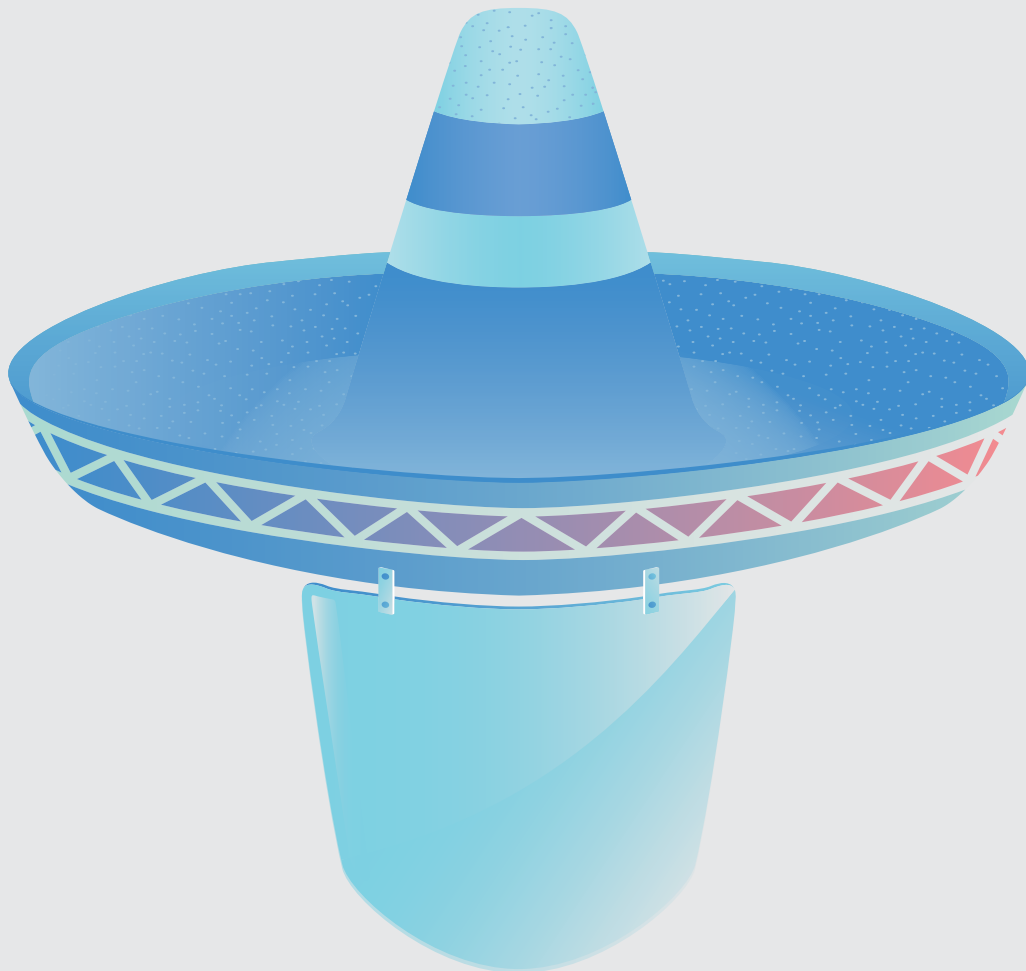


GLOBAL BUSINESS REPORTS

INDUSTRY EXPLORATIONS



MEXICO STEEL & IRON 2015



*Economy - Steel - Iron - Mills - Raw Materials
Automobiles - Energy Reforms - Construction*



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Dear Readers,



2014 will be remembered as a year of great upheaval for Mexico. There was considerable drama in the political sphere as President Peña Nieto succeeded in pushing through the crowning jewel of his reform agenda, the denationalization of the country's oil and gas reserves. This long-awaited liberalization earned the president accolades from the leaders of powerful nations and powerful multinational corporations alike. Exclamatory headlines in financial newspapers proclaimed a new dawn for Mexico: a century after the 1910-17 Revolution, efficient exploitation of the country's natural resources would attract new waves of foreign investment and unleash the true potential of the economy. However, this climate of optimism was tempered by the brutal murder of 43 student teachers in the state of Guerrero in September. Although Mexico's struggles with law and order had long been well known, this incident captured public attention and served as a stark reminder of the true gravity of the situation.

These two events – one heartening, the other tragic – reflect a duality that seems to define Mexico. Several of our interviewees speak of two different Mexicos: one, a dynamic, forward-looking economy that boasts world-class companies, a young, highly-skilled workforce and a global network of free trade agreements. The second is plagued by informality, security problems and low growth rates. The challenge for 2015 and beyond is to ensure that the first Mexico continues down its path to development while the problems of the second are eliminated.

The steel industry provides a fine example of how Mexico as a whole should act to accomplish this. Pressured by low-cost imports from China, global overcapacity and high electricity prices, Mexican mills and service providers have been proactive in securing their future. New plants from AHMSA and Ternium will boost the levels of specialty steel available in the country while simultaneously reducing their environmental footprint. Meanwhile, service centers across the country have invested heavily in new capabilities and modern facilities, allowing them to integrate ever closer to the booming automotive and aerospace industries. Innovative financing programs from advanced equipment manufacturers are allowing much smaller companies to purchase high-tech machinery, formalize their operations and become part of this elite supply chain. Steel companies are also emblematic of how industrial investments can go hand in hand with social development. Many of the companies featured in this report run training programs to build capacities in their local workforce. Some of the larger players have dedicated social programs, directing a portion of their production to low-income housing and rural infrastructure construction.

The energy and optimism that we encountered during our stay in Mexico make the country one of the most exciting places in the world to do business. Peña Nieto has set the wheels in motion to usher in new levels of prosperity, now we should see his efforts begin to bear fruit. To borrow from another president who oversaw an era of economic transformation: there is nothing wrong with Mexico that cannot be cured by what is right with Mexico.

Our thanks go out to all of our interviewees and the various companies, associations and individuals who made our stay in Mexico a truly unforgettable experience.

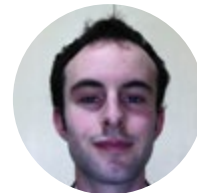
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Global Business Reports



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This research has been conducted by Nathan Allen, Alice Pascoletti,
and Brent Johns.
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Exclusive Interviews



Leading figures from the government and private sector discuss both current trends and future challenges for the steel industry in Mexico, providing investors with an insider's perspective.

10, 12, 28, 44, 52, 66, 74, 78, 81, 90

Editorial Analysis



Global Business Reports' teams spend months on the ground meeting face to face with industry leaders in order to provide unique insights into the Mexican steel industry, economy, and special topics.

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Producer Profiles



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SHINE BRIGHT MEXICO'S EXPANDING STEEL INDUSTRY



“Unfortunately, Mexico has not grown at the pace that everyone was hoping for. Key governmental initiatives such as the fiscal reforms, the energy reforms and the National Infrastructure Program have seen substantial delays. The

federal government has committed 40 billion pesos to infrastructure investment in the state of Michoacán but, as of yet, this has not materialized. However, we are optimistic that by the end of the year we will start to see state investment levels pick up and this will spur the economy towards more robust growth.”

- Victor M. Cairo,
CEO,
ArcelorMittal Mexico



INTRODUCING MEXICO

A Political and Economic Overview

Latin America is well known as a commodity powerhouse, and Mexico, the region's second largest economy and second most populous country after Brazil, is no exception. Most well known for its oil production, Mexico has developed other sectors in recent decades, including its steel industry, as this report will detail. Buoyed by political reforms to open up the energy sector and fresh commitments from the government to invest in infrastructure, the Mexican economy appears set to grow considerably. Whether the country can fulfill Goldman Sachs' prediction that it will become the world's fifth largest economy by 2050 will depend on the trajectory that it launches for itself in the next five to ten years.

Mexico is well positioned geographically to grow its international trade balances. With coastal access to both the Atlantic and Pacific Oceans, its goods can easily reach global markets, including the fast-growing Asia-Pacific region. It already has a tremendous advantage with its proximity to and free trade agreements with the United States and Canada through the North American Free Trade Agreement (NAFTA). This commercial intercourse not only provides Mexico with huge markets for its exports, but also stronger opportunities to develop new technologies.

This dynamic is currently unfolding in the oil and natural gas sec-

tor. Mexico's northern neighbors have revolutionized hydrocarbon exploration and production technologies, and Mexico is poised to harness them to develop its own shale oil and natural gas, if legal hurdles can be overcome. Most immediately, Mexico will look to spur exploration of deepwater oilfields in the Gulf of Mexico that have known reserves but have long been out of the reach of Petróleos Mexicanos (PEMEX), the giant state oil company. Mexico nationalized its oil resources in 1938, prohibiting foreign ownership of any oil produced in the country. While nationalization has been a source of pride, the industry has suffered from lack of investment and, most recently, declining production, which fell from 3.8 million barrels per day (mbpd) in 2004 to 2.9 mbpd in 2013. The economic growth stimulated by the opening of the energy sector is expected to reverberate to other sectors including steel and launch a sustained period of moderate to strong growth for Mexico. On the whole, the economy has remained sluggish, but it is far too early to ascertain the success of the reforms.

The political environment, on the other hand, provides reason for caution. Mexico's current President, Enrique Peña Nieto, assumed office in December 2012, but not all voters welcomed him and his party, the Institutional Revolutionary Party (PRI). Accusations of

MEXICO AT A GLANCE

Source: Statistics Canada, BC Stats, Ontario Ministry of Finance

Population: 120,286,655 (July 2014 est.)

Capital: Mexico City

Chief of State: President Enrique Peña Nieto (since 1 December 2012)

Gross Domestic Product: \$1,327 trillion (2013 est.)

Growth Rate: 1.2% (2013 est.)

GDP per Capita: \$15,600 (2013 est.)

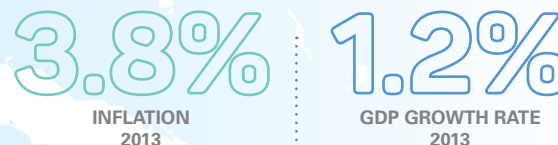
Economic Sector Breakdown: Exports: \$370.9 billion (2013 est.): manufactured goods, oil and oil products, silver, fruits, vegetables, coffee, cotton.

Imports: \$370.7 billion (2013 est.): metalworking machines, steel mill products, agricultural machinery, electrical equipment, car parts for assembly, repair parts for motor vehicles, aircraft, and aircraft parts.

Major International Trade Partners: United States, Canada, China, Japan

1. AGUASCALIENTES
2. DISTRITO FEDERAL
3. GUANAJUATO
4. HIDALGO
5. MEXICO
6. MORELOS
7. QUERETARO DE ARTEAGA
8. TLAXCALA

Gulf of Mexico

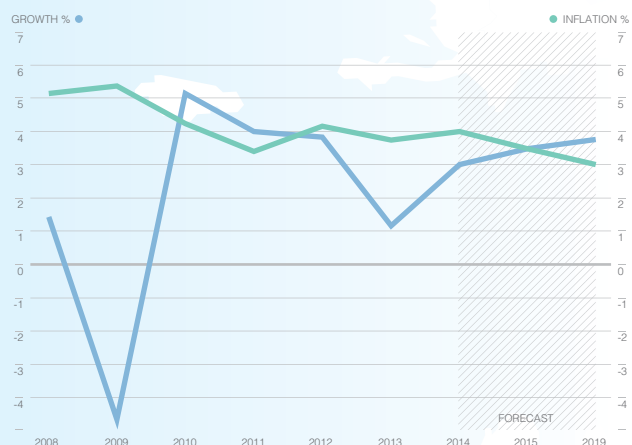


Source: CIA World Factbook

Source: CIA World Factbook

MEXICAN GROWTH VS. INFLATION (2008 TO 2013)

Source: International Monetary Fund



voting fraud and concern that the PRI’s past cronyism – the PRI had governed Mexico for 71 years prior to its defeat in 2000 – would reoccur led to street protests after the election. Nonetheless, the Peña Nieto administration moved swiftly to enact its agenda of jumpstarting the economy, tackling an appalling security situation coming out of the illegal drug trade, and opening up Mexico’s energy sector to private investment. Despite not having a parliamentary majority, the PRI was able to pass the reforms and set Mexico on an auspicious economic track.

Even though the economy has encouraging signs, Peña Nieto’s political popularity has declined noticeably as a result of cronyism and the administration’s ineffectiveness at improving the security situation. The accusations of cronyism lead to Peña Nieto himself: the president bought a house in 2005 from a contractor who has since won numerous government contracts under his administration. Peña Nieto’s Finance Minister was recently discovered to have taken a loan from the same contractor in 2007 to buy his own house. The accusations, therefore, are difficult to dispute. The security situation also continues to frustrate Mexicans. The administration failed to respond effectively to the abduction of 43 students in September 2014 by municipal police and murder by drug cartels, which gives it an ap-

pearance of weakness and ineptitude. In recent weeks, Peña Nieto’s approval has reached as low as 40%; a Mexican president has rarely been this unpopular.

Political weakness has prompted business interests to claim that the administration’s tax increases have slowed economic growth, and it appears that the government may bow to this pressure. Moreover, the decline in oil prices since the summer of 2014 has slowed investment in new exploration and reduced tax revenue and the levels of Mexico’s state coffers. Since this drop, the Mexican peso has slid against the U.S. dollar by 11%. The relaxation of quantitative easing by the U.S. Federal Reserve could also reduce investment not only in Mexico but also around the world.

