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GLOBAL BUSINESS REPORTS

Mexico's Regional Automotive Report 2016

Monterrey & Saltillo

A blue diagonal banner in the bottom right corner contains the text 'PRE-RELEASE EDITION' in white, bold, sans-serif capital letters, slanted to match the banner's angle.

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Mexico's Regional Automotive Report 2016

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Dear Readers,

Following the success of its various reports on Mexico, GBR is now collaborating with INA and CLAUT to start in-depth regional research within the automotive industry – beginning with a full report on the northeastern region surrounding Monterrey and Saltillo. Our region leads the nation in research and development initiatives, proving that Mexico is no longer purely a manufacturing destination, and in their research GBR will delve into how our area has become so successful.

Many strategic advantages have attracted OEMs and Tier 1s alike to build facilities in northeastern Mexico, including the fact that our cluster is one of the oldest and most established groups in the country. Our area houses eight of the twelve Mexican owned Tier 1s in the nation, and the GBR team sees our business environment as an exemplary case study for Mexico's overwhelming potential.

Therefore, analysts Meredith Veit and Frederick Anyaegbunam will spend the coming months personally conducting interviews with industry leaders, speaking with research and academic institutions, talking with local and foreign companies, and examining the entire supply chain of the Mexican automotive sector. We look forward to the completion of their research, as it will surely be a promotional tool, both domestically and abroad, to boast Mexico's evolving capabilities.

The report will officially be internationally released at the Automechanika show in Germany, September 13-17th, and domestically showcased at the Proveedor Automotriz 2016 conference in Nuevo Leon this upcoming September 21-22.

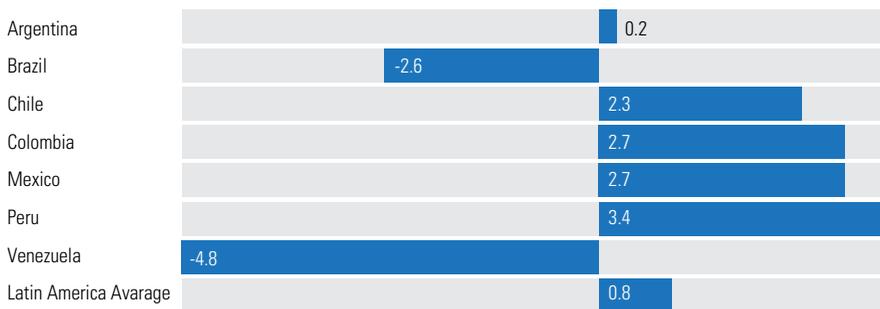
We are proud to showcase our many accomplishments, and invite all those who are keenly interested in developing Mexico's automotive sector to join us in our strides towards continual growth.

Manuel Montoya
Director,
The Automotive Cluster of Nuevo León (CLAUT)



Acceleration of Automotive Activity in Mexico

2016 GROWTH OUTLOOK FOR LATIN AMERICAN ECONOMIES (%)



GRAPH 1: Domestically, the automotive industry represents 3% of national GDP, 20% of foreign direct investment, and employs more than 602,000 people.
Source: LatinFocus Consensus Forecast, January 2016

MEXICO AT A GLANCE

Albeit a country of vibrance and tradition, Mexico remains a clear and progressive automotive destination. With an expected GDP growth of 2.7% in 2016, Mexico's economy is the second largest in Latin America and its manufacturing activity continues to further materialize into a full-bodied automotive sector. The many known reasons why Mexico is an industrial hotspot are increasingly more pronounced: "Historically, investment was directed from Mexico to Asia; the trend now is for this capital to return to Mexico, an important phenomenon for the country's automotive industry," explained Juan Manuel Kuri, country manager and vice president of Siemens PLM Software, Mexico and Central America. "The rationale for this regression is Mexico's quality of manufacturing."

Quality, that is, at a competitive price. Mexico has continued to stay more productive than China per worker and, from a labor perspective, it is also more cost effective in terms of manufacturing capacity. In 2015, on average, labor was 12.5% more expensive per worker per hour in China than in Mexico. "For us the shift back to Mexico as a manufacturing destination was very clear in 2008

during the economic crisis," explained Carlos González, business development manager of EVCO Plastics de Mexico, "Bringing parts from China meant dealing with extensive inventory struggles and elongated shipping times. Customers were looking for cash flow, which meant finding closer suppliers that could provide immediate inventory." Low energy costs also boast as an advantage for the nation, with natural gas per million British thermal unit (MMBtu) decreasing by over 86% in the past decade. Tariffs are reduced through the broad coverage of the North American Free Trade Agreement (NAFTA); though Mexico exports approximately 70% of automotive production to the United States and Canada, it also has free-trade agreements with 43 other countries around the world—more than the United States (20 alliances) and China (18 alliances) combined.

