourage executives to review it and use it to make an objective assessment of how prepared their companies are to face the challenges ahead.

1. Find your future role within the new supply-base structure

- Define your future role in the supplier network as a system integrator (SI), technology satellite (TS) or process satellite (PS).
- Adapt this role according to your different business activities (business units, product lines, etc.). They may generally play a different role in future supply networks – but as a whole, your company needs an overall position as either SI, TS or PS.

2. Create your own long-term vision and strategy

- Create a clear vision about how your company should look like in 10 years.
- Define the role of your company in the future supplier base structure as a clear starting point for your corporate strategy – where and how do you want to position your company in the market? System integrator? Technology satellite? Process satellite?
- Define the quantitative goals for your future company: revenues, costs, profitability, shareholder value, FCF, ROCE ...
- Break down the key items of this vision into a clear strategy for growth, profitability, markets/regions, customer orientation, customer portfolio, technology portfolio and product range.
- Create cross-functional action teams with the task to further detail these strategy items in terms of targets, actions, responsibilities, timing, investments, cost impact, profit impact and controlling measures.
- Run several executive workshops to review the action plans, with task forces to create cross-functional buy-in at the executive level and to define the overall implementation roadmap.

- Communicate the vision and strategy items throughout your company to ensure that everybody works toward these targets.
- Install an implementation office to support the task forces where necessary and to coordinate their different activities.
- Closely monitor the implementation of the strategy and action plans based on a pre-defined measurement system, managed by the implementation office and reported to the management on a regular basis.

3. Diversify your customer portfolio

- Identify potential OEM and SI customers within the reach of your technology and product range. Separate them between those potential customers who are part of your current OEM affiliate network and those who are outside of these easier access markets.
- Ensure you consider future market and market share developments by OEMs – don't forget the "new domestics"!!
- Set-up customer development teams with clear targets and measurements.
- Ensure that each of them has clear goals, action plans and resources at hand.

4. Enhance your organization with more decentralized decision-making responsibilities, entrepreneurship, and cost-reduction/profit orientation

- Analyze your management organization to ensure that your different technologies, product lines, customer relationships and regions are properly reflected and supported by your current structures and responsibility hierarchies.
- Identify the appropriate organizational structure following the general paradigm of fewer layers, more decentralized responsibilities regarding revenue, cost, and profit (e.g., fewer cost centers vs. more profit centers).
- Ensure that all of these more decentralized structures are working along the same processes and rules of business – globally. Have a global process map defined.
- Provide your organizational layers with more data about cost and – in particular – profitability, that ensures you know the profitability by product line, customer, contract and vehicle program.
- Provide enough IT support to enhance the transparency of financial data (revenues, cost, profits), leads/RFQs, quotes, etc.

5. Adapt new global organization structures for business development and engineering

- Analyze the new global procurement and engineering structures and processes of your OEM (and SI) customers.

- Conclude what needs to be changed within your own organization across all customer teams or for a particular customer team (Customer team: Business Development, Application Engineering, Program Engineering, etc.).
- Develop a global key account team concept with enough flexibility to accommodate specific structures as required for each customer – ensure that account managers have a global responsibility across regions and business units/product lines.
- Adapt your Sales & Marketing/Business Development organization accordingly.
- Ensure enough transparency about customer-related lead/RFQ and financial data (maybe using smart IT systems) to enhance their P&L responsibility by vehicle program and customer.
- Develop a concept for your global engineering organization.
- Adapt your Engineering organization accordingly.
- Don't forget: you will have more than OEM customers in the future – try to understand how the future supply network of SI, TS, and PS will work for your commodities and identify the future customers among the other supply categories.
- Cross-check your organizational change roadmap for compliance with the requirements of those non-OEM customers.
- Monitor your customers' organizations very closely to continuously ensure a timely adaptation to any new structural change within your own organization.

6. Keep your 'cost-down' initiatives within the primary focus!

- Continue your current "cost-down" initiatives as before – but broaden the scope to access all areas of the company – no area should be left unquestioned: can it be done better and more efficiently?
- Focus your initiatives on the loss makers in your current and contracted programs to get costs back in line.
- Continue to use B2B eBusiness tools wherever they can enhance your initiatives internally, with your customers and your global supply base.
- Manage your own supply base more consistenly by using best practice tools and approaches like those you have in place with your OEM customer.
- While supporting your customers in their commonization initiatives, launch an internal common-parts program for your own product designs (e.g., create a mindset of modularity and standard designs for parts/components).
- Provide sufficient cost advantage transparency of these commonization/modularization opportunities to your customers and convince them to support your efforts – and even accept to purchase a part design similar or identical to the design of other OEMs: paying a license fee to a competitor is usually less costly than "reinventing the wheel."