Despite these political and economic headwinds, Mexico’s future remains bright in the long-term. The energy reforms will have a positive economic effect and spur broader business activity. The Mexican steel industry, as this report details, is seeing a flurry of new investments to increase capacity and produce a wider and more sophisticated range of products. While the country may have lost some momentum in the second half of 2014, a return of oil prices to \$70 or \$80 per barrel, which many analysts predict to happen by the middle or end of 2015, will help restart the engines of Mexican industry. •

Ildefonso Guajardo Villarreal

●●●

Secretary of the Economy
GOVERNMENT OF MEXICO



- **After GDP growth of just 1.1% in 2013, the bank of Mexico has cut its forecast for this year's GDP growth from 3% to 4% down to 2.3% to 3.3%. What are the reasons behind this anemic growth?**

The Mexican economy is highly integrated to the global economy. Our ratio of total trade to GDP is approximately 66%. This makes our economy highly susceptible to economic fluctuations outside of Mexico. Thus, if the United States faces a bad year economically and Europe's growth remains stagnant, we are disproportionately affected.

Looking at the internal factors in Mexico, 2013 saw the transition to the new government, and it takes time to adjust policies. When the new Administration came to power, certain sectors had been mismanaged, and it was necessary to rethink how entire systems were managed. One example is social housing projects in Mexico. The housing sector was growing, but without the appropriate planning: construction was made at locations without access to inherent services, such as transportation. The new housing policy represents a new model for urban development. Its objective is to ensure that Mexican families have a real possibility of access

to decent housing, while promoting the orderly and sustainable development of this sector.

Today, the economies of our main trading partners are in much better shape and our own domestic policies are better structured. As such, we are expecting to see stronger growth in 2014 than we saw last year. The numbers are already improving with second quarter statistics showing improvement over the first quarter of the year.

Decision making in the private sector is not looking at the short-term, as we see from the high level of foreign direct investment (FDI) coming into Mexico. This is proof that investors have faith in Mexico, not just in the short term, but looking to the long term as well.

There is an obvious split between Mexico's large formal network of businesses and informal small and medium enterprises (SMEs). How does the government aim to address this split in the Mexican business environment?

Twenty years ago we integrated our country into the global market and opened our borders to foreign trade by signing the North

American Free Trade Agreement (NAFTA). Since that time, we have multiplied our exports by seven and FDI inflows have increased fourfold. We have signed free trade treaties with 45 other countries that have directly connected Mexican producers to over one billion consumers across the world. At the same time, the economy has stabilized since the 1990s and both inflation and interest rates have come down. However, none of this translated into strong growth for Mexico because the underlying mechanisms governing how business operates were in dire need of reform.

The structural reforms aim to level the playing field for all businesses. One goal is to provide a regulated economy in which SMEs have access to more and more competitive financial resources and cheaper energy. How can companies flourish if they are paying 35% more for telecommunication services? How can companies flourish when they do not have access to financing? At the end of the day, the reforms, paired with a strategy to directly target sectorial developments, will help make the business environment more attractive for all players.

Through INADEM (Instituto Nacional del Emprendedor), with a budget of MXN\$10 billion, we are further pushing for the development, innovation and growth of entrepreneurs and micro, small and medium businesses.

The automotive industry continues to be a key driver for the economy, but foreign players dominate the supply chain. Will we see Mexican companies make the transition from simple product supply to more knowledge-based participation?

Ideally, the arrival of new investments into a country will lead to the domestic development of technologies and value-added capabilities. This process has already taken root in Mexico, and the country can boast a number of firms that contribute high-level processes and products to the industry. We now hope to see a similar skill transfer take place within the aerospace industry. Mexican aerospace exports have grown approximately 15% in the past seven years largely due to the proven expertise that has been built up in the automotive sector. We furthermore want to see the SMEs develop alongside this industry as tier 2 and 3 players.

Mexico is now in a privileged position with regards to manufacturing. There are three pillars to succeed in manufacturing. The first is human capital. Countries such as China and Korea will see their labor force diminish by 30% by 2050, while Mexico's will increase by 30% in the same period. The second is energy. Thanks to the Energy Reform, this resource will become cheaper, allowing companies to be more competitive on cost. Innovation is the third pillar. To this end, we are investing heavily in boosting information technology (IT) capabilities, and we have recently launched PROSOFT 3.0, our revamped public policy aimed at developing the IT sector in Mexico.

Where does the steel industry fit into the business environment in Mexico?

As a key component in the Mexican manufacturing environment, steel remains a sector highly dependent on innovation. Leading steelmakers such as AHMSA are investing in new capabilities in order to decrease dependency on imports and meet rising demand from new arriving industries. Currently, steel production accounts for 12.6% of manufacturing GDP.

When I came into office, a number of key players in the industry wanted me to increase tariffs, but this will not happen. We have struck a good balance between looking out for domestic players and fostering an open economy where fair trade prospers. Increased protectionism would negatively impact downstream companies and would decrease our competitiveness in final products. That being said, we have been highly efficient in utilizing the tools that we have available to avoid unfair competition.

Throughout North America we are looking for more integration within the markets. NAFTA is not only about trade, but is also about creating an integrated production process. In order to do this, it is important to have efficient rules that allow you to be competitive as a region. The rules of international trade have to be monitored accordingly to avoid highly protectionist communities in the North American region.

Where will the Mexican economy be three years from now?

The main target of President Peña is to reinstate the possibility of 5% to 6% growth by the end of his term. All of our economic policies are geared to stimulating growth. He has acknowledged that a dichotomy exists between unproductive SMEs and dynamic modern industry, and his policies aim to redress this situation. At the end of the day, we must increase productivity. This will be accomplished by incentivizing productive organizations to expand and by helping low productivity organizations become more sophisticated.

In Mexico, we cannot ignore that many people live in poverty. We do several different efforts in the communities we have presence and also work together with the government on initiatives such as developing build alternatives for affordable housing. In this case, although steel is not the primary material for house building, we can still play an important role. Many poor people, particularly in rural areas, build their houses from adobe with no structural reinforcement. This can be very dangerous, so Deacero has engineered a wire reinforcement system to improve those properties structural resistance and that can be sold at very economic prices to low-income communities. •

LET THERE BE LIGHT

An Introduction to the Mexican Steel Industry

●● Heading eastward out of Monterrey the landscape flanking the dried-up Santa Clara river offers little to write home about. What was once anonymous scrubland has now been supplanted by equally anonymous suburban sprawl. The scattering of warehouses and shopping centers does little to liven up the scenario. Then, out of nowhere, rises an iron giant. This is Alto Horno 1, Latin America's first blast furnace. Built in 1903, the facility continued to operate throughout the 20th Century before finally being decommissioned in 1986. Today, the furnace forms part of a museum and tourism complex where visitors can learn about the history of the steel industry and the contribution that it made to Mexico's – and particularly Monterrey's – path towards development. Just as steel production played a large part in Mexico's development, so too did the country help to drive the industry forward. It was a Monterrey-based producer that gave the world its first commercial scale gas-based direct reduction plant in the form of the HylsaIM facility. The arrival of this technology paved the way for one of the most profound changes to hit the world steel scenario since the 19th Century invention of the Bessemer process. Direct Reduced Iron (DRI) plants have now taken root around the world and thanks to the continuing downward trend in natural gas prices the process is becoming even more popular.

Fast-forward 50 years and Mexico remains a key player in the global steel industry. The North American nation is the 13th largest producer in the world, and the second largest in Latin America. After a dramatic drop in production in 2009 following the global financial crisis, volumes are back up to healthier levels, and in 2013 the country broke all previous records with gross production coming in at 18.21 million metric tons. The sector provides employment for some 720,000 people and generates 2.7% of total GDP. Mexico's largest integrated producer is still Altos Hornos de México (AHMSA), but the last 10 years have seen the arrival of a range of international players. ArcelorMittal has an important presence on the West Coast, while the Argentine Ternium operates a range of facilities across the country. Meanwhile, the Brazilian company Gerdau has recently finalized a deal to expand its footprint through a joint venture with local producer Corsa.

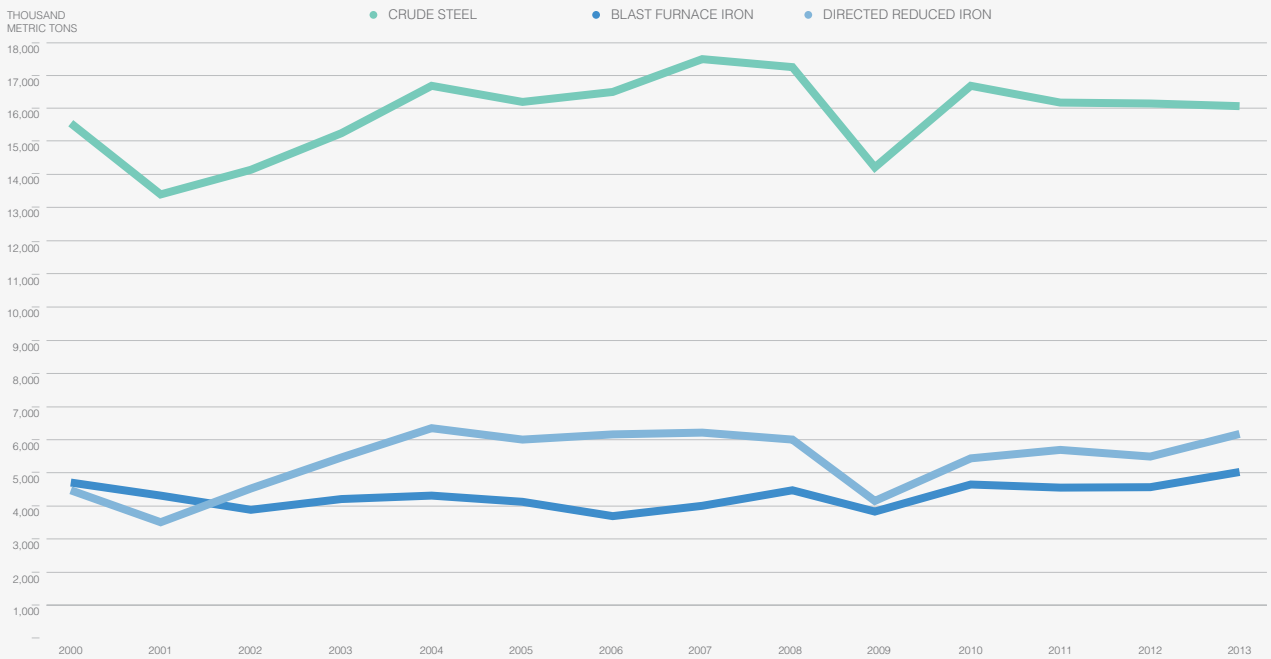
Levels of investment are impressive and steel imports continue to fall, but this does not mean that local mills can afford to rest on their laurels. Competition from low-cost producers in China and



Image: Novocast

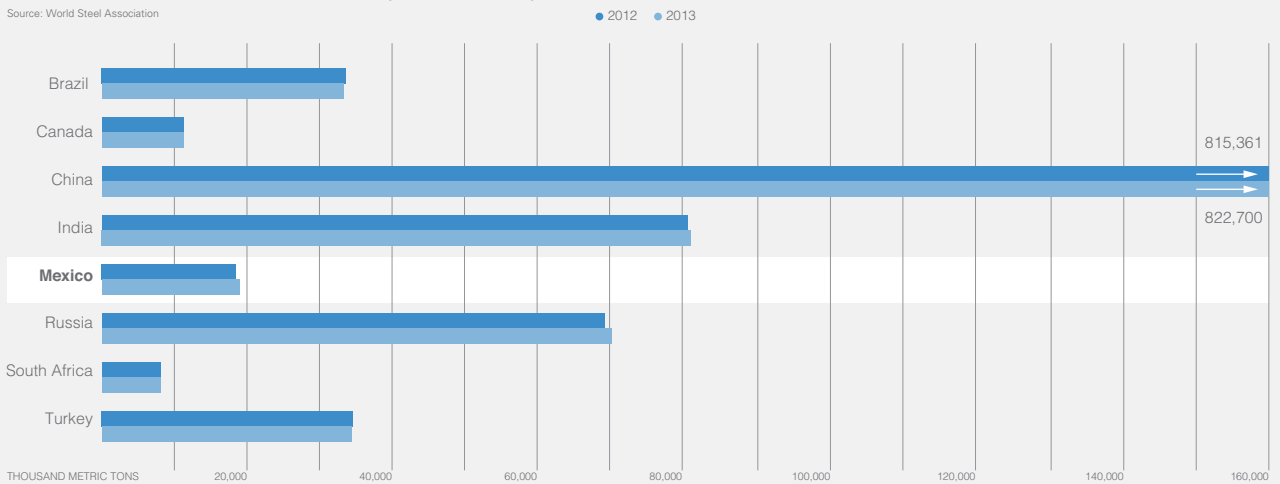
MEXICAN STEEL AND IRON PRODUCTION (2000-2013)

Source: World Steel Association



TOTAL STEEL PRODUCTION BY COUNTRY (2012 AND 2013)

Source: World Steel Association



India continues to put pressure on margins and has forced producers to reign in costs wherever they can. Furthermore, Mexico still suffers from relatively high energy costs, particularly when compared to the highly-subsidized rates that steel mills in the United States pay.

Poor economic growth in recent years has also led producers to worry about overcapacity issues as they struggle to find a market for their products, particularly those destined for the construction industry. Nevertheless, the forthcoming structural reforms to strategic segments of the econ-

omy will help bring Mexico out of the economic doldrums. The opening of the oil and gas sector combined with the meteoric growth of automotive manufacturing should go some way to providing a strong foundation for increased demand.

In parallel, we should see renewed levels of dynamism in the broader economy and increased purchasing power for Mexican consumers. “Disposable income rates are rising and this is intrinsically linked to steel consumption levels,” said Luis Reyes, vice president NAFTA for Vesuvius. “If a person sees a rise in their income then they

are likely to switch from riding a bicycle to riding a motorbike. If he earns still more money, he will probably buy a car.”