All of the above, coupled with the dominance of strong automotive cluster communities, has led to the government's confident declaration of an expected production increase to nearly 5 million units of light vehicles annually by 2020. Nissan, Ford, Mercedes-Benz, and BMW have all announced billion-dollar investment intentions into Mexico for the

coming years, and KIA positioned a plant in Nuevo Leon in 2015. The highest concentration of plants and supporting process companies lies in the northeast, in Coahuila and Nuevo Leon, centered around the two state capitals, Saltillo and Monterrey.

FILLING GAPS IN THE SUPPLY CHAIN

The maquiladora history of the northeastern region is half a century old, but one of the first official automotive clusters of Mexico did not take form until 2007—the Automotive Cluster of Nuevo Leon (CLAUT). The government, academia and private sector are the three "propellers" pushing the industry forward, and CLAUT now consists of 75 private companies and 15 government, academic and research centers which reside between the two states. "Half of these companies are Mexican owned which is very beneficial for the region as they are more locally integrated," explained Manuel Montoya, director of CLAUT.

While OEMs and Tier 1s have a significant amount of government assistance in establishing themselves in Mexico, smaller companies face greater difficulty obtaining capital for expansion. As one of the most successful clusters in the country, CLAUT's overarching goal and primary challenge is facilitating the integration of local manufacturers into the supply chain.

Logistical ease and the assurance of supply are typically what drives the majors towards integrating local players. "KIA will probably not be looking into local consumables suppliers for some years, until their operation is in place and everything is streamlined. Then, when they are ready to look at reducing costs, local companies will be their best option," explained Walter Hugler of Productos Químicos y Derivados (PQD), a 100% Mexican lubricants company that has been supplying to the automotive industry since 1961. **continued on page 6 >>**

Óscar Albín

Presidente Ejecutivo,
Industria Nacional de
Autopartes, A.C



Can you provide us with a brief history and introduction to INA?

The INA (National Auto Parts Industry) was founded 52 years ago, as a lobby group defending the interests of the auto parts manufacturers. This group is a direct result of the automotive decree which stipulated that in order to sell cars in Mexico, they had to be manufactured in Mexico. Imports were closed, meaning that brands that were importing cars now had to assemble the machines in Mexico—with a predetermined amount of original, local content within those vehicles. This birthed the necessity to manufacture auto parts in Mexico.

The auto part industry has increased 50% in within the last 8 years. What have been the determining factors for the growth of this industry in Mexico?

With the 2008 financial crisis, automotive production in North America was halved and a significant amount of auto part plants and production lines closed. As conditions improved, an industry reassessment ultimately determined that the best place to reopen plants was in Mexico, as it offered advantageous labor conditions and a geostrategic location—not only internationally, but also in relation to the American southwest, where the automotive industry has migrated as it is no longer in the Midwest. Additionally, OEMs were strongly convinced of the quality of Mexican auto parts, which have reached a level of excellence comparable to those pieces manufactured in the US, Germany, or Japan.

The domestic market growth within both the U.S. and Mexico is the last great determining factor in favor of establishing plants in Mexico. New and used imported cars are flooding the market, meaning there are more cars in the city, and these cars need repairs. Moreover, in the last two to three years, the American market has grown mainly due to the energy reduction costs in the U.S. This leaves consumers with an additional monthly US\$300 for discretionary spending, which allows them to either purchase a new car, or upgrade their existing vehicle.

The U.S. is the biggest market for vehicles manufactured in Mexico. What role does the U.S. market play in auto parts?

In Mexico, 70% of Tier 1 auto part production is exported, and 90% of that goes to the U.S. where our main clients are the American manufacturing plants. Mexico is now the seventh largest exporter of vehicles in the world, and this in turn helps the growth of the Mexican auto parts industry. The challenge, however, remains that we do not serve the local market. Furthermore, 70% of the production plants in Mexico are foreign, and of those, 30% are American. United States manufacturers are our biggest investor by far, followed by Japanese and then German manufacturers.

Is the industry looking to diversify into new markets as Mexico enters new multilateral agreements?

