



INSIGHTS ON AUTOMOTIVE SUPPLIER EXCELLENCE

FOOTPRINT OPTIMIZATION AT AUTOMOTIVE SUPPLIERS

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The automotive industry has become truly global in the past decade – and automotive suppliers have expanded their operations as a result. Optimization of the manufacturing footprint with this global demand in mind has been imperative for them for years. The parameters driving footprint decisions, however, are undergoing dynamic change forcing all suppliers to rethink their strategies. New requirements – such as the increasingly global vehicle programs with parallel launches in different geographies, shifting demands as localization increases, and the need to be even closer to customers’ factories – are driving even large, well-established suppliers with vast global networks to challenge past decisions. At the same time, these new challenges are causing smaller companies with fewer global manufacturing assets to weigh future expansion more carefully. Making the criteria for expansion even tougher are factors such as rising economic uncertainty and increasing demands from customers. Despite all of this, the pressure to globalize remains intense because it is key to maintaining competitiveness. The problem is that many footprint redesigns fail to achieve their objectives. There are, however, ways to increase the success rate of these complicated yet crucial undertakings.

While the importance of optimizing a supplier’s footprint is not a new topic, the risks in expanding companies’ manufacturing networks have changed substantially. In the past, relatively simple cost considerations were needed when selecting locations for new plants and R&D centers and having an outstanding technology position was enough to generate business. Today, the requirements suppliers face have

fundamentally changed as a wider range of aspects has to be acknowledged and understood to build a global footprint that provides the basis for competitive positioning. Nonetheless, experience shows that only about half of all automotive suppliers have a comprehensive footprint strategy in place and often footprint decisions are not based on the right set of criteria for each individual organization’s situation.

Exhibit 1: Rationals behind footprint decisions at automotive suppliers



Source: Oliver Wyman analysis

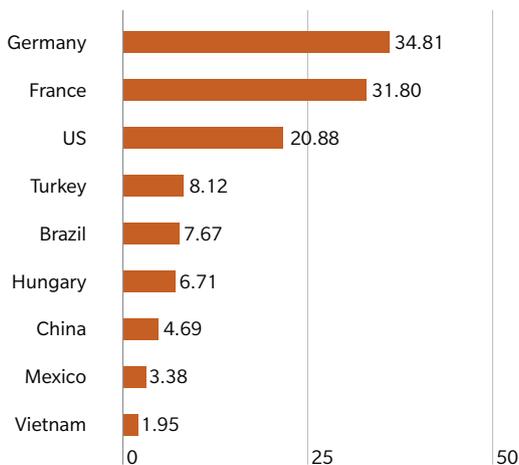
MULTIPLE CHALLENGES, MULTIPLE OPPORTUNITIES

Suppliers face four underlying challenges that affect the necessity to optimize their footprint, with several aspects and root causes that need to be understood.

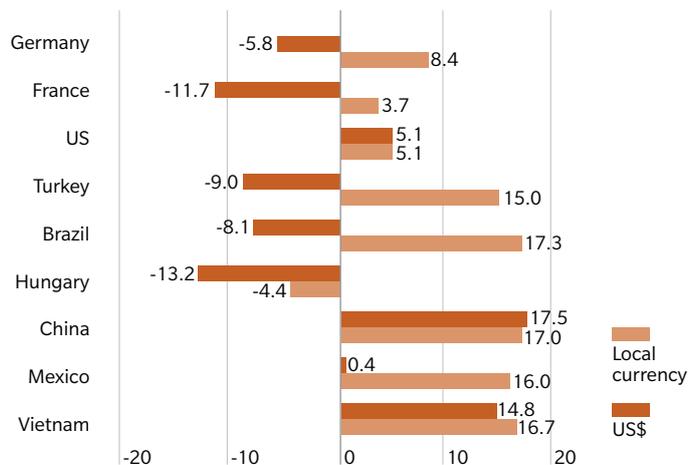
1. Automakers and Tier 1 partmakers have long expected their suppliers to localize in supplier parks close to their own operations. While there are still exceptions, this trend is expanding even to areas where this was of secondary relevance, such as casting and forging. In addition, logistics has become a differentiating factor because to provide Just in Time/ Just in Sequence delivery the acceptable distance to the customer's factories in some case has shrunk to less than 50 km. For the same reasons, access to critical suppliers can be crucial. Also, automakers are increasingly standardizing their vehicle platforms and modules on a global scale and expect their suppliers to mirror their global production footprint. The ability to support trans-plant programs and to deliver consistent quality worldwide has become an imperative for suppliers.
2. Access to talent is becoming increasingly relevant. It is often very difficult to find and retain qualified employees at the new sites. Many companies are forced to compete with each other for trained people. On the other hand, talent shortages within the established network can be a significant threat, which is something all suppliers in established markets are facing.
3. Suppliers need to leverage cost advantages, especially labor cost, which can range from €5 to more than €40 per hour within a 1,000 km radius in Europe. Suppliers need to make sure they get the full benefit of low-cost markets, especially when producing labor-intensive products. Also, they need to understand how the cost of labor is developing in the different regions to be ready for changes. For instance, China will no longer be the leader for low-cost labor. Other factors that require monitoring include energy costs and raw material prices.