Mexico is an exciting place to be and, if the local mills can capitalize on the country’s natural competitive advantages of close proximity to the USA and a highly skilled workforce, then it seems that they have a very bright future ahead of them. The challenge now is to improve levels of technology and develop the level of expertise in the production of more sophisticated grades, and bring more value to the sector overall. ●

Rodrigo Medina de la Cruz

●●●

Governor
STATE OF NUEVO LEÓN

- **Over the past two years, we have seen relatively low growth in Mexico. With a GDP growth of only 1.1% and a decreased forecast in this years GDP growth from 3% to 4% down to 2.3% to 3.3%, why is it the GDP growth remains low in Mexico and how has Nuevo León been able to continue to grow despite the country's challenges?**

All profound transformations come with their challenges. The President has spent the beginning of his term planning and building the foundation for these reforms. The next phase, we will see from him will be the execution. We have had historical success in pushing these reforms through congress and other countries are looking to Mexico with envy because we were able to cooperate and open the economy, despite political differences. The President, with the support of the government, will transform many industries in order to provide growth and further stability to the Mexican economy.

The automotive industry in Mexico has been making headlines with new investments being announced almost monthly. How have Mexican firms utilized these investments to move from simply supplying, as tier two or tier three manufacturers, to developing knowledge capabilities in this industry?

This is a challenge that we are currently facing. We have to stimulate the domestic economy. We want to make sure that we continue to witness a shift in our businesses. We want them not only to focus on low labor costs but also to shift to competing based on strong capabilities and technologies.

I see this situation in the domestic market not as a problem but as an opportunity. If you look at Nuevo León, we have a very

strong labor force, which is four times more productive than the rest of Mexico. This is due to the shift to technological capabilities that we have been witnessing. There has been an increased focus on research and development, and we will see more of this in the future.

We are working with national and international universities, the business environment, and the government, as a whole, in order to develop the IT sector and further advance our technological capabilities. These advancements will allow Mexico to double its national GDP per capita.

Steel has always been a key foundation in Nuevo León. How will these reforms and transformations impact the Mexican steel industry?

Mexico, and specifically Nuevo León, has always had a profound culture surrounding the steel industry. We even have a museum dedicated to steel in Nuevo León that aims to educate young people in a fun way about the history of steel.

Work is really our brand in Nuevo León. We are the industrial capital of Mexico. With the only bank owned by Mexicans being based in Nuevo León, we are the finan-

cial capital of Mexico. Also, we are poised to become the energy capital of Mexico as we move forward. Steel has been a big part of Nuevo León's success and companies, such as Ternium, Deacero, Tubacero, Villacero, Forja, and Prolamsa, which are based in Nuevo León, have contributed to this strategic sector. Sectors such as steel are really contributing to the attractiveness of the Nuevo León business environment as a whole. Effective labor, the procurement of resources, and logistics are all keys to a successful business offering and Nuevo León, thanks to the traditional sectors including steel are able to offer this.

Where will the Mexican economy be five years from now and what are the objectives you hope to achieve in Mexico and in Nuevo León specifically?

I want to see strong, sustainable growth in the Mexican economy. Specifically, I want to see the lower class in Mexico excel. I want the families and communities that are struggling financially to be better off. I believe that the reforms will lead to a transformation that will ultimately allow for Mexico to have more equality in the market and within society. •



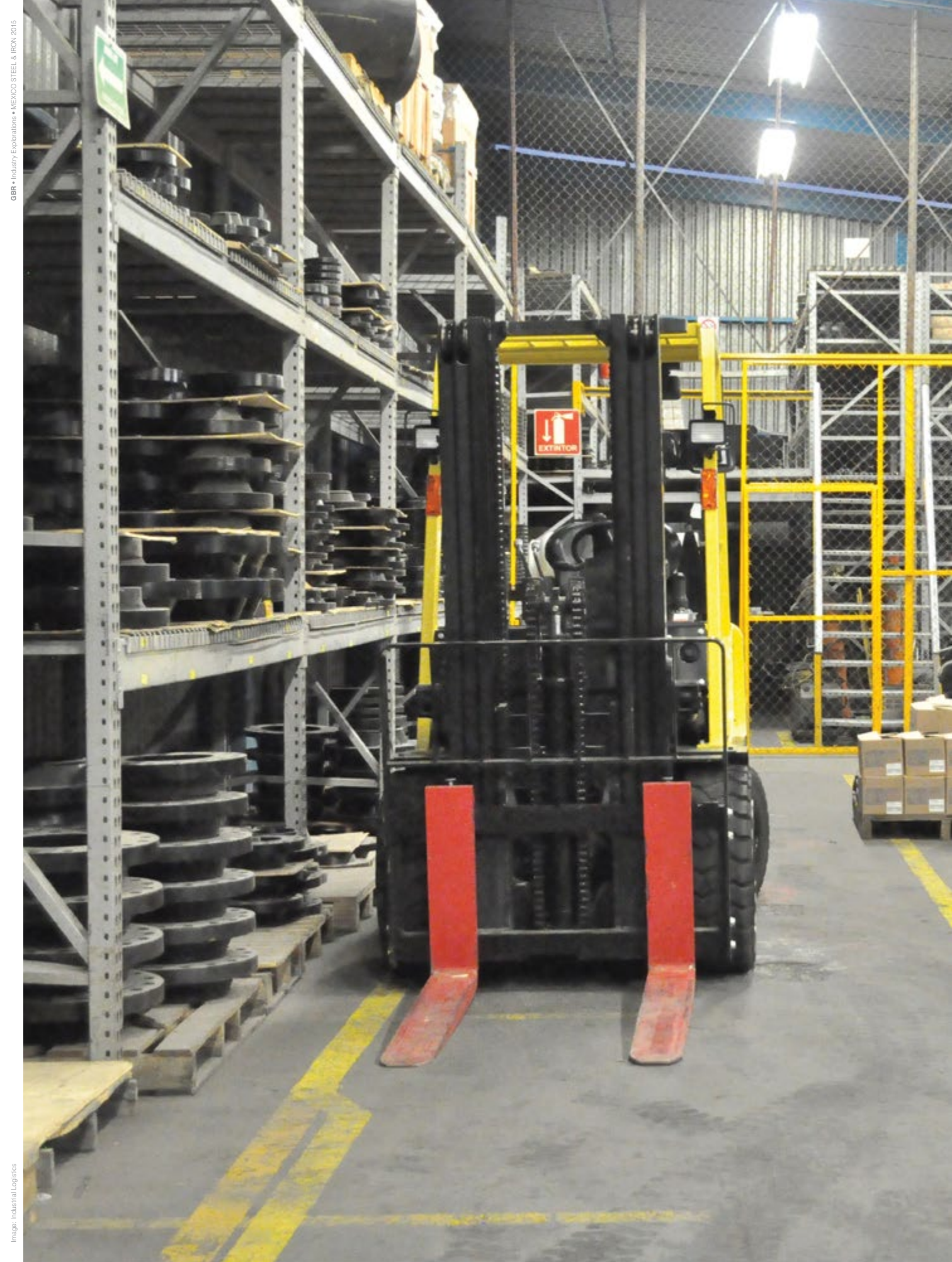


ArcelorMittal



transforming tomorrow

ArcelorMittal is the main steel and mining producer that is integrated at a global scale. Guided by a philosophy to produce safe, sustainable steel, it is the leading supplier of quality steel products in all major markets including automotive, construction, household appliances and packaging. In 2013, ArcelorMittal had revenues of \$79.4 billion and crude steel production of 91.2 million tonnes, while own iron ore production reached 58.4 million tonnes with more than 232,000 employees across 60 countries, ArcelorMittal brings unmatched global expertise to Mexico. In Mexico we have researched and developed steels of greater strength and ductility, transforming the methods of construction in this country and where we export our products.





THE MEXICAN MARKET SEEKING GROWTH AT HOME AND ABROAD



“A lot of foundries in the United States are shutting down due to antipollution regulation. Many U.S. companies had gone to China but are coming back to North America and pushing Mexican foundries to start doing business because we are closer and can offer competitive prices, especially taking into account the lead time and transit time.”

- Germán Sánchez Madrigal,
Sales Manager,
Fundición Qualy

GLOBAL AND SMALL

Mexico's Two-Tiered Economy Inhibits Growth



Over the past year or two, Mexico has garnered international attention for the high volume of world-class companies that have chosen to set up shop in the country. The automotive sector in particular can be singled out as the recipient of unprecedented levels of foreign direct investment (FDI). In 2014 alone, Audi, Daimler-Nissan and most recently BMW have given the green light to billion-dollar investments in new production bases. The Bajío region in Northern Central Mexico, which encompasses the states of Aguascalientes, Guanajuato, Jalisco and Queretaro, has been converted into a high-tech manufacturing hub and is now seeking to promote itself to players within the aviation industry.

Nevertheless, these high-profile developments have failed to translate into strong economic growth. In 2013, the first full year of President Enrique Peña Nieto's term of office, Mexico's economy grew by just 1.1%, barely outstripping the beleaguered economies of the Eurozone. In May of 2014, the Bank of Mexico cut its forecasts for GDP growth from 3% to 4% down to 2.3% to 3.3%. According to many commentators, this is still highly optimistic. Some estimates are as low as 2%, with the most pessimistic economists suggesting that Mexico may actually enter a recession.

It is difficult to reconcile these two opposing trends. Indeed, looking solely at FDI figures, the outside observer would imagine that Mexico should be experiencing bonanza growth. The explanation lies in a duality that defines the whole Mexican economy. "The reason we have not seen enough growth is that Mexico is essentially split into two different countries," said Mario Arregoytia, audit partner and head of mining and metals for Mexico and Central America at EY "One part of Mexico is very modern and can compete on a global level... while the rest of Mexico is made up of small companies with very low efficiency and low competitiveness. Foreign investment in Mexico is mainly allocated within the most modern sectors," he said.

SMEs, or PyMES as they are known in Mexico, dominate the economy. Small firms employ 60% of Mexicans and this figure is even higher in certain sectors, such as construction. Many of these companies are local, family businesses, characterized by a high degree of informality. This stands in stark contrast to the technologically advanced multinationals now flocking to Mexican soil. Most estimates suggest that between 1982 and 1992 Mexican productivity barely grew at all. The growth rate rose to just below 1% after NAFTA was signed in 1992. However, closer analysis reveals a more nuanced picture. According to research conducted by McKinsey, productivity within large, modern firms has improved by an average of 5.8% per year. Yet among traditional, family-owned businesses this level has been dropping at an annual rate of 6.5%. Clearly, poor performance from the PyMES is having a strong, adverse effect on Mexico's economic potential. This is a headache for government because the high level of informality has a direct correlation with the country's low tax revenues.

A large proportion of these firms are not officially registered and,



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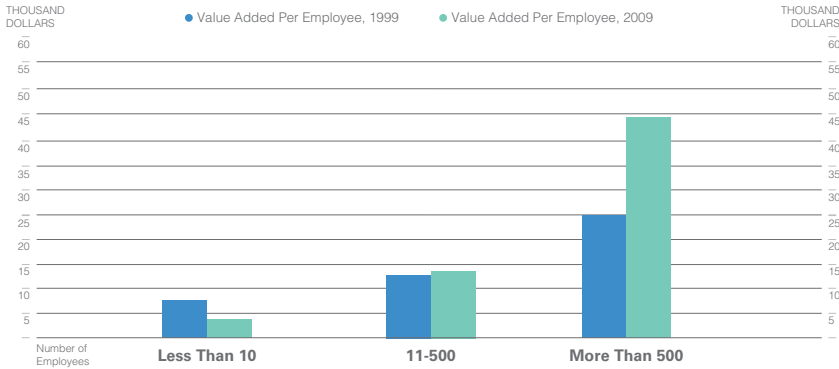
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PRODUCTIVITY IN LARGE AND SMALL FIRMS (1999 AND 2009)

Source: Censos Económicos 1999, Censos Económicos 2009, Instituto Nacional de Estadística y Geografía, McKinsey Global Institute analysis



therefore, do not pay any taxes. It has been suggested that current social security policy and labor laws actually serve to perpetuate this situation. Formal sector employers contribute to their employees’ pension and healthcare provision through a direct payroll tax, equivalent to approximately 30% of salary, a high cost for any SME to bear. However, there is a secondary framework designed to cater to informal sector workers, which is paid for out of general government revenues. The quality of this latter system is now so high that many small businesses consider themselves better off staying under the radar and letting the government look after their staff.

On top of this, the recent fiscal reforms, which were supposed to remedy some of these maladies, have proven to be highly unpopular among the business community. For many small enterprises, the standards demanded by the new legislation constitute still more entry barriers to formality. “The reforms will mean more taxes and more complex compliance issues for these smaller organizations,” said Oscar Lizcano of Mexico City-based tube maker Conduit. “At the end of the day, medium companies may grow, and the large organizations will become much larger, but it is my belief that these reforms will actually hurt the smaller players in the industry.”

In spite of this skewed incentive scheme, there are, of course, many businesses that wish to grow, become more professional and profit from the development of Mexico’s dynamic, growing industries. Unfortunately, there are more hurdles ahead for these companies—the lack of access to affordable finance is perhaps the most significant. “Banks in Mexico are not very

well prepared to cater to small and medium-sized companies. They see loans to small companies as extremely risky and so often they charge exorbitant interest rates,” explained Juan Carlos Herrera, regional sales manager of the press technology division of Komatsu.

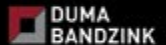
According to figures from the World Bank, more than half of Mexico’s SMEs lack access to financial services, which has led to an estimated \$60 billion credit gap. As a result, smaller companies involved in Mexico’s steel processing and metalwork sectors tend to suffer from a lack of advanced technology. There is an over-reliance on used machinery, which is usually not able to deliver the quality and consistency demanded by Mexico’s more developed industries. Hector Morales, director of steel trader and equipment supplier Acerroteca, believes that the time has come for a change. “This situation cannot persist, especially when you consider the high standards that Mexico’s main growth industries such as automotive and oil and gas demand from their steel products,” he said. This low level of technology often prevents local firms from integrating into multinational supply chains and further widens the gulf between the two streams.