The main auto parts markets will continue to be the U.S. and Mexico. Through the TPP, new markets are opening up such as Australia and Southeast Asia; however, the opportunities there are mainly for finished cars because they do not have manufacturing plants, meaning there is little to no opportunity there for auto parts besides the fact that the cars exported from there will contain Mexican parts. If Mexico is set to produce 2 million more vehicles, the U.S. can not consume the entirety of that production; so Mexico does need to look for more markets, otherwise, our own over supply will become a bottleneck to growth. The TPP does allow Mexico to sell in big markets like Singapore, Malaysia, New Zealand, and Australia, opening up our distribution channels. Mexico is also currently working on an FTA with Turkey.

Infrastructure, including ports, roads, trains and customs, is a bottleneck that needs to be addressed in order for the Mexican automotive industry to succeed. Presently, our infrastructure can handle the 3,000,000 cars that Mexico produces, but we are looking to grow 60% to hit 5,000,000 cars. The country will need an improved foundation in order for these cars to be exported smoothly and remain economically competitive.

What are INA's priorities and plans for the short-to-medium term, and what additional opportunities does INA see for the industry?

INA's strategic plans include a continued effort to work with the federal government in order to strengthen the local market. We hope to see increased regulations on the tests and mechanical requirements of cars to be operated in Mexico in order to minimize illegal used car imports. We also would like to see increased access to financial assistance for Mexican auto consumers. If more cars are sold in Mexico, Mexico will become more attractive for installing new manufacturing plants. While today we sell 1.2 million cars domestically, we should be selling 1.8 million. The opportunity and market are both there. If we compare cars per inhabitants, Mexico sells half of what Brazil and Argentina sell, while having a comparably-sized economy. A great opportunity for the auto parts industry in Mexico comes from Tier 2 and Tier 3 industries. There are a significant amount of raw materials and components being imported, meaning that there is an incredible opportunity to source the local market. •

Manuel Montoya

Director,
The Automotive Cluster of
Nuevo León (CLAUT)



Please provide a brief introduction to CLAUT and the cluster's operations in Monterrey?

CLAUT consists of 96 companies including OEMs, Tier 1s, Tier 2s, and academic institutions. Half of these are Mexican owned, which is very beneficial for the region. In Mexico, overall, there are about 120 Tier 1 companies and 600 manufacturing plants for automobiles. Most of these businesses are foreign owned, with only about a dozen being Mexican owned. The Mexican owned Tier 1s are global players, eight of which are situated in Nuevo León.

The difference between local and foreign owned companies is that Mexican entities are more open to creating a local supply chain and are thus more locally integrated. Developing the local supply chain is still a huge challenge in Mexico and, as such, CLAUT aims to create more local contributors.

What specialization has Nuevo León developed within Mexico's automotive industry?

The cluster has two OEMs that specialize in large vehicles. Navistar International is a leading manufacturer of trucks with one of the largest manufacturing plants in the whole of America. The other OEM is Daimler, which produces heavy vehicles, and they have a Freightliner plant in Saltillo. Caterpillar and John Deere are also two OEM members of CLAUT, but they operate in the overall vehicle equipment business. CLAUT has invited another OEM, Polaris, to be a member of the cluster. Polaris was established in Mexico in 2011, and they have been significantly growing over the years.

CLAUT's Tier 1 supplier base consists mostly of metal mechanics, as Monterrey has a prodigious steel industry. Metalsa is an important player in the market, a Mexican company that manufactures truck chassis and structural body components for vehicles. Some suppliers also operate in the aluminum industry. One of CLAUT's Mexican owned Tier 1 members is Nemak, which manufactures aluminum engine blocks and aluminum motor heads. Nemak is proudly the biggest company in the world doing this type of manufacturing.

CLAUT also has members operating in electronics, plastics, and interiors, but the main percentage of our companies operate in metal mechanics.

Which other local success stories within the automotive industry would you like to highlight?

Vitro, a manufacturer of automotive glass, signed a joint venture with Ford 30 years ago. Currently, Vitro is the only Mexican company that manufactures glass for international players. The Tier 1 supplier Katcon, which produces catalytic converters, also achieved enormous success within the industry. Katcon started as a very small company, and after their joint venture with Delphi, they have grown significantly over the years to become increasingly more global. Gonher is another example, which supplies car batteries, filters and lubricants directly to manufacturers.

What strengths can Monterrey offer to potential foreign investors within the automotive industry?