- Get involved in the product development process of your customers even earlier than today – be part of the conceptual design of the vehicle by leveraging your technology or integration competencies and add significant value to the OEM process.
- Enhance your manufacturing flexibility (as previously mentioned) to keep your variable cost (scrap rate, productivity, inventory levels, etc.) under tight control.
- Identify and prioritize the need to establish low-cost facilities in low-cost countries like Mexico, Eastern Europe or China to provide cost advantages for your customer and to beat your future competition coming from these regions. These future competitors have been enhanced by your customers to support local facilities, and emerge as an alternate source for programs outside of their region.
- Establish a global "Cost Reduction Office" to coordinate and measure all activities across BUs and regions, and report the status monthly to the top management team.

7. Create standardized and flexible business processes to manage large and small volume contracts under one roof

- Define a strategy to support your OEM customer create more common parts across vehicle lines, brands, business units, legal entities of the affiliate network, etc.
- Ensure that engineering programs are set up according to the planned size and importance of the vehicle program for your customer.
- Introduce a flexible and adaptable manufacturing philosophy – able to accommodate a variety of volumes as well as lower-volume vehicle programs – as a global standard for all plants and facilities worldwide.
- Focus on a key topic for the coming years: program launch! Ensure that your organization is an expert in this area or becomes the benchmark for smooth, fast, high-quality and within-budget launches for your customers – this could be the only area where you might have a truly significant advantage over your lower-cost competitors.

8. Be prepared for more product creation and life-cycle responsibilities

- Enhance your RFQ process to ensure that all costs are included and properly calculated.
- Improve your ability to monitor the performance of your products in the field and feed the results back into your RFQ, product development and manufacturing processes.
- Increase your engineering staff according to the increased outsourcing of engineering responsibilities from the OEMs and even System Integrators.

- Find new ways to finance future contracts with a roll-over of design, engineering, testing and tooling cost, rolled into the piece price.
- Enhance your administrative capabilities to handle far more complex and legally challenging contracts with your customers now including complex warranty and recall issues.
- Establish a risk management system within your company to monitor the lifetime responsibilities and have an early warning system in place to handle quality and recall issues properly.

9. Define your future technology portfolio

- Define your technology and application portfolio – based on your overall strategy: what your company should focus on in the future based on technology roadmaps, technology prioritization techniques, resource requirement assessments, alliance network assessments, customer requirements and consumer expectations.
- Think in domains and not in single technologies – this approach will bridge the gap between capabilities of technologies and the desire of your customers and their consumers.
- Enhance your cost estimation capabilities to evaluate investment requirements and pay-back period early in the process.
- Keep your engineering capabilities and skill sets under tight control while the core technologies of your company might need to deal with transitions from, e.g., electro-mechanical technologies to electronics and nano-technologies.
- Create different business models for design, engineering and manufacturing of fast-moving electronics applications (six months to two years) versus the "old-fashioned" automotive applications (seven to nine years).

10. Create your own technology communities and networks

- Define – based upon the technology roadmaps and the cost/pay-back estimates – a roadmap of inhouse versus external technology development and adapt your resource requirements and investment needs accordingly.
- Identify the technology partners with whom you want to create a long-term relationship to ensure the external technology development needs.
- Enhance your organization to handle these partnerships and joint ventures in a collaborative fashion compared with today's traditional business methods of customer vs. supplier.

11. Ensure that your products support your customers' vehicle brand differentiation

- Understand the values and attributes of your customers' brands in detail and educate your research and your engineering organization to translate them into vehicle characteristics for your product range.
- Don't rely too much on your OEM customers for consumer related data – get connected with the consumer and the dealerships yourself (if you are an SI or TS).

12. Regulation – something you need to keep an eye on!

- Closely monitor the legislative processes that produce rules and regulations relevant for the automotive industry directly or through industry associations.
- Screen upcoming regulations and assess their relevance to your current and future products and markets.
- Align your technology strategy with these regulatory requirements on a regular basis.

Though most of these actions are equally relevant for all suppliers in every region, a few of them – such as the technology-related items – are more geared toward specific types of suppliers. Our intent is not to provide a recipe for success that applies to every single company. Instead, we hope to lay out a comprehensive and thought-provoking roadmap for superior supplier performance. The task might appear overwhelming at first, but there is no shortcut to success in this industry.

Why not learn what we can do for you?

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