However, there are some positive signs on the horizon. Disma is a leading provider of machine technology to metalworkers and steel transformers. The company’s president, Rosario Soto Barrionuevo, who has been in the market for over 20 years, has witnessed a shift in the buying habits of the smaller companies within her client base. “In the past, Mexican manufacturers usually acquired second-hand machines from the USA. Over the years, this situ-



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Image: Hypertherm

ation has changed thanks to the growth of local companies that now see the value in purchasing new equipment,” notes Barrionuevo.

The company has recently begun to stock cutting-edge laser cutters and bending robots from Japanese manufacturer Amada. “Twenty years ago it would not have been possible to sell this type of equipment in Mexico,” said Barrionuevo. “We have had to develop the market by building credibility and demonstrating the value of advanced technology.”

This sentiment is echoed by Israel Gonzalez, country manager for Hypertherm, a developer and distributor of advanced cutting technologies. “Plasma technology is not well known in the country,” said Gonzalez. “Companies are still selling and using technologies such as friction or oxy-fuel cutting. We use ionized gas to cut materials, which is a big step forward in terms of safety when compared to older technologies,” he explained.

While Gonzalez acknowledges that there is still a need to educate the market, Hy-

pertherm’s sales figures would suggest that there is a real demand for this higher level of quality. In the last four years, the company has quadrupled its revenues and substantially increased its market share.

In parallel with this new demand for advancement, more flexible payment options and alternative finance avenues are starting to open up. These are mostly initiatives taken by equipment producers and distributors working in concert with finance companies. As of yet, it seems that Mexican banks are not interested in offering more attractive options to help smaller companies develop. This could prove to be damaging in the long term. Mexico’s economic woes will not be solved if large financiers continue to ignore the needs of their smaller clients. Ruben Rodriguez, director of Cokes Industriales, a key supplier of metallurgical coke and coal to the steel industry, sees SMEs as pivotal to ensuring more equitable development across the country. “It is vitally important to stimulate this sector of the economy rather than to just focus on the big headline in-

vestments,” said Rodriguez. “More work for small companies means more employment, which would help to bring down poverty and unemployment levels, which would ultimately have a positive impact on crime rates too.”

As many of these companies are highly localized operations, programs being implemented on a state level may be the way forward. In Nuevo León, Rolando Zubirán, the Secretary for Economic Development, is rolling out a unique scheme to help small companies bring a greater level of professionalism to their business. “We have developed a center for entrepreneurship that is the only one of its kind in the country and certified by the OECD,” said Zubirán. “We provide a one-stop shop to foster entrepreneurship to help with registration, taxes and accounting, as well as market development.”

Such innovations are surely a step in the right direction, but it will take more than a few isolated initiatives to help bridge the gap and bring Mexico’s faltering economy up to speed. •

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Mario Arregoytia

●●●
 Audit Partner, Mexico and Central America Mining & Metals Leader
ERNST & YOUNG (EY)

●●● **At Ernst & Young (EY) Mexico, you are the leader of the firm's Mining & Metals practice. When it comes to the steel sector in particular, what have been the main factors affecting recent growth trends?**

EY has been involved in the mining and metals industries in Mexico for many years, working with clients such as Grupo Mexico, Agnico Eagle and Trafigura. Mexico's metal industry has seen development in the precious metals sector and has become first in silver and an important global producer of gold. In steel, Mexico already ranks among the top 15 to 16 countries, and we expect it to grow because new structural reforms will be implemented. The industry will also benefit from the growth of the Mexican automotive industry, which is transforming into a global producing hub.

While Mexico's structural reforms are bringing new investment to the steel

industry, other industries are contracting. Can you tell us the reason for this decline?

The reason that Mexico has not had economic growth is that it is essentially split into two different parts. One is modern, can compete on a global level, and receives the lion's share of foreign investment, but the other consists of small companies with low efficiency and competitiveness.

In the last 20 years, Mexico has not created enough new employment. At the same time, the birth rate is declining and there was a significant demographic reduction from the 1970s to early 1980s. The birth rate still outpaces the creation of new jobs. Another reason is the lack of education. There are not enough educated workers to help the country compete globally, unlike in the BRIC countries, which until recent years have realized significant growth.

When it comes to the steel industry, how can EY work with companies to support their growth?

EY has good involvement in the steel industry at the level of advisory services, regarding information technology, restructuring processes and investment analysis. We only audit two of the top 10 players globally but provide advisory services to eight of the top 10. We bring in our specialists both to assist global steel players as well as Mexican national firms.

The steel sector in Mexico is made up of a few large players and many small companies. Do you see this changing as the sector matures?

In order for the steel industry to grow, high amounts of capital must be invested to fund large-scale production projects. It is difficult for smaller producers to compete. The best way to support the industry is to improve the supply chain and incorporate the small players. We have witnessed in the gold and coal sectors many instances where small and medium companies have been very successful.

Can we expect to see mergers and acquisitions among smaller companies in the near future?

The government and the mining industry are working together to create mining clusters in different regions of the country. There are currently five mining clusters in Mexico, in which suppliers are coordinat-

ing their activities. The next step is to create alliances and bring about more mergers and acquisitions. For instance, Monterrey is a natural steel cluster that has grown by coordinating with bigger players. We will see a similar trend of small companies working together as the big players continue to grow and need more support.

How will Mexican steel producers remain competitive with low-cost producing countries like China and India?

Looking at the example of Cementos Mexicanos (Cemex), which faced stiff foreign competition, is insightful. Cemex responded by making investments abroad, starting in Latin America, which provided higher margins and bolstered their competitiveness in Mexico, even as foreign companies were entering the country. The steel industry has similar dynamics. Companies require large amounts of capital but realize small margins. They must therefore develop a large and diversified holding of investments. Another issue to take into account is that several of the most important steel players in Mexico are foreign companies, such as ArcelorMittal, which are not solely competing in Mexico. Mexico is just one of the cost centers of their global operations.

As competition increases, will we see more investment in specialized materials with higher margins?

The oil and gas industry, for example, demands a significant volume of specialized metals. These are being imported because Mexico does not produce them. This is also true in the automotive industry. Specialty metals are therefore an area into which Mexican steel companies can expand their operations.

Do you have a final message for our readers about Mexico's steel industry and EY's role in developing it?

There will be plenty of opportunities in Mexican steel, and EY will be ready to support investors in Mexico. EY works worldwide, so we have a global, coordinated approach, whether it is to help clients produce studies on increasing plant capacity or to analyze the internal rate of return on their investments. •



Rosario Soto Barrionuevo

●●●
President
DISMA

●●● Could you begin by introducing us to the history of Disma and your main area of operations today?

Machine technology lies at the heart of industry. Machines are used for everything from the fabrication of white goods to the construction of offshore platforms and aircraft. It follows on that every developed country must have a strong stock of advanced machinery in order to develop its key industries. Mexico does not produce machinery in any significant quantities, which means that manufacturers must turn to distributors or go to the OEM directly, wherever they might be. In this scenario, Disma's role is to supply the Mexican metalwork sector with high quality machinery sourced from reliable brands around the world. Our particular niche is within the area of cutting and shaping tools.

Disma was founded in 1991, when a Spanish company sent me to carry out market research in Mexico. The results were so good that we set up a separate organization here.

Over the years we have endured several economic crises and remain a strong force in the distribution sector.

What are the factors that have prevented Mexico from developing its own machine building capacity?

Machinery production is concentrated in certain areas around the world. In addition to the traditional powerhouses of Italy, Germany, Japan and Spain, we now see strong production coming from China, Turkey, and Korea, whose governments have incentivized the formation of the industry alongside the natural growth of their industrial sectors. In general, Latin America has not followed this trend, so there are no equipment manufacturers on the continent, with a few exceptions in Argentina and Brazil.

How would you characterize Disma's primary client base?

We sell to all sizes and varieties of customers, but it is easier to supply local companies than international ones because the negotiation takes place locally. Multinationals tend to run centralized purchasing offices and have to follow many complex protocols when dealing with local suppliers.

How receptive are smaller Mexican manufacturers to buying cutting edge technologies?

In the past, Mexican manufacturers usually acquired second hand machines from the United States. This changed thanks to the growth of local companies that saw the value in purchasing new equipment. Nevertheless, the majority of Mexico's industrial sector consists of SMEs, which have grown at an uneven pace and have a very mixed level of technology. Today, we have a strategic alliance with the Japanese company Amada, which is a world leader in cutting-edge transformation machinery such as laser cutters and bending robots. This type of machinery is at the highest level of technology that we offer. 20 years ago it would not have been possible to sell this type of equipment in Mexico, and we have had to develop the market by building credibility and demonstrating the value of slightly less advanced technology.

Is there much of a stigma regarding Chinese machinery in Mexico?

As a company, Disma does not sell Chinese

machinery. There are perfectly good producers in China but, as a rule, the quality is not consistent. Furthermore, if a problem arises with equipment from China, there is no guarantee that a customer will be able to find a technician to repair it. Recently, we have noticed a worrying trend for equipment manufacturers to purchase machines from Chinese companies and then rebrand them under their own name. For this reason, Disma does not sell any equipment unless I have personally visited the plant where it is produced and seen first hand that it is a genuine product.

What type of after-sales services do you offer?

Our team of highly trained engineers has a detailed knowledge of all the machinery that we sell. They are always on hand to help customers should they experience any issues. In the case of Amada, which deals with very advanced technology, they have an operation in Mexico from which they can dispatch their own technicians to our customers.

Mexican banks have been criticized for not lending to small companies at fair rates. In this climate, what finance options are open for SMEs to purchase new equipment?

We are starting to see new avenues for finance open up to SMEs here. Local banks and even development banks do not provide an adequate service for smaller companies that want to upgrade their equipment. There are new options in the form of long-term leasing and rental, and now certain suppliers are able to offer finance and delayed payment schemes too.

What are your plans to develop Disma over the next few years?

In any business it is vital to continue adapting and transforming your services to meet the demands of the market. We are always on the lookout for new suppliers that can provide high quality, good value machines that we can pass on to the Mexican market. In addition, we recognize that a company is no more than the people that support it, so we will be investing heavily in developing the quality of our workforce. Today, we offer a strong portfolio of different products and unless circumstances change dramatically we intend to maintain our relationships with these brands. ●



Israel González



Country Manager
HYPERTHERM

●●● Hypertherm's diversification has mirrored that of the Mexican steel market. Could you introduce us to Hypertherm's operations in Mexico?

Hypertherm is a leading company whose mission is to provide customers with the best industrial cutting solutions in the market. It is a statement we have been committed to since 1968, when Dick Couch and Bob Dean founded the company based on the principles of customer focus and innovation.

As a visionary company driven to do cutting better than anyone else, Hypertherm have evolved from a thermal cutting equipment company to a multi-technology cutting systems enterprise, which now offers a much more comprehensive portfolio that includes plasma, water jet and laser cutting systems with the most reliable, most consistent and with the highest performance in the market.

After 2008 global economic crisis, Hypertherm Mexico has quadrupled its business.

This is a number very few companies can display, including none of our competitors. We have sales and marketing teams based out of both Mexico City and Monterrey. Technical services, post-sales and the main offices are centralized in Mexico City. Our main clients include steel manufacturers as well as metal transforming companies, among other metal sectors.

You mentioned the introduction of new technologies in the Mexican market. Could you please provide us with more information about your portfolio?

Our core business for the last 46 years has been plasma, which is our most profitable product line to the date; offering a broad and diverse manual and mechanized solutions led by the Powermax and HyPerformance families, which are complemented by our Automation and Software solutions. Six years ago, we decided to expand our business to attend our customers' most recent requirements. They requested new cutting solutions for different materials, with greater accuracy and equally high levels of quality. Hypertherm's engineering department came up with a solution which would be adequate to their needs, so we launched a family of products based on water jet technology: the HyPrecision product line. We are proud to say that Hypertherm is the only company in the market that offers Advance Intensifier Technology™ (AIT) in every of the HyPrecision systems. This unique technology has the following benefits to the end user: maximize maintenance intervals, simplify component replacement and minimize cost of operation.

With water jet we can cut anything that you can possibly imagine, from metal to marble and foam to food. Laser cutting gives us the freedom to create different geometries, which would be impossible to meet with standard technology. Plasma can cut any type of conductive metal, but not with the precision and designs made possible by laser technology. To counter-balance this, we have a complementary portfolio with solutions designed for every market niche.

Hypertherm has shown aggressive growth figures in the last four years. What is the relevance of Mexican operations to Hypertherm worldwide today?

As a country, we are competing with Canada for the sixth or seventh place ac-

ording to market share, but market share in Mexico is very difficult to analyze, as there are no official figures. However, approximately five of 10 plasmas sold in Mexico belong to Hypertherm, which makes us market leaders.

What is your view of the steel market today and what trends do you foresee for the near future?

Our main three target industries are mining, pipeline, and the automotive, all of which are booming markets. We want to maintain our core business in order to target these sectors. As of today, we are strong in the construction sector. Fortunately for us, plasma is not yet a mature product in Mexico; inside the country, the plasma technology is not well known. Companies are still selling and using technologies such as friction or oxi-fuel cutting. We use ionized gas to cut materials, which is a big step forward in terms of safety when compared to older technologies.

Are your Mexican operations exporting to other countries?

Hypertherm's business model is to divide all the channels into two parts: direct distribution and OEMs. The policy is to give the OEMs authorization to sell any Hypertherm machine worldwide and to ship them to any part of the world. When I said that five of 10 machines in Mexico belong to Hypertherm, many of those come from Mexico, the United States, Europe, and other countries.

Where would you like to take Hypertherm in the next five years?