In Monterrey there are about 2,600 foreign companies, thus the apparent tradition of investing in the region. Labor costs in Monterrey are not as cheap as in other regions of Mexico, but here we can offer more specialized workers. Foreign investors that have more complicated processes must thus look to Monterrey where they can find specialized engineers and technicians. The challenge is that there are no tangible economic incentives for investors to come to Monterrey. The FDI in the region, however, provides a substantial base of suppliers and specialized operations.

Our strategy for international promotion is creating awareness of the value-added talent pool that Monterrey caters. We are focusing on promoting the region in Korea, as Korea is a substantial player in the Mexican market. CLAUT aims to attract required suppliers to build a local supply chain for our members; for example, there is a significant demand for tool makers in the region, as well as plastic injection mold suppliers.

What tactics are in place to develop local companies?

We hope to foster joint venture agreements between international and local players. CLAUT is devoted to specialized training and thus we are working with the government to deliver trained technicians to local companies. Tier 1 companies do not make an effort to support local suppliers and thus we want to create a synergy between OEMs, Tier 1s and Tier 2s to grow the local economy.

Monterrey is very close to the US market which has an impressive talent pool of skilled engineers. Universities in the region are very open to working with industry in the effort to promote further growth. The cluster has been successful in Nuevo León due to the strong collaboration between companies, academic institutions and the government.

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TRAINING



ENGINEERING SERVICES

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- WELDING
- STAMPING
- INJECTION MOLDING
- CASTING

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Tooling Design and Manufacturing

Tool Life Improvement

Process Redesign to Improve Material Yield

Process Redesign to Manufacture Defect Free Products

Functional Prototypes and Soft Tooling

Special Purpose Equipment Design and Manufacturing

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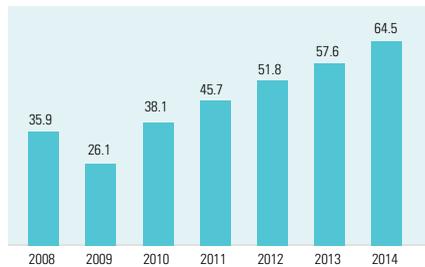
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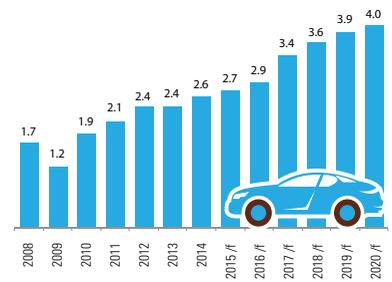
**AUTO PARTS EXPORTS FROM MEXICO
2008-2014 (billions of dollars)**



GRAPH 2: Mexico ranks as the seventh largest vehicle producer globally, and is the fourth largest exporter—sitting at 32% of total national exports.

Source: ProMexico

**EXPORT OF LIGHT VEHICLES IN MEXICO
(MILLIONS OF UNITS)**



f / forecasts for the year
Sources: ANIA (2008-2014), Global Insight (2015-2020)

But there are many other advantages to utilizing local entities, as they have the knowledge for how to best operate in Mexico’s inimitable environment. One example Hugler gave was adjusting to the quality of water: “In the United States or Europe, the standard is reverse-osmosis (RO) water without hardness, which is not the case in Mexico.”

Many people still use tap water or are off the grid in Monterrey, and when using a different water quality, performance of certain dilutable lubricants and chemicals are effected. Transnationals may not be readily prepared for this added variable.

Inyección de Plásticos Regionmontanos (IPR) is a local company that entered the automotive market in 1995 with a single plastic injection molding machine. In 1999, they merged with American EVCO Plastics, as one of EVCO’s clients needed a local Mexican supplier. “Automotive is the sector in which we have grown most in the last five years,” explained Humberto Garza, president of EVCO Plastics de Mexico.

Offering metal to plastic conversion services, EVCO works with companies from the initial development and design of the product, keeping it low cost. “Resins have been developing significantly over the years, to the point where they have the durability of metal parts,” says González.

Since the automotive industry is heavily focused on light-weighting, the shift to plastics is beneficial for reducing fixed costs and fuel consumption.

The theme of cost reduction remains constant, as Consultores CPM has also solidified its presence as a training, consulting, and machining arm in the local automotive sphere. “CPM aims to facilitate the trans-

fer and integration of technology development and manufacturing processes to help customers achieve better quality and to be more competitive at a lower cost,” stated Victor Vasquez, general manager of Consultores CPM.

Vasquez sees an opening in the market for drafting and modeling services and expects to further the company’s involvement in prototyping. Many opportunities for interested local entities still remain, considering that in 2014, automotive Tier 1 suppliers in Mexico imported \$38 billion in components, raw materials, tooling and other resources.