Exhibit 2: International comparison of plant workers' salaries

HOURLY SALARY OF PLANT WORKERS (MEDIAN) IN US\$, 2015



CHANGE OF PLANT WORKERS' SALARY (MEDIAN) IN %, 2015 VS. 2013



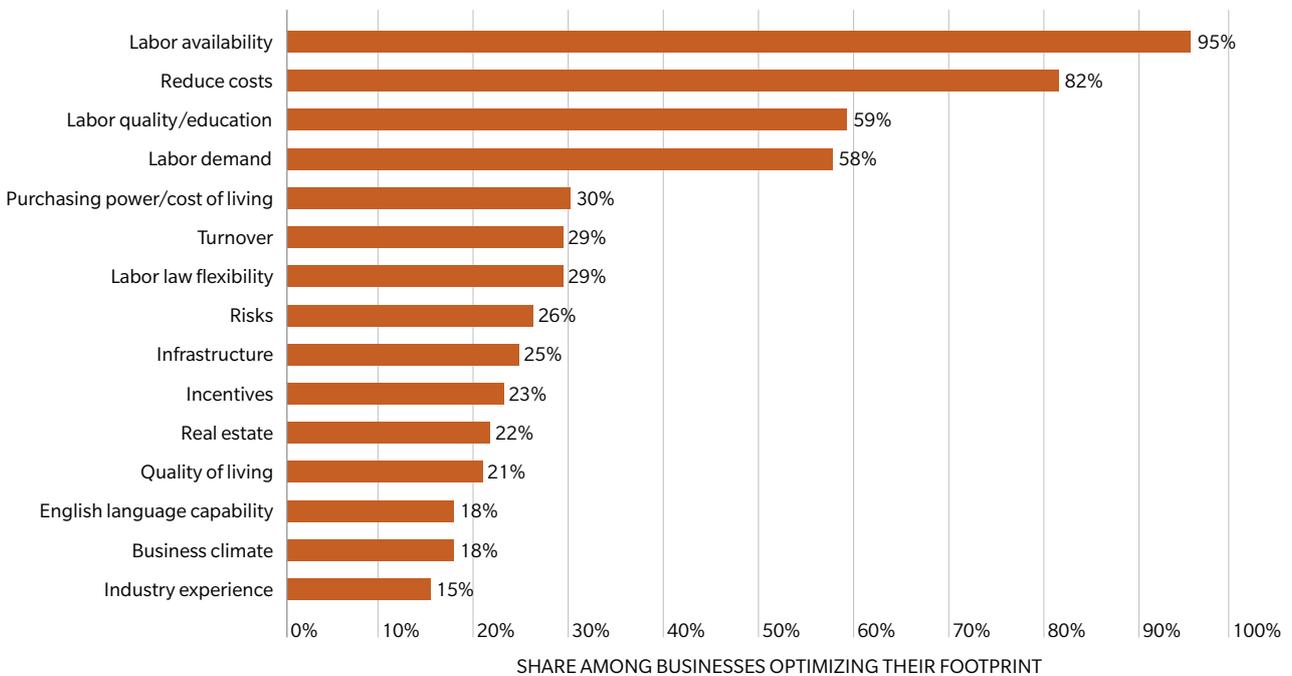
Source: Mercer, Oliver Wyman analysis

4. Flexibility is another core aspect that suppliers need to consider. To respond to fluctuating volumes or orders, they need to make their operations flexible. Besides the processual layout, this can be achieved through localization in regions where staff levels can be adjusted more easily. Another piece of the puzzle is customer service: Local R&D and manufacturing units that are close to the customer's locations enable quick responses and troubleshooting in case of emergencies.