First, we have to protect and maintain our core business within the industries in which we are already strong. At the same time, we are targeting three major industries in Mexico: mining, pipeline (including oil and gas), and automotive. In the short and medium-term, we will also target railroad and shipbuilding and non-metal sectors.

The steel business in Mexico will see a boom in the next five to seven years. Manufacturing will be something that foreign brands will pay special attention to making large investments in the country. Transforming metal in Mexico will be a very good opportunity so with the use of Hypertherm systems, companies can supply the growing demand of Mexico's market with the highest quality levels available. ●



Hector Morales

●●●
 Director
ACEROTECA
MEXICO S.A. DE C.V.

●●● **Aceroteca has had a fairly unique trajectory in the market from its origins as a steel trader. Could you tell us how this evolution occurred?**

Aceroteca's story is certainly unique. Founded in 1991, the company began as a sales representative for Ferrostaal. For many years our core business was pure trading: we brought in steel from all over the world and sold it to clients throughout Mexico. We were so successful that Ferrostaal decided to withdraw our agreement rights and set up its own office here. Immediately after this happened we began to work with ThyssenKrupp following a similar model. Once again, because of the sales volumes that we generated and a change of directors in Mexico, the company decided to set up its own network. I then went to work for Thyssen's trading division and stayed with the company for some three years. At this point, I went into business for myself again and secured another distribution partnership

with Thyssen in 2004, which is when the second part of Aceroteca's history began. Throughout the company's history we built up strong relationships with the local mills, particularly AHMSA and Ternium. These large corporations used to be family-run and it was important to establish personal relationships with the key figures. We focused the trading business on the export market with support from the domestic mills. In 2007, this scenario changed again as HYLSA and later IMSA were bought out by Ternium, and the need for export services disappeared. At this point, we were forced to adapt our business model again. We decided to start our service center operation, Galvaprimo. Aceroteca continues to export hot and cold-rolled coils from AHMSA but now also distributes various leading brands of equipment to steelmakers.

Representing international equipment manufacturers seems like a very different business to steel trading. How were you able to incorporate this into your existing business model?

Actually, representing equipment fits naturally into our existing business. We already have contact with the local mills and visit them frequently, so it makes perfect sense to bring them high quality products that can help improve their operations. The first two brands that we began to represent were IMS Messysteme, a German company that produces X-Ray measuring equipment, and Aços Villares, which produces lamination rolls for the steelmaking lamination process. Our next partnership was with Herkules GmbH, another German firm that produces lathes and rectifiers. As we fortified our reputation in Mexico, more manufacturers approached us. As it stands today, we represent eight different brands. The majority of our products are for applications within steel mills, but we do offer some products for use in service centers.

Given that there are only a handful of de-facto steelmakers in Mexico, but hundreds of service centers, are you looking to expand your product range to cater to this larger client base?

Service centers constitute a much larger market in Mexico than steel mills, and some of our lines are suited towards use in such operations. However, the problem

is that the vast majority of service centers do not invest in new equipment, instead relying on used equipment from the United States. To this end, we are seeking to educate the market regarding the value of purchasing new, high-tech machines and to cultivate demand for our own products. However, such a change will take time to become apparent.

Aceroteca has started representing Chinese brands. Has the country's reputation for lower quality been a problem when selling to Mexican clients?

Aceroteca only represents quality brands. One element that sets us apart from the competition is our commitment to always visit the plants where our products are manufactured. Only by seeing the factories with your own eyes can you be sure that the quality and consistency will be up to standard. It is true that a lot of low-quality goods are produced in China, but within the many manufacturers producing sub-standard equipment, we aim to find the one that produces exceptional quality.

As your suppliers are located far away from Mexico, how are you able to guarantee solid after-sales service?

Services are an extremely important part of any equipment sale. We have a very well trained team that is capable of carrying out maintenance work on most lines that we work with. For example, when it comes to IMS products, we have two technicians who were trained in Germany by the company's own maintenance team. We are now able to install these systems and then train the client's team to operate and repair them. We have done the same with Herkules Lathes and Grinders. Moving forward, our aim is to develop a similar level of expertise across all the brands that we represent.

What does the future hold for Aceroteca?

We will continue to expand our steel export business with Thyssen and develop new suppliers for our equipment. We are optimistic about the prospects for the next few years, as Ternium has just implemented their Tenigal plant in Pesqueria. AHMSA's Fenix Project is now onstream, and there are many other investments in the pipeline. ●

BALANCING FREE TRADE AND PROTECTIONISM

Mexico's Place in the Global Market

●● Mexico is a firm believer in free trade and a signatory of the North American Free Trade Agreement (NAFTA) but it too is concerned about opening the floodgates to cheap steel from China.

For some years now, the world has been dealing with overcapacity of 20% to 30% within steel production. This is largely a result of the state-sponsored development of new capacity in China, which finally caught up with the colossal spike in demand that the country experienced in the early aughts. Now, excess output from Chinese producers is finding its way to far-flung markets and putting pressure on local mills to bring down their prices. Mexico is no exception to this global phenomenon.

Despite this worldwide surfeit of crude steel, Mexican mills have been investing heavily in new plants. According to figures from the National Chamber of Iron and Steel, Mexico (CANACERO), steel producers invested \$10.8 billion between 2001 and 2014, and it looks as though this level of activity is set to intensify, as the investment portfolio for 2014 to 2019 now stands at \$11.5 billion. This may seem counterintuitive under the circumstances, but it is important to understand that Mexico actually suffers from a regional shortage of steel, particularly when it comes to specialty materials. In fact, Mexico remains a net importer of the metal.

Gerardo Treviño, of financial services at Deloitte, identifies two principal drivers for these new facilities: “The first is to substitute imports and deliver to the domestic market at more competitive prices,” explained Treviño. “The second forms part of the bigger picture of foreign companies arriving in Mexico... naturally it makes sense for steel mills to cater to this new wave of customers.”



Image: ArcelorMittal

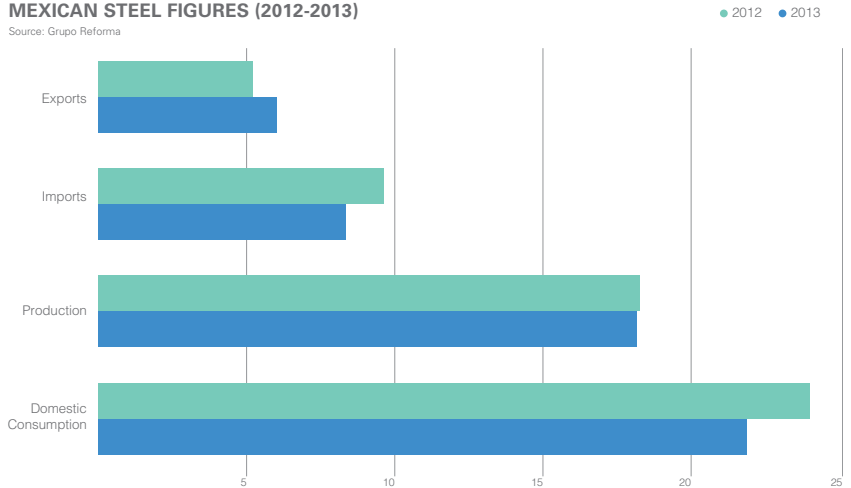
Obviously, it will only be possible to substitute imports if the local producers can deliver their products to market at lower prices than the Chinese. Given the large subsidies that the Chinese government awards its mills, particularly for exports, this would be almost impossible without similar intervention here. While the Mexican government is not prepared to offer incentives to domestic producers, it has introduced a series of tariffs and entry barriers to prevent dumping of cheap Asian and Eastern European materials, specifically targeting China. Thanks in large part to these controls, Mexico was able to reduce imports by 12% between 2012 and 2013. These laws may not go as far as some in the industry might hope, but Roberto Benavides, audit partner at Deloitte, recognizes that it is a difficult situation. “Steel makers may wish for more protective measures, but the reality is that it is very tough to strike the right balance between opening the country to foreign trade and protecting our domestic producers from unfair practices,” he said.

Since the late 1980s, when the Salinas administration began to privatize many state-owned entities, successive governments have tended to veer toward free trade rather than protectionism. This propensity toward openness is frequently identified as one of the reasons why the country has been so favored by foreign investors. Today, Mexico participates in over 40 free trade agreements (FTAs), the most important of which is NAFTA.

Maintaining an open border to the United States is extremely important to Mexico’s steel producers. “Ever since NAFTA was implemented, more stabilization and better regulations have made it easier to cross the border between Mexico and the United States,” said Alfredo Garcia, president of Mexico City’s Industrial Logistics (LAVISIA), which imports high quality carbon steel pipe for clients in the oil and gas sector. “Pre-NAFTA it was often an obstacle transferring products across the border. Today as we are shipping consistently across the border this is actually done quite efficiently and easily.” While it used to be the case that most steel shipped within NAFTA took the form of goods produced in the United States and Canada destined for the south, Mexican exports are beginning to pick up. At the end of 2013, exports reached 6.01 million

MEXICAN STEEL FIGURES (2012-2013)

Source: Grupo Reforma



metric tons, a 16.3% increase on 2012 levels. The largest external buyer of Mexican steel by far is the United States, but they are also starting to buy an increasing volume of finished products. This is particularly evident in the case of the automotive sector, as coils of specialty steels brought in from Canada and the United States are turned into light vehicles, which are exported northward by the thousand, predominantly via rail.

Nevertheless, when it comes to steel trading within the North American region, the relationship between Mexico and the United States does not quite live up to the image of seamless integration that their respective leaders seek to project. Beneath the harmonious exterior, a battle is raging over supposed dumping of cheap rebar by Mexican mills. “Mexico has always produced a huge surfeit of rebar, which has led the local producers to export their products at ludicrously low prices to the United States,” explained Ricardo Fernandez, CEO of Ferrecabsa Acero. “This has provoked legal action from the North and once again we are seeing anti-dumping suits being brought against Mexican mills.”

The United States already imposes strict tariffs on rebar imported from a range of low-cost producing countries, including China, Ukraine, Latvia and Poland. Now, U.S. legislators have set their sights on Mexico and Turkey. The case against Mexico began in September 2013, with a petition filed by a consortium of American producers headed by Nucor and Commercial Metals USA. They claimed that cheap exports from south of the border constituted unfair competition and should be

treated as a threat to the national industry. As of April 2014, the U.S. Department of Commerce has recognized the legitimacy of the claims brought by the consortium and has imposed preliminary duties on all rebar crossing the border. The organization has set a provisional margin of 20.59% for Mexican producers, but also singles out three producers in particular: Grupo Acerero, which faces a margin of 66.70%, DeAcero with 20.59%, and Grupo Simec, which has fared slightly better, with a margin of 10.66%.

Mexican producers were swift to register their disapproval. In a piece for the Houston Chronicle, Raul Gutierrez, co-CEO of DeAcero, makes a strong case against the Commerce Department’s move. He points out that Mexican products account for just 4% of the total US rebar market, while mills within the USA enjoy nearly 90% market share. He accuses the department of violating the basic principles of cooperation and fair trade that are at the core of the NAFTA agreement.

His claim that the litigation process could derail NAFTA is probably overblown, but it carries with it a kernel of truth: steel is a highly politicized industry in the United States, and such disputes only serve to sour relations between the two countries on a broader level. Mexico is petitioning U.S. producers and government representatives to negotiate with Mexican mills outside of court in order to find a more mutually beneficial solution. However, for now, it seems that the preliminary measures will be converted into de-facto tariffs, and Mexican producers will have to look elsewhere to offload their excess capacity. •



Oscar R. Albín



President

INDUSTRIA NACIONAL DE AUTOPARTES (INA)

●● Mexico is being heralded as the new Michigan by certain voices in the media. What are the key factors that make the country so attractive for automakers?

Mexico has four main competitive advantages that are driving growth within the automotive sector. The first is geographic position. We are close to the United States and Canada, as well as South America, which is a growing market, and are not very far from Europe or Asia. Vehicles are expensive products to transport, so geographic proximity to end markets is very important for manufacturers. The second advantage is Mexico's extensive network of free trade agreements (FTAs) that we belong to. Today, we have FTAs or similar commercial arrangements with over 40 different countries, and 90% of vehicles exported from Mexico find their way to these countries. The third advantage is the sheer quantity of suppliers present in Mexico. The country is home to over 1,100 producers of auto parts, including

companies from the United States, Europe and Japan. This local network helps producers to lower costs when it comes to assembling the final product. The final factor is the high quality of our workforce. The auto industry in Mexico is 40 years old and provides a high level of expertise in lean manufacturing, quality control and supply chain management.

Mexico has a very wide range of companies producing components, but the vast majority is foreign enterprises. What should be done to stimulate greater Mexican participation?

We live in a truly global world, in which the pace of technological change is constantly increasing. As such, it is challenging for parts manufacturers to maintain their position at the cutting edge of development required by the original equipment manufacturers (OEMs). In this situation, it is extremely difficult for countries that do not have domestic vehicle manufacturers to foster a world-class auto parts sector. Most carmakers are based out of the United States, Germany, France, Italy, Japan and China, and it follows on that the major parts manufacturers are found in these countries. In order to gain a foothold in these markets, Latin American parts makers must have a very high level of internationalization, but in the 1990s, most major Latin manufacturers were acquired by larger, global corporations. There are still a handful of companies that remain wholly Mexican and have the necessary technology and design capability to sell their products to the international market. There are a further 200 companies that produce parts, but only for aftermarket sales. While we see a great deal of opportunity for Mexican companies to participate in the sector, it is unlikely that many will be able to rise beyond tier-two or tier-three status.

Mexican companies need to develop greater design capabilities in order to remain competitive, but how will this be possible if most design work is carried out in-house by the OEMs?