Needs of the market have only heightened with the arrival of KIA, the first auto assembly plant to set up operations in Nuevo Leon. “The establishment of the KIA plant will create around 7,000 jobs here. Electro-mechanics and wheel mechanism production are the most important fields of training right now,” explained Professor Roel Guajardo Cantú, director general of CONALEP Nuevo Leon, the largest contributor of professional technicians in the area’s automotive industry.

OEMs and Tier 1s are keen to develop local human capital and suppliers as there are great logistical and time saving advantages to keeping processes and assemblies consolidated. The trick lies in correctly matching the needs of the industry with the output of universities and suppliers. G+G Carbide Tooling, the largest manufacturer of standard tools in Mexico, commented that they are shifting from high speed steel tools to PCD tooling, as the automotive industry is moving more towards aluminum frames. This locally owned, Monterrey based company is one example of progressive adaptation,

but our research team aims to uncover what skills gaps are plaguing future growth of the nation's industrial hub.

THE SHIFT TO SALTILLO

Nearly 90% of Saltillo's economic foundation is composed of automotive firms, and the sector's predominance in the region makes it one of Mexico's largest automotive manufacturing centers. Saltillo's expertise is driving more international majors to consider relocation, while Chrysler, Daimler, and General Motors have been comfortably established in the city for years. According to new UAW agreements, Chrysler is shifting most of its production from the United States to Mexico in the immediate future. The newly unveiled 2017 Ram Power Wagon, with a towing capacity of 10,030 pounds, will be manufactured and assembled in Coahuila at Chrysler's Saltillo Truck Assembly Plant, taking advantage of Mexico's cost effective measures while also remaining close to the United States, its primary market.

MONTERREY'S MOMENTUM: DRIVING THE INDUSTRY BEYOND MANUFACTURING

Located around 130 miles from the Texas border, Monterrey serves as the headquarters for some of the most critical industrial and financial groups in Mexico—including Cemex, Grupo Alfa, Banorte and FEMSA. "Mexico's north has a greater acceptance and adoption of new technology than other parts of the country," stated Kuri. "Arguably, the reason is cultural in that the north is closer to the technological influence of the USA, hence why Monterrey is a strategic region." Research and development centers are already in use, as Navistar created theirs in Monterrey in 2012, and it already employs around 100 truck design engineers. A similar story can be told for that of Yazaki. Conventional challenges remain in the industry, such as curtailing cycle time, reducing energy consumption, and recycling materials in manufacturing, but strides are also being made in light-weighting vehicles and advanced materials research within the region. "These companies no longer see Nuevo Leon as just a place for manufacturing," said Montoya. Monterrey is home to the Research and Technology Innovation Park (PIIT), which

SUPPORT PROCESSES FOR THE AUTOMOTIVE SUPPLY CHAIN



Source: ProMexico

houses over 30 centers dedicated to the transition from an industry based on manufacturing, to one based on knowledge. CLAUT is inaugurating an automotive simulation center on campus at PIIT, granting access to 25 software programs specialized in design and optimization processes—such as Catia, Pro Engineer, Abaqus, Adams, Ansys, Delmia, Autoform, Pro Cast, Deform and Optistruct. Metalsa, one of the leading automotive frame suppliers globally, also has a research and development lab on the PIIT campus. In conjunction with Consejo Nacional de Ciencia y Tecnología (CONACYT) and other research entities, Metalsa just launched their "XeV Chassis" project; the first ever electric pick-up truck. The frame, engine mounts, and battery are all designed to direct the driving power from the electrical source to the wheel. The design is still considered flexible and adaptable to certain market niches and the continued objective is to create a four-wheel-drive fully electrified truck. Research and Development is becoming ever-present in Monterrey, as executives are

focused on creating an ecosystem that catalyzes innovation.

MORE TO BE UNVEILED

Dedicated to spending the coming months conducting on-the-ground research, the Global Business Reports team aims to highlight exemplarily local success stories and answer critical questions that have yet to be satisfied in the automotive industry. Is the triple-propeller model functioning at a level that equates with its theoretical potential? Is enough being done to ensure local suppliers surface and solidify in the market's foundation? What are the unique offerings specific to each of Mexico's dominating automotive regions, and are they unified in attracting additional FDI to the nation as a whole? We greatly appreciate the support of INA and CLAUT in our efforts to uncover more about the status of the supply chain and the promise of the industry. After conducting over 100 interviews with local industry executives, we will have answers to all of the above questions and more. Stay tuned!•

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