Furthermore, in some cases access to key technology also is limited. Therefore, understanding the potential and limits of the local market is crucial if a supplier wants to be able to meet the customer's requirements. Having this knowledge can provide a competitive advantage.

The selection of the new sites and site structure is a task that needs to include various dimensions. Experience shows that the availability of labor is the basis, but that a wide range of other aspects need to be considered as well.

Exhibit 3: Frequency criteria appears in location decision making



Source: Oliver Wyman analysis

While many factors favor the extension of the footprint, the effect on the existing production sites and supply chains has to be addressed in parallel. Often, these structures have grown over time and hence are not set up in an optimal way when it comes to factors such as labor and logistics. The frequent result is a footprint that is too broad, resulting in costly overcapacity in regions that are already non-competitive.

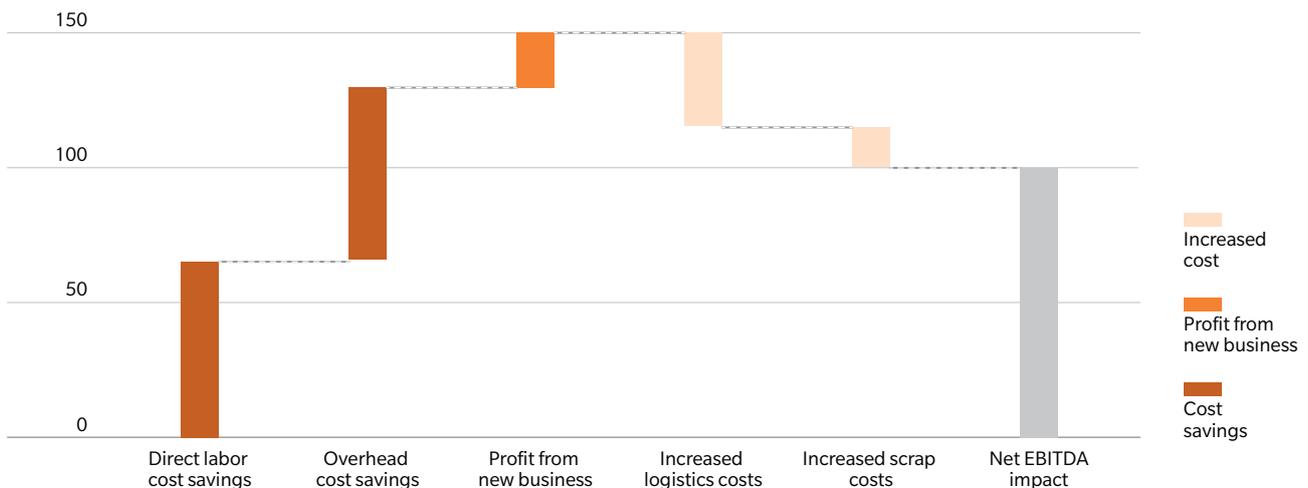
Moving production to new sites in growth regions leads to decreasing utilization at the existing sites. This increases the need to right-size or even consolidate the structure of existing sites, but it should also be seen as an opportunity because it allows for significant savings on indirect cost and is crucial to

remaining competitive overall. Experience shows that plant closures can reduce overhead costs by up to 40 percent.

If done correctly, suppliers can realize significant benefits. Lead times are shortened and response times are faster. Suppliers may be able to reduce their dependence on regional markets while also being provided with a so-called „natural hedge“ against volatile exchange rate fluctuations and other macroeconomic factors that are impossible to control. Experience shows that even in cases with drastic restructuring cost, breakeven can be achieved in as little as a year, resulting in EBITDA improvements of well more than 10 percentage points.