Today, most carmakers continue to design their vehicles in their home country. Obviously, to design a new vehicle, you need a considerable number of engineers. However, the main vehicle-producing countries are struggling to produce new engineers.

Compounding this situation is the fact that newly qualified engineers in these countries do not consider the auto industry attractive and prefer to go into software or computer engineering. In Mexico, on the other hand, the automotive sector remains highly appealing to our new wave of engineers. As such, more and more OEMs and part makers are placing design centers here or in other developing countries with a high level of expertise. Moving forward, we need to capitalize on this trend and attract even more research and development facilities to the country.

A major challenge for the Mexican auto industry is the lack of local demand for new vehicles. What should be done to remedy this issue?

The main reason for the lack of demand for new cars in Mexico is the predominance of cheap used vehicles from the United States. The problem is that many of these vehicles are very low quality and are not able to operate in the United States because they do not meet required mechanical standards. Mexico does not have such strict controls and these sub-standard and potentially dangerous vehicles are allowed to circulate freely. If the government introduced standards similar to those in the United States, we would still import used cars, but only those of a high standard and price tag.

As auto production continues to increase, can domestic steel mills diversify and satisfy new demand?

Until last year, there was no domestic production of the flat, coated products needed by automakers. Thankfully, Ternium and Nippon steel have launched a new plant in Monterrey for the production of extra-wide, high-grade steels for the fabrication of vehicles. This will allow local OEMs and parts makers to acquire their raw materials closer to home and reduce their costs. On the other hand, within three years Mexico is expected to produce 4 million cars, but local steel production will not deliver the necessary volumes, so imports will continue to play an important role. •



Gerardo Treviño, Roberto Benavides & Carlos Lopez



GT: Financial Services
RB: Assurance Partner
CL: Audit Partner

DELOITTE

●●● Could you give us an overview of Deloitte's footprint in Mexico and the importance of the steel industry to your operations?

RB: Deloitte is a firm of business advisers that brings world-class capabilities and high-quality service to clients. We are the leading professional services firm in Mexico and maintain 21 offices located throughout the country. Our operations are segmented into different clusters. Our Monterrey office is part of the Northern Cluster and is used to service clients in the states of Nuevo León, Coahuila and Tamaulipas. We are present in practically every industry, but steel is an essential component of our business. We have been working with some of the largest steel producers for many years, as well as with companies involved further down the value chain, such as transformers and distributors. We also provide our usual range of audit, tax, legal, financial advisory, enterprise risk, and consulting services

Over the past five years we have seen local steel producers invest heavily in new production capacity. In a situation of global oversupply, what is the logic behind this strategy?

GT: On an international level global steel production outstrips demand by a considerable margin. China's domestic capacity has now caught up with the colossal spike in demand that they experienced in the early 2000s and they are now forced to export their excess production. Mexico, on the other hand, remains a net importer. The factors are driving new steel production. The first is the desire to substitute imports and deliver them to the domestic market at more competitive prices. The second is to supply the growing number of foreign automobile companies arriving in Mexico.

Developing new capacity to substitute imports is only feasible if Mexican producers can compete on price with major exporting nations. Is this possible?

GT: It is difficult for Mexican producers to compete against low cost countries, particularly China, but China is a challenge for all countries producing steel because the Chinese government subsidizes its steel manufacturers. Despite China's advantage, Mexico's mills can compete.

RB: The current government has introduced certain tariffs and entry barriers to prevent price dumping, curb unfair practices, and help the local steel producers. These measures helped Mexico reduce imports by 12% from 2012 to 2013. Nevertheless, Mexico remains one of the most open countries in the world, which has attracted high levels of foreign direct investment. Steel makers may wish for more protective measures, but it is difficult to strike the right balance between opening the country to foreign trade and protecting domestic producers from unfair practices.

We have seen considerable consolidation on both a local and global level over the past 10 years. Will this trend continue?

GT: It seems that the major mills in Mexico are no longer consolidating. Several Mexican steelmakers have changed hands over the past 20 years, first from government owned to private Mexican investors and then certain facilities became global companies. There are two companies

operating today in flat products, Ahmsa (Mexican ownership) and Ternium (Argentinian). Mittal from India also has an important slabs facility. As for long products, the main integrated producers are Ternium, Mittal, Simec and DeAcero. Further downstream, DeAcero acquired several wire related businesses, but there are other non-integrated steel companies and a great number of Mexican service centers. Many of these are still family-owned operations that are undergoing rapid growth, so there is potential for more mergers and acquisitions.

As the industry is becoming increasingly competitive, how are mills differentiating themselves?

GT: Large mills are seeking to become more client-oriented. In the past, there was a marked gap between the mills and the end users. Now, major players are focusing more on their clients and trying to formalize alliances with them. Rather than simply delivering a bulk commodity, they are trying to differentiate through services and by getting closer to their clients' operations. This trend has already become entrenched in service centers, as many operations are looking for new ways to add value by expanding their offerings and bringing in new technologies and processes.

How do you predict the much-vaunted reforms to the energy sector will affect the local steel industry?

RB: Gas and electricity rates are much higher in Mexico than in many other countries. This is a difficult situation for heavy users such as steel plants because it impacts their costs and prices. One positive aspect of these high rates is that our producers have had to make savings in other areas and develop robust cost structures. If the new energy reforms bring down gas and electricity bills, Mexican manufacturers will be well positioned to compete on an international level.

CL: Even though the reforms have not yet been approved, we see the government supporting the local steel sector through Pemex contracts. All the steel tubing for the pipelines that will connect the next wave of production will be sourced from Mexican producers. Mexico has strong tube manufacturers, some of which have a long history of exporting outside the country. ●





MILLS AND RAW MATERIALS STEEL PRODUCTION IN MEXICO



“We have imported many products from Europe; however, currently we are more focused on buying steel from Mexico.

Sourcing more domestically gives us the flexibility to buy less steel, compared to importing when you must buy in larger quantities. Today about 80% of our products are from Mexico. We are now able to source plates domestically, while we continue to import beams, which account for most of our imports.”

- Mauricio Zundeleovich,
General Director,
La Ferre

THE BIG FIVE

Profiles of Mexico's Major Steel Producers



AHMSA

Since its establishment in 1942, Altos Hornos de Mexico, S.A. de C.V. (AHMSA) has become the largest integrated steel plant in Mexico. The company operates two steelworks that recorded crude steel production of 4.14 million metric tons (mt) in 2013, up 7.1% year-on-year, according to the National Chamber of Iron and Steel, Mexico (CANACERO). The vertically integrated organization starts with the extraction of coal and iron ore and finishes with the manufacturing of high value-added steel products. With a workforce of 19,000 people, including its subsidiary companies, AHMSA is a national leader in the production and commercialization of flat steel products including hot-rolled coil, wide plate, cold-rolled coil, and tin-free steel. The company ownership has varied between a variety of public and private investors, but in 1991 it was privatized and was purchased by Grupo Acerero del Norte (GAN). AHMSA has felt the volatility of the Mexican steel market over its long history. As a consequence of plummeting international steel prices and the financial crisis that began in Asia at the turn of the millennium, AHMSA was forced to file for bankruptcy protection on a \$1.86 billion debt in 1999. AHMSA has since taken advantage of outdated bankruptcy laws in Mexico to enable an orderly suspension of payments ahead of the eventual liquidation of troubled companies. The old law does not stipulate term limits on procedural hearings, does not limit the use of litigation by opposing parties, and allows debtors to remain under court protection indefinitely. The law also discourages creditors from pushing for the liquidation of a corporation in default. Thus, after defaulting on the \$1.86 billion, AHMSA business has continued unaffected for the past 15 years.

The company continues to invest in further production capabilities. The most recent of these investments is an \$83 million injection that aims to produce steel for the oil and gas industry. The mill, which is expected to start operating in October 2015, will have the capacity to process 2 million mt/y of liquid steel and will focus on the production of high-tensile steel with a low hydrogen content—the type of steel demanded by the oil industry and manufacturers of pipelines, among other users.

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Ternium

Ternium is a leading Latin American manufacturer of steel products and has a specific focus on the Mexican market, as it accounts for the majority of its total shipments. Ternium produces and processes a number of value-added steel products, including galvanized and electro-galvanized sheets, pre-painted sheets, tinplate, welded pipes, hot-rolled flat products, cold-rolled products, bars and wire rods, as well as slit and cut-to-length offerings through its service centers. These products aim to serve a wide variety of needs for the construction, home appliance, capital goods and energy industries and, increasingly, the automotive industry.

Despite a weaker domestic demand for steel goods in the Mexican market at the beginning of 2014, which was largely due to a 4.5% contraction in the domestic construction industry, Ternium achieved a record shipments volume of 9 million mt/y and was the leading supplier of flat steel products in Mexico. The company notes that the less developed southern region of Mexico played a big role in accomplishing these records as industrial activity and construction actually improved in this area.

In 2014, Ternium and Tenigal, a company in which Ternium and Nippon Steel & Sumitomo Metal Corporation hold 51% and 49% respectively, began ramping up production at its newly inaugurated mill in Pesquería, Nuevo León, Mexico. The two cutting-edge production lines combine Ternium's cold rolling mill and Tenigal's hot-dipping galvanizing mill in order to provide high-end steel primarily for the automotive industry. With a processing capacity of 1.5 million mt/y of cold-rolled steel and 400,000 mt/y of galvanized steel, the company expects this investment to pay

out large dividends in the long term and increase market share within Mexico's growing automotive industry.

In addition to further penetration into new markets, Ternium is also focusing on controlling more of its raw materials through supply chain integration. Techgen, a company that Ternium has a 48% stake in, along with Tenaris (22% stake) and Tecpetrol (30% stake), is launching a \$1 billion energy system project. The new natural gas-fired combined-cycle power plant in Mexico is expected to be completed in the fourth quarter of 2016 and will deliver a total generation capacity of between 850 megawatts (MW) and 900 MW. Ternium's supply agreements with Techgen will enable it to purchase 78% of this power output.

Integrated systems such as those mentioned above, demonstrate Ternium's growing commitment to the Mexican market. In 2013 alone, Ternium's capital expenditure in the country amounted to \$486 million.

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ArcelorMittal

ArcelorMittal is the world's leading integrated steel and mining company. By employing an aggressive acquisition strategy, ArcelorMittal, itself the result of a merger between Mittal Steel and Arcelor in 2006, has continued to expand and in 2013, produced nearly double the total amount of steel as its closest competitor Nippon Steel & Sumitomo Metal Corporation. With sales of \$79.4 billion in 2013, global steel shipments of 84.3 million mt, and crude steel production of 91.2 million mt, ArcelorMittal is the leading supplier of steel products in all major markets, including automotive, construction, household appliances and packaging. ArcelorMittal sells its steel products to customers in over 170 countries, is present in more than 60 countries, and has an industrial footprint in over 20 countries, including Mexico.

ArcelorMittal is Mexico's largest steel producer and slab exporter. Its industrial footprint consists of a 4 million-mt/y pelletizer plant, a 2.3 million-mt/y HYL DRI plant, a 1.5 million-mt/y Midrex DRI plant, four 220-mt/y electric arc furnaces, two twin-strand continuous slab casters, and a thermal power plant. The main facility, which employs over 5,500 people, is located in Lázaro Cárdenas, Michoacán where the total production of steel is 3.8 million mt/y.

The adjacent port on Mexico's Pacific coast gives ArcelorMittal maritime access to North American, South American and Asian markets.

The company further increased its Mexican operations through the acquisition of Dofasco and taking over its Mexican tube welding facility in Monterrey. The tubes produced here contribute to the growing automotive, agriculture and construction industry in Mexico.

ArcelorMittal is the only slab producer in the world utilizing the direct reduced iron – electric arc furnace (DRI-EAF) continuous casting method for its entire production of steel products. The process boasts higher quality slabs that have a uniform grain structure and superior finish. This allows for a finished product that can be used for more sophisticated applications such as the automobile, appliances, petroleum and gas, and shipbuilding industries, as well as structural and commercial grade steel for the construction industry.

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Deacero

Deacero began its operations in the 1950s as a producer of steel mesh for fencing. Over time, the privately owned, 100% Mexican company became increasingly dominant in the production of mesh and other wire and, as a result, began to focus on the vertical integration of its supply chain. In 1980, Deacero established its first steel mill, gaining the capability to process billets and manufacture steel wire, the primary raw material for the wire derivatives that Deacero currently produces.

Today, Deacero has continued integrating and has its own scrap metal collection and processing infrastructure, steel mills, product manufacturing plants and distribution centers across Mexico and the United States. Alfonso Camargo, a director at Deacero emphasized the strategic importance of further integrating the company. "The fact that we are fully integrated and produce our own raw material allows us to work with a wide variety of different alloys, depending on the particular application we are looking at," he said.

The fact that Deacero has experienced continuous growth, doubling in size every 10 years, and currently employs over 6,500 people, attests to the strategic success of such integration.



image: Deacero

With a total production capacity of 4.5 million mt/y and over 60 years experience, Deacero has become one of the largest manufacturers in North America. The company offers a diversified portfolio of over 3,800 products that can be subdivided into 90 categories. This includes a wide assortment of finished goods, such as fences, meshes, nails, and wire ropes. Industrial goods, such as galvanized or black annealed wires, wire rod, merchant bars, shapes and beams for value-added resellers such as equipment manufacturers, fabricators and the construction industry, continue to constitute a large percentage of Deacero's current business. In addition, it continues to operate as a non-ferrous recyclable metals supplier for mills, foundries, smelters and traders.

Deacero's most recent plant, inaugurated in 2013 in Ramos Arizpe, has allowed the company to produce rebar for the construction industry. The bilateral selling of low-cost rebar across borders remains a highly controversial topic in Mexico, and Deacero's co-CEO Raul Gutierrez has been vocal in expressing his annoyance with recent "dumping" accusations from American steel producers.

As a fully integrated leader in North America, Deacero has started assessing the potential of other markets worldwide and has named South America and Central America as exciting prospects for future operations. "We do not have any firm plans yet," said Camargo, "but we plan on setting up joint ventures with local partners in order to strengthen our footprint in new locations moving forward."

*** **Gerdau**

Brazilian steelmaker Gerdau is the Americas' leading company in the production of long steel and a major global supplier of specialty steel. The company has an installed capacity of more than 25 million mt/y and more than 45,000 employees worldwide. Through a vertically integrated network of mini-mills, scrap recycling facilities, and downstream operations, the company serves customers throughout North America and offers an assorted product mix of merchant steel, rebar, structural shapes, fabricated steel, flat-rolled and wire rod.

The company's products are generally sold to steel service centers, distributors, steel fabricators, or directly to the OEMs for use in a variety of industries including commercial, industrial and residential construction, manufacturing, mining, cellular, and electrical transmission and the automotive industry.

The company's penetration into the Mexican market occurred in March 2007 with the acquisition of Siderúrgica Tultitlán (Siderutl), a Mexican company with more than 50 years of national experience in manufacturing rebar for construction. The mini-mill, located in the metropolitan area of Mexico City, had the production capacity of 350,000 mt/y of steel and 330,000 mt/y of laminated product and was purchased for \$259 million. At the time, André B. Gerdau Johannpeter, CEO of Gerdau, stated: "Mexico is a priority market for Gerdau,"

and this acquisition was a pledge to this prospering market. The company has since increased production capacity at the facility to 500,000 mt/y and 430,000 mt/y, respectively.

The company made further commitments to the Mexican steel market with a 49%, \$110.7 million acquisition of Corsa Controladora that concluded in 2008 and led to the formation of Gerdau Corsa. "The partnership strengthens the Gerdau Group's presence in the third largest steel consumer market in the Americas and allows us to continue as one of the agents in the consolidation process of the global steel business," stated Johannpeter.

Today, Gerdau Corsa operates two mills producing crude and rolled steel located in the state of Mexico with aggregate installed production capacity of 500,000 mt/y of crude steel and 400,000 mt/y of rolled steel products. In Hidalgo there is another unit producing structural profiles. It also has three scrap processing and collection units and seven distribution centers. Gerdau Corsa products are primarily sold on the domestic Mexican market.

More recently, through the joint venture with Gerdau Corsa, Gerdau has purchased the main equipment for the installation of a new structural shape mill for which construction is fully underway. The new mill has an annual installed capacity of 1 million mt/y of steel and 700,000 mt/y of rolled products. The investment will negate the need for imports of this product in Mexico. •



Growing hand-in-hand with the communities where we work

Our ambition is to be the safest company as well as produce steel sustainably. This is how we express the philosophy that guides all our activities. Our Corporate Social Responsibility activities in Mexico include transparent governance, efforts to make steel more sustainable, training and investing in our people, enriching our communities as well as stakeholder engagement.

www.arcelormittal.com



ArcelorMittal

Victor M. Cairo

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CEO
ARCELORMITTAL MEXICO

●●● **ArcelorMittal's Lazaro Cardenas compound is one of the largest steel plants in Mexico. Could you explain how the operation fits into the company's global framework?**

ArcelorMittal Mexico is a highly important component to the group as a whole. In terms of volumes, we produce approximately 4 million metric tons per year (mt/y), which accounts for around 3% of ArcelorMittal's global output of 90 million mt/y. Our operations here can be divided into two main areas: long products, which includes rebar and wire, and flat products, which encompasses thick plate that is transformed into coils. We are Mexico's leading rebar producer, with market share approaching 26%. Of the plate produced in Mexico, approximately 50% is sold to the domestic market and the remainder is exported. In Mexico, our main client for these products is Ternium, and the primary end markets are the automotive sector, other industrial uses and construction. Much of the plate that we export is destined for use in the oil and gas industry.

DRI is the preferred production process in Mexico. Could you give us some details on ArcelorMittal's mills here in Mexico?

ArcelorMittal Mexico is the only steel producer in the country to make use of both Electric Arc Furnace (EAF) and Basic Oxygen Furnace (BOF) production routes. All of our plate is manufactured at one of our two DRI plants, while our long products are made in the BOF. This facility is a legacy from Sicartsa, which was acquired by ArcelorMittal in 2006.

Mexico's domestic mills are continuing to move into more specialized products. AHMSA and Ternium have both invested in production lines aimed at the automotive industry, is ArcelorMittal considering a similar strategy?

One of ArcelorMittal's key goals is constant growth. We are always on the lookout for new opportunities, and we are constantly evaluating possibilities to expand our footprint in Mexico. However, at this point there is a global oversupply of steel. China, Russia, Turkey and the United States are all producing more steel than is necessary to meet market demands. In such a situation, any investment decisions must be taken extremely carefully.

On the other hand, the company recently acquired Thyssen Krupp's facility in Calvert, Alabama. This plant has the capacity to produce 5 million mt/y, which is directed to various different industrial segments including automotive, appliances, energy and construction. This acquisition constitutes a huge opportunity for Mexico as we are able to sell them plate produced here, they transform the plates into coils, which can then be reimported for Mexican industrial clients.

In addition to steel production, ArcelorMittal is one of Mexico's largest iron ore miners. How does the mining capacity fit into your raw materials strategy?

We have three iron mines: El Volcán in Sonora; Peña Colorada, which is a joint venture with Ternium; and Las Truchas in Lazaro Cardenas. These three operations provide us with a combined



total of 6.5 million mt/y iron ore, which is used to produce our crude steel. Occasionally, it is also necessary to purchase smaller quantities of iron ore from other mines and we also use significant volumes of scrap. Together with Ternium, we are embarking on a multi-million dollar investment program at Peña Colorada to ensure that production volumes remain strong.

What role does Mexico play in the company's global R&D capabilities?

ArcelorMittal's main research unit is based out of our corporate offices in Luxembourg. However, in Mexico we also work to develop new varieties of steel plates to support our clients in the automotive and oil and gas industries. Within the area of rebar we are also constantly looking to bring new products to the market. We have recently developed a special rebar designed for use in areas with high seismicity. Known as G-56, this product offers greater strength and resistance in a thinner bar, giving engineers more flexibility to design structures in earthquake zones.

Could you provide us with more information regarding the community development projects that have led ArcelorMittal to be recognized as a socially responsible enterprise by the government?

ArcelorMittal has been awarded socially responsible enterprise status for the past three years. This is thanks to more than 30 different programs that we manage within the communities where

we are present. These include diverse initiatives covering a variety of causes, from helping female entrepreneurs develop their businesses and providing funding for child education projects to developing sustainable habitats for turtles. To date we have helped over 6,000 young people by ensuring that they have access to food, education and appropriate standards of living.

Mexico's economy has been underperforming for the past few years, but many are predicting a new boom off the back of heavy automotive and oil and gas investment. How do you see ArcelorMittal fitting into this new Mexican panorama?

Unfortunately, Mexico has not grown at the pace that everyone was hoping for. Key governmental initiatives such as the fiscal reforms, the energy reforms and the National Infrastructure Program have seen substantial delays. The federal government has committed 40 billion pesos to infrastructure investment in the state of Michoacán but, as of yet, this has not materialized. However, we are optimistic that by the end of the year we will start to see state investment levels pick up and this will spur the economy towards more robust growth.

We see ArcelorMittal's future within this scenario as very positive. We intend to grow by positioning ourselves closer to our clients, particularly within sectors with high added value, where we are able to offer considerable differentiation against other players in the market. •

Alfonso Camargo Gonzalez



Director, Comercial Perfiles
DEACERO



●●● **What are the main milestones that have taken place in Deacero's trajectory from a small fencing manufacturer to one of Mexico's largest steel producers?**

Deacero's story begins in the 1950s, when the company started out producing steel mesh for fencing purposes. Over time, we became increasingly strong in the production of mesh and other wire products. In 1980 we established our first steel mill in Saltillo, granting us the capability to process billets, which we used to purchase from Sicartsa. We then began to produce steel wire, which is the main raw material for the wire derivative products we manufacture. In 1989, we opened a second steel plant in Celaya, allowing us to produce wire from scrap. Our most recent plant was inaugurated in 2013 in Ramos Arizpe. With the construction of this facility we entered into the production of rebar. Across all our mills we have a total production capacity of 4.5 million mt/y. As a company we have doubled in size every 10 years and today employ 6,500 people. Deacero remains a 100% Mexican company that offers a diversified portfolio of over 3,800 products, subdivided into 90 categories. The fact that we are fully integrated and produce our own raw material allows us to work within a wide

variety of different alloys, depending on the particular application we are looking at.

Deacero sells certain products under proprietary brand names within the United States. How important is the American market to the company?

The United States is a heavy consumer of all steel products and we have many important clients north of the border. It is important to remember that the GDP of the most productive states such as Texas and California exceeds that of Mexico, so obviously the consumption is much higher. Nevertheless, the United States is not our only export destination; we also sell to Canada, South and Central America and Europe.

Where do you source your raw materials?

The only raw material that Deacero works with is scrap. We are Mexico's largest metal recycler and operate 16 scrapyards across the country where we separate the material into useable feedstock for our furnaces, or marketable products such as copper or aluminum scrap.

Because we use scrap as a raw material, we are very environmentally friendly. Our philosophy is based around eliminating waste. All of our plants have specially designed chimneys that capture all the ferrous particles and gases emitted by the furnaces. The gases are then disposed of in a secure manner, while the waste ferrous material is collected and recycled or sold back to other users. We have even developed a new construction product from this waste, Gravacero, which can be used as material for road building.

Given that Deacero produces a range of both finished and semi-finished products, how do you manage your distribution channels?

We have specialized distributors that work with defined product lines within our overall portfolio. When it comes to fences, we do not sell to the end user, whether they are for construction, agriculture or home use. On the industrial side, we sell wire to manufacturers that transform the raw material into finished products such as clips, nails or even staples.

That being said, we always aim to maintain a close relationship with our end clients to better understand their demands. To this end, Deacero participates actively within different chambers and associations either at global, national or regional level to introduce our product's technological developments and initiatives seeking to meet their expectations and needs. An example of these efforts would be our work with the Mexican Building Industry Chamber (CMIC).

Could you point to a particular example of a development that has come about through Deacero's partnership with CMIC?

We have worked jointly with CMIC and the government to develop a new type of concrete sidewalk that is reinforced with steel. Based on technology that is already in use in Europe and Australia we realized that it is more efficient to build continuous sidewalks rather than laying a number of separate slabs. Installation costs for this system are similar to traditional methods, but maintenance costs are much lower as the whole block has greater structural strength.

As construction activity in Mexico has dropped off, how have you been able to compensate for the drop in demand for commercial steel products?

For the past two years the new government has been consolidating its position and their primary focus has been on legislative reforms and planning, rather than on large public spending initiatives. Now, we are starting to see a shift towards more active implementation of infrastructure projects. As the state coffers are reopened and cash begins to flow more freely we should see a sharp rise in construction, and a subsequent boost in the demand for steel products. As for Deacero, we hope to see a return to the high levels of investment that were seen in 2011 and 2012, before the general slowdown in the economy took root.

How have you been affected by the dumping of cheap rebar from the Chinese?

Our position, and that of Mexico's steel sector, on Chinese rebar dumping is that we are happy to compete, but only on a level playing field. Mexico is a very open country and we are strong believers in free trade, but only if it is carried out fairly. Production

costs here are much higher than in China and Chinese producers also receive heavy export subsidies from their government, meaning that they can effectively sell at cost. We support the introduction of a tariff that would prevent the Chinese from selling at unfairly low prices so local producers can compete.

Many commentators make reference to the energy reforms as a turning point for Mexico's economy. Do you believe that they will have a real impact on the steel sector?

Energy remains the largest cost for steel producers. As such, we have taken the decision to build a gas powered thermo-electric power station in Ramos Arizpe that will supply all the electricity we need at our plant. The facility will also generate excess energy that we will be able to sell to the grid, thus turning a cost into a profitable enterprise. The creation of private power plants has only been made possible through the introduction of the structural reforms to the energy sector. Prior to this, power generation was the exclusive province of CFE, so this development can be seen as a tangible consequence of the new legislation.

How have you seen Nuevo Leon's long-standing security issues evolve in the past few years?

Speaking frankly, Nuevo León is safer than many other states. Security remains an issue throughout Mexico and throughout Latin America, but Nuevo Leon has fared far better than other jurisdictions. There was a particularly bad period when crime got out of hand, but thanks to coordinated efforts from the state and federal governments, the situation has improved considerably. We would like to return to how things were 10 years ago, when Monterrey was among the most safe cities in Mexico, but we recognize that security risks are lower than two or three years ago. Industrial organizations such as Deacero have a role to play in this movement too by financially supporting the government bodies in their work.

What steps would you like to see Deacero take over the next five years?

Looking to the future, we hope to set up production units in South America. We are already engaged in a substantial project, developing a facility to manufacture mesh and wire within the United States. Central America also offers several interesting opportunities for steel producers. We do not have any firm plans yet, but we plan on setting up joint ventures with local partners in order to strengthen our footprint in new locations.

In Mexico, we cannot ignore that many people live in poverty. We do several different efforts in the communities we have presence and also work together with the government on initiatives such as developing build alternatives for affordable housing. In this case, although steel is not the primary material for house building, we can still play an important role. Many poor people, particularly in rural areas, build their houses from adobe with no structural reinforcement. This can be very dangerous, so Deacero has engineered a wire reinforcement system to improve those properties structural resistance and that can be sold at very economic prices to low-income communities. ●



Victor Vecchi

●●● Auditor
PWC

Nevertheless, as steel is a commodity, controlling costs is the most important factor determining profitability, and costs can be best controlled when total integration exists.

In a survey conducted by PwC, CEO's in the metals industries were most highly focused on reducing cost relative to other industries. Is this a trend you would agree with?