Exhibit 4: Effect of moving automotive exterior parts production from Western to Eastern Europe

INDEX 100=NET EBITDA IMPACT



Source: Oliver Wyman analysis

The bottom line is that a correct footprint needs to be determined with a core focus on processes and technologies – what should be installed where – and this needs to be reviewed continually because relocating production to the wrong place can lead to disaster.

Also, new, advanced technology is complicating the manufacturing industry.

Advanced robotics, 3-D printing, simulation software, enhanced connectivity, and data exchanges are disruptive evolutions that will progressively reshape the manufacturing value chain. These technologies will allow multiple potential benefits, such as being able to produce components in small quantities, greater flexibility as well as better utilization of machines. Suppliers will develop new ways to collaborate with their partners.

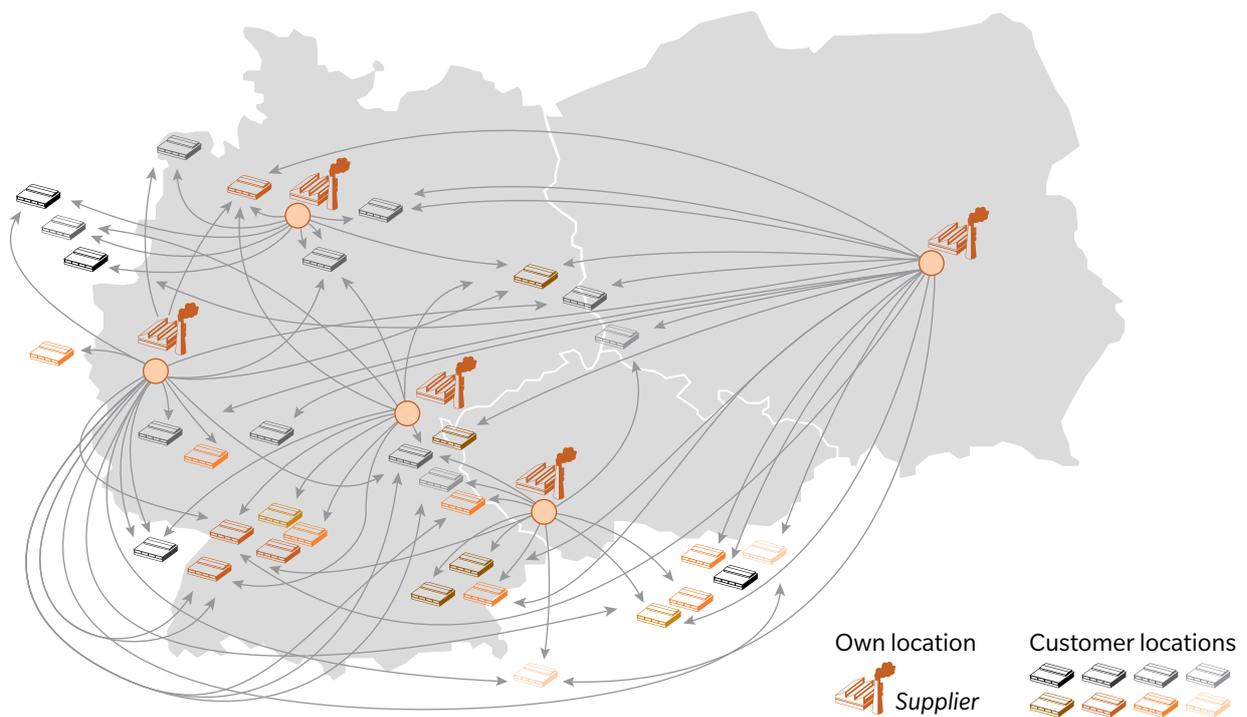
Currently, most suppliers are not well positioned, because they have factories that are not running at full capacity, which is a key issue across the industry. Nearly all suppliers have at least some installed machines or processes that are hardly used but still consume space, maintenance, investment budget, know-how, and personnel. Very often, historically grown structures are just not right.

For example, there are numerous Western European players with a mismatch of labor content and labor cost. At the same time, these suppliers are running too many plants largely because it is too costly to close them. In addition, old equipment poses a threat on uptimes, efficiency and quality. But since

hardly any supplier can evade the vicious cycle of CAPEX reduction, the status quo is frozen in many cases. At the same time, customers increase price pressure – and thereby cost pressure – and do not accept bottom-up pricing while simultaneously urging their suppliers to invest in new facilities and equipment.

As a result, most suppliers face the urgent need to adjust their footprints. This means right-sizing and optimizing their networks while also right-sizing processes and upgrading equipment. These factors are reasons for significant transformation requirements at nearly all supplier organizations.

Exhibit 5: Historically grown structures with highly inefficient supply chain and cost structure



STRUCTURAL CHANGES REQUIRED

Source: Oliver Wyman analysis

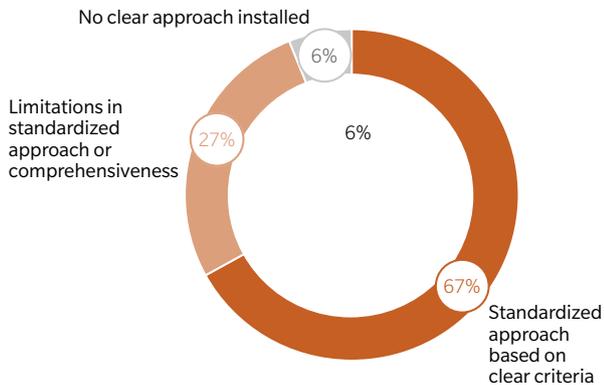
WHY FOOTPRINT RESTRUCTURING OFTEN FAILS

Footprint redesign is a fundamental challenge for most automotive suppliers. Finding and deploying the resources and management to widen the network is critical. Despite their importance, experience shows that a large share of relocations fail, even causing suppliers to move production back to their home markets in about one out of every five cases. Key reasons for this include insufficient preparation and misjudgment of the potential abroad. The underlying root causes are in most cases: insufficient understanding of procedures needed to define a concrete footprint strategy, limited understanding of the situation in local markets, an inability to determine where to invest as well as a poor understanding of what should be manufactured in-house and what can be

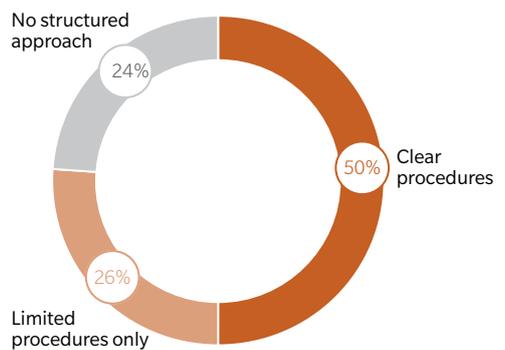
outsourced. Underestimated cost and investment for the relocation of production, lower quality and inefficiency in new plants as well as rapidly increasing labor costs also play a role. Most importantly: Especially during ramp-up, new facilities cannot provide the required flexibility in terms of output on timelines at the right quality level. The underlying root causes are in most cases insufficient planning processes and shortcomings in the production strategy. Often, insufficient specific management experience in footprint redesign and limited resources to develop and realize the concept lead to a non-holistic footprint strategy, misjudgment on the optimal restructuring measures and issues during the implementation.

Exhibit 6: Root causes for failed footprint redesigns

FACTORY PLANNING AND INVESTMENT DECISIONS SCHEME



MAKE-OR-BUY SCHEME



Source: Oliver Wyman analysis

CASE STUDY

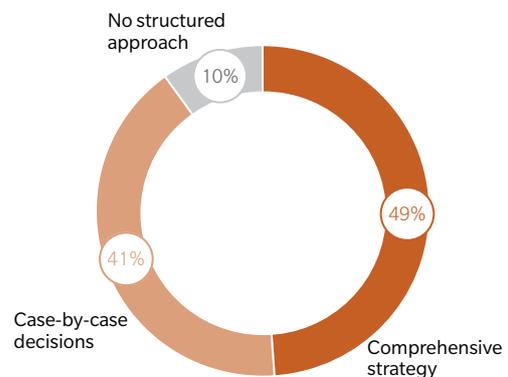
An automotive supplier followed a simple strategy in China: As it attained new business it opened small plants close to its customers to satisfy local demand. The result was that five new plants were ramped up within a few years. This overstretched the company's management capabilities and exposed a lack of expertise in how to successfully expand in China, resulting in several core issues including poor quality, delayed deliveries and a failure to meet cost targets. In addition, management struggled with a high employee turnover and the workers it retained lacked the proper qualifications. The problem was so bad that it threatened the company's overall existence.