Reducing costs is important in any industry but especially in the commodity-based industries. Obviously, lower costs equate to higher profits, but also here in Mexico there are no import duties for steel, other than that coming from Korea and China. This means that prices remain relatively fixed and competition really stems from the ability to reduce costs and increase margins.

The most important areas in which companies can reduce costs come from energy and raw materials. Big challenges are imposed on companies when changes in the energy sector or strategic material prices occur. Energy is a fixed, locked cost and cannot be managed internally. For heavy industry, such as steel, energy costs make up a large portion of overall costs.

Many companies operating in the steel and iron industry are looking for alternative methods of adding value. Offering new services, further integration, and focusing on the penetration of new industries is a solution but one that requires investments in technologies and capabilities. Balancing investments and costs with present and forecasted profits is not easy, especially in commodity-based industries like steel.

Over the past two years we have seen a reduction in iron ore prices. What have been the effects on the steel industry?

Of course, if the prices go down the steel producers become more profitable. The challenge is to determine and forecast these movements in prices. Planning for the cost rises and using the falls are a part of dealing with commodity-based markets. In the current situation, iron ore producers hold the upper hand in negotiations. If miners feel that prices will rise, they will push for short-term supply contracts and vice-versa.

There seems to be a trend in the industry to become closer to the end customer

and incorporate more value added services into the supply chain. Do you believe this will remain to be true moving forward?

There seems to definitely be a shift in operations in terms of companies providing better value added services. One such area is having a better distribution network and being closer to the final customer. This is not always easy as capital investments can often be high and partnerships may be needed. The best way to get closer to the customer, and we have been seeing this strategy used in other countries, is to allow smaller and medium size companies (including distributors) to work independently but closely with the steel producers. The steel producers should help these small organizations become more professional and increase the standards in operating procedures that they currently have. Strong, independent partnerships can be used to maximize profits, raise productivity standards, and minimize credit risk for these small to medium size clients.

What are your expectations of the steel industry in Mexico and worldwide?

The steel industry has a strong correlation with Mexico's Gross Domestic Product (GDP). The changes made by the government especially in the energy sector are promising many investments. Many believe that GDP will rise and the steel industry will follow. Specifically, the increase in the commercial steel consumption will follow investments across the country.

Two factors will have a significant impact worldwide. The first is China's behavior. China continues to invest heavily and has specific integration plans for the steel industry. We can expect this to have a significant impact, not only in Mexico, but also in the worldwide steel industry. The second, which is linked to China, is that the sector should monitor overcapacity. Having a lot of players makes it difficult to control the level of production and in the past this has proven to be a problem. Now we are experiencing a more stable global market, but this remains a volatile industry, and China may be the country that is best able to capitalize on this high volume, low cost market. ●

●●● **Mexican mills are continuing to invest in new capacity, but on a global level the steel industry is suffering from overcapacity. What is the rationale behind these continuing investments?**

Investments must be understood on a case-by-case basis. Some companies are investing to better integrate themselves into the value chain and mitigate the risk and dependency on other players. Investments such as these help organizations ensure that client's needs are being met more efficiently and allow them to have better control over the entire process.

The level of integration targeted by a given producer depends heavily on their overall strategy. Total integration, operating everything from mining operations all the way to the transformation, servicing, and transportation, may work for some organizations but requires very high capital investments. Some organizations are unable to follow this course and must choose to focus on their niche within the value chain.

NARROWING THE DEFICIT

Raw Materials in Mexico

●●● Illegal Iron Ore

The rich iron ore deposits of Michoacán state have attracted the attention of artisanal miners for centuries, and were initially explored by the local indigenous communities long before the arrival of Cortés in 1519. Over the centuries, the methods used to exploit the mineral wealth became more and more sophisticated and a substantial mining industry built up. In the early 1970s, the government of President Gustavo Diaz Ordaz ordered the construction of the colossal Lazaro Cardenas steelworks, precisely in order to take advantage of the large ore bodies located just inland, which were state-controlled at the time.

Today, Michoacán is still the biggest producer of iron, but a new group has begun to muscle in on the production chain. In April 2014, the Mexican Navy seized a ship containing 68,000 metric tons (mt) of illegal iron ore bound for China. The seizure came as part of a targeted operation to put a stop to illicit mining activity carried out by organized crime rings. Facing increasing competition within the drugs trade, the Knights Templar cartel began to integrate iron ore into their existing business operations several years ago. Michoacan has long been one of Mexico's most lawless areas and the cartels have a significant influence over the local communities.

Criminal fingerprints can be found all the way through the mining chain. It is thought that their first incursion into the industry came through extorting transport unions involved in the shipping of the ore. They then began to take advantage of their hold over local government figures to determine which prospectors would receive exploration permits and mining licenses; those who refused to pay were refused their license. Eventually they entered into the extraction itself, sending personnel into the pits to receive a cut from the more legitimate operations and actually operating their own mines as well. It is estimated that in 2013, approximately half of all iron ore produced in the area was mined without the necessary permits. Over the course of 2013, the going rate for iron ore hovered between \$105/mt and \$110/mt, less than 0.0001% of the \$250 million price tag commanded for a ton of cocaine. Nevertheless, exporting iron ore to China is now reckoned to be the main area of income for the criminal gang. In November 2013, in an effort to control the situation, the government sent in federal troops to take over the port of Lazaro Cardenas. Local police were disarmed and

sent for evaluation and retraining programs. These measures were widely regarded as a failure and it fell to loosely organized bands of vigilantes to fight back against the cartel activity. In an embarrassing situation for the government, the informal forces had more success than the might of the federales, and there are now efforts underway to formalize these disparate groups into an organized rural police force. For now, however, the prevalence of illegal mining is not going to disappear.



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Integrated Producers

Needless to say, Mexico’s steel producers are highly professional organizations and have extremely exigent demands on all their suppliers. Raw materials used in mills require exceptionally high levels of traceability and so domestic producers will only work with thoroughly vetted providers. The three heaviest users – AHMSA, ArcelorMittal and Ternium – are all fully integrated and use their own mines to meet internal demand.

AHMSA’s Hercules Mine in Coahuila is the main source of unprocessed ore for the company. Operated by AHMSA’s subsidiary, Minera del Norte, the complex incorporates both open pit and subsurface operations and produces approximately 3.2 mt/y of iron concentrate, as well as further important production of lump iron. Proved and probable reserves at the site come to 40 million mt and under current exploitation rates, the mine life will extend for another 14 years. Ore from the mine is transported via a 382 kilometers mineral pipeline to a pelletizing plant at the company’s Monclova production complex, which can process 3 million mt/y.

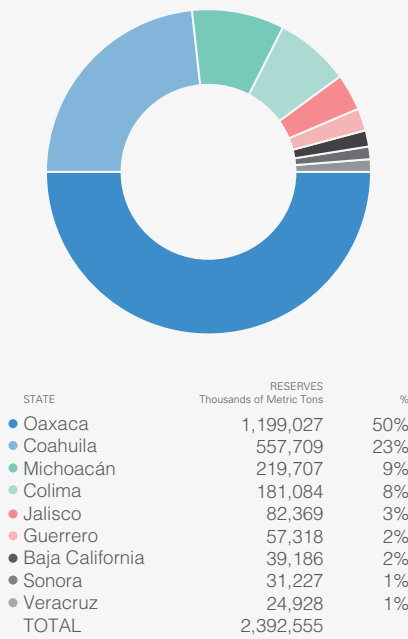
Minera del Norte also owns substantial deposits in the states of Jalisco, Michoacán, Colima and Oaxaca. Looking to the future, the company has developed an ambitious plan to begin exploiting these reserves with a view to exporting them to China. An agreement has already been formalized with the Xingxing Hanfang Mining Investment Co. to supply 10 mt/y of iron concentrate over a period of 20 years.

ArcelorMittal runs fairly substantial mining operations in the country. “We have three iron mines: El Volcán in Sonora; Peña Colorada, which is a joint venture with Ternium; and Las Truchas in Lazaro Cardenas,” explained CEO, Victor Cairo. “These three operations provide us with a combined total of 6.5 mt/y iron ore, which is used to produce our crude steel.” The company has recently entered into a five-year agreement with Canadian based Evrim Resources to explore for iron ore around Mexico.

The Peña Colorado mine, jointly operated by Ternium and ArcelorMittal, produced 3.9 million mt in 2013, slightly less than to-

MEXICO'S IRON ORE RESERVES BY STATE

Source: Mexican Geological Service



tal output in 2012. This slowdown has been attributed to lower grades within the open pit. At the end of 2013, it was predicted that the operation had 18 years of useful life ahead of it, and both operating partners are investing in delineating new resources in the immediate area surrounding the mine. Ternium is also the sole owner of the Las Encinas mine in Colima, which can deliver a total of 1.9 million mt/y in the form of pellet feed.

While all of these operations are boasting healthy production figures and have an assured mine life of over a decade, the outlook for the future of Mexico’s mining industry in general is not so positive. The increase in mining tax to 7.5%, coupled with the country’s already high energy costs, has had a serious impact on the country’s competitiveness when it comes to attracting new mining projects. According to statements from ArcelorMittal, the arrival of this new tax could cost the company up to \$65 million, and it is expected that exploration investments will drop off in 2015. Elsewhere, the continuing downward trend in global iron ore prices has had a direct impact on steelmakers, but the miners are now in a much stronger position than their

clients in the steel business. “Twenty years ago, most of the profit margin in finished steel went to the steel producers. Now, the situation is different. The participants with the highest margins are now in minerals and raw materials,” explained Gerardo Treviño of Deloitte.

Evidence of this can be seen elsewhere in Latin America as Brazil’s Votorantim Group has decided to reign in its steel production in favor of focusing on its more profitable mining unit. The challenge for steelmakers now is to determine and forecast price fluctuations in order to secure the best possible supply deals with miners. In the current situation, however, this can be difficult, as miners tend to hold the upper hand in such negotiations. If miners believe that the iron ore price is about to rise, then they will push for a short-term contract and then try to renegotiate based on the higher price some months down the line.



Scrap

While iron ore has been trending towards ever-lower prices, the value of ferrous scrap continues to increase. At the moment, the Mexican scrap market processes between 6 million mt/y and 8 million mt/y, which is not enough to meet growing local demand. Further pressure is being put on supplies by increased levels of activity in the foundry and forging sectors. As is the case with steel production, Mexico runs a substantial scrap deficit and relies heavily on imports from the United States, particularly within specialty grades, to satisfy domestic requirements.

By far, the most important participant in the scrap market is Deacero, which purchases approximately 250,000 mt/y to nourish its string of melt-shops around the country. With the exception of this large conglomerate, the market is highly fragmented and populated in the main by very small, informal scrapyards that turn over a maximum of 10,000 mt per month. A high percentage of these minor operations eventually end up feeding into Deacero’s extensive supply chain.

This dramatic split in the market has unsurprisingly led to some resentment towards the largest operator. Independent merchants

resent Deacero's clear predominance in the market and accuse it of distorting market prices and cutting off business opportunities for smaller players.

Meanwhile, mid-size companies are looking to professionalize and for alternative strategies to grow and develop. "Because it is a deficit market, we do not have to make any effort to sell. We operate at the price paid by the mills, which are competing among themselves for the material," said Mario Tijerina, director general of Roca Acero, a mid-size scrap recycler based in Monterrey that is looking to professionalize its operations.

In this scenario, the potential for scrap-pers to grow is dependent on their ability to source waste materials at competitive prices. They are seeking to differentiate themselves to suppliers by bringing a new level of sophistication to their services. Some waste collectors are streamlining their logistics to coincide better with Just-In-Time (JIT) manufacturing programs at stamping plants, while others are bundling additional services such as industrial cleaning and hazardous material handling into their offering.

The high degree of fragmentation is similar to the dynamic that prevailed in the United States 20 years ago. This all changed after Nucor bought out the scrap company DJJ, and the market saw a process of consolidation and integration. It seems likely that as mills grow in capacity and look to secure metals on a longer term, we may see a similar transformation take place in Mexico. A number of North American scrap dealers have recently set up shop in Mexico and are looking to establish their position. However, given that many of the enterprises with which they will be interacting are small, family-run businesses, it seems likely that Mexican operators, with their long-standing personal relationships, will have an advantage, at least in the short-term.

On the demand side, buyers are starting to re-evaluate their purchasing programs. "Instead of going to the spot market, we are negotiating with suppliers and scrap generators to establish a formula based off of American Metal Market prices so that we can secure steel scrap," said Raul Lopez, managing director of grey iron foundry,

Novocast.

As a subsidiary of the large American firm Grede, Novocast may be able to leverage its substantial weight to arrive at more favorable terms with providers, but given the current imbalance between supply and demand, this will remain a seller's market for some time. For now, scrap-pers can effectively name their price and be sure of finding a buyer.

•••

Coke and Coal

Overall, Mexico is not a large producer of carbon. Domestic coke production is highly limited, and the little output that is generated within the country is mostly absorbed by state energy producer Comisión Federal de Electricidad (CFE) to drive its power-generation turbines.

AHMSA owns and operates coalmines in Palaú, Coahuila. The coal extracted is processed at its coke ovens and incorporated into the blast furnaces in Monclova. The Sabinas region has been an important source of coal for the company for over 70 years and today its mines extract approximately 4 million mt/y.

Independent coal production is mostly centered in the state of Coahuila and is dominated by a spread of small operations. Consistency, both in terms of supply volumes and quality, is fairly patchy from these players, and as a consequence, heavy users tend to import their own supply or work with local distributors. In the past, consortiums of major mills have collaborated to bring over entire shipments of metallurgical coal from China.

Local distributors, on the other hand, may not be able to bring in the volumes to make this type of operation economically viable. "We import most of our coke, petroleum coke and graphite from the United States," said Ruben