DOING THINGS RIGHT THE FIRST TIME IS CRUCIAL

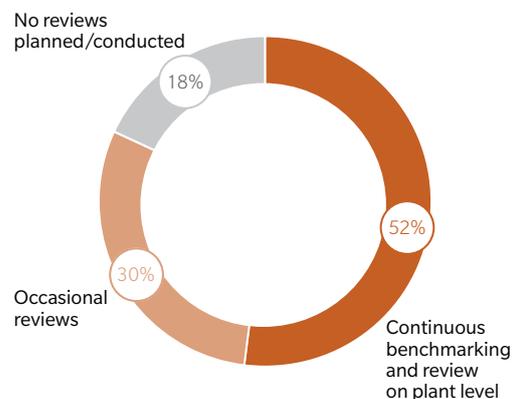
To avoid a potentially disastrous business situation a well-defined footprint realignment concept is crucial. This includes several aspects that need to be balanced and considered simultaneously. Typically, suppliers do not sufficiently focus on footprint optimization. Only 49 percent consider footprint aspects in their recurring strategy reviews and even fewer assess the potential pros and cons they face. Moreover, experience shows that approximately 20 percent of automotive suppliers do not review their footprint setup at all, which means footprint adjustments are directly mandated by customers and not aligned with corporate objectives. This explains why many suppliers do not make the right decisions regarding when and where to launch new plants as well as when to close or downsize existing facilities.

Exhibit 7: Footprint strategy at automotive suppliers

FOOTPRINT STRATEGY APPROACH



FOOTPRINT STRATEGY REVIEW



Source: Oliver Wyman analysis

There are ways to avoid these problems. The first step is to plan the go-to-market strategy and understand the customer demands and competitive landscape. This is key to attaining an adequate forecast of the production volumes. Wrong volume plans – both higher and lower than expected – lead to utilization issues in the restructured production footprint.

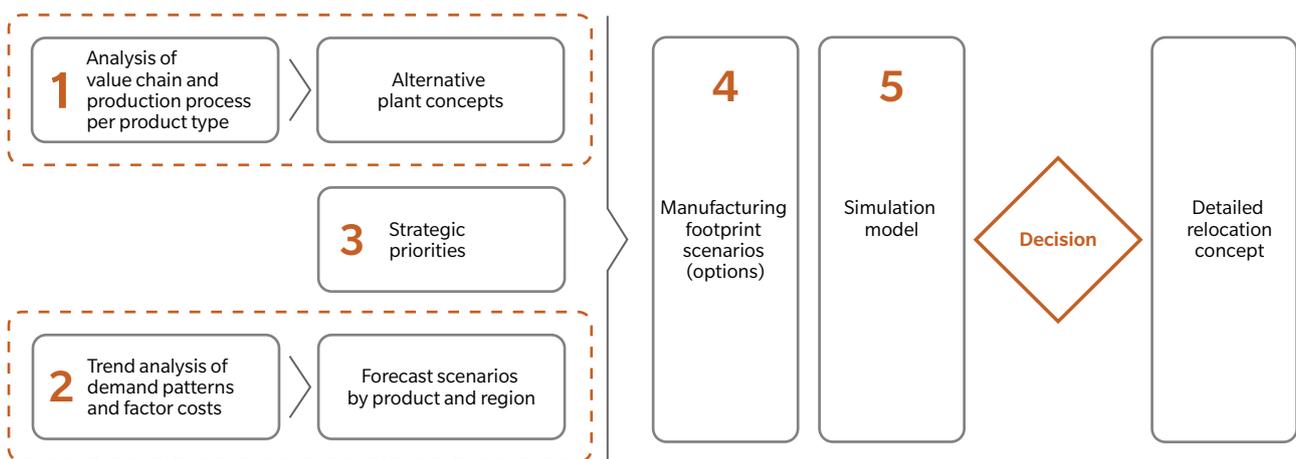
Building on this, it is crucial for the supplier to understand its core competences along its product portfolio and its respective processes. These are inevitably connected and need to be optimized across its entire footprint. The relocation of individual products or machines that were deemed unprofitable has often proved to be the wrong approach. This can lead to problems throughout the supply chain.

In addition, related value-creation steps need to be considered. Very often, suppliers can globalize their sourcing and logistics personnel at the same time and thereby meet the requirements of the new locations more directly. Additionally, cost advantages in these and other indirect functions add to the effects of footprint optimization, especially if administration and management functions are included.

Development functions play an extraordinarily important role. These functions need to be localized to a certain extent to ensure smooth launches, optimal responsiveness to the automakers, and cost advantages. Automakers and other customers play a key role. They need to be involved early in the process.

To put this into practice a sound and well-defined footprint redesign plan is crucial. The first step is to understand the company's value chain for each product type and the associated production process. Two types of analyses should be performed. First, the supplier must understand the current production process well enough to determine whether improvements can be made without structural changes, for example through improved planning, product allocation or optimized shift models. Then the supplier must consider whether new technology could fundamentally improve some steps of the production process. To determine the answers the supplier must organize intensive working sessions involving internal and external production experts and consider disruptive ideas such as micro-machines advanced robotics and additive manufacturing.

Exhibit 8: Footprint optimization plan



Source: Oliver Wyman analysis

The second step is to understand the key trends in the markets the company is targeting and in particular the demand patterns in the core markets. In step three, the strategic

priorities relevant to footprint decisions have to be determined. This includes considerations regarding the portfolio, the definition of centers of excellence and a review of core

competences – and ultimately, comprehensive make-or-buy analyses of products and value creation steps.

Based on these analyses, relevant scenarios should be created during step four. The strategic priorities for the future footprint should be used as guiding principles for the scenario design. These may include local demand for specific products, the opportunity to combine different products in a specific plant, the desired focus of plants on specific production processes and, of course, the potential cost savings and other financial effects, such as relocation, site investments, redundancies, logistics effect and more. In addition, the supplier needs to consider which functions should be relocated with production, besides manufacturing overhead this includes in most cases engineering and customer service.

Step five is to build an analytic simulation model to assess alternative options for the redesign. This should include investment forecasts and estimates of the potential

savings on labor and infrastructure costs as well as the possible effect on administrative costs, production overhead and energy, logistics and taxes. There will be some unavoidable negative effects, such as lower output and quality during the ramp-up of the new plants. These types of investments will hit the company's cash flow and need to be understood in detail. All these effects should be modeled, including a sensitivity analysis for the main drivers. The company should go ahead with the plan only if the business case improves, even when factoring in the worst-case scenario.

After selecting the favored future footprint, a detailed relocation concept needs to be created and a cross-functional transfer team to manage the relocation needs to be installed. Particular attention should be paid to managing the interfaces to the various stakeholders at the new site – as well as at the old location. Finally, the action plan should be thoroughly documented and all activities of the plan should be monitored.

IMPLICATION: FOOTPRINT DESIGN IS KEY DENOMINATOR FOR SUCCESS AND NEEDS TO BE ADDRESSED EFFECTIVELY

In the many instances when footprint changes do not turn out as planned suppliers make similar mistakes and struggle with the same hurdles. Qualified people are often not available or cannot be trained fast enough to achieve the planned ramp-up. In addition, employee motivation is often low at sites that are to be closed or downsized. This, combined with the loss of relevant know-how carriers and production shortages, results in many suppliers facing unexpected efficiency, quality, and delivery issues. Other potential issues that often are overlooked include machines that cannot be relocated easily and high initial scrap rates. Both can cause delays during relocation.

To optimize the footprint successfully and efficiently, it is essential for automotive suppliers to develop a holistic strategy. Key factors include: considering the entire value chain, investing sufficient time and resources in planning the optimization measures, building a business case based on total cost calculation, and installing a comprehensive process management. This will enable suppliers to identify, assess, decide, and implement the optimal options and minimize future risks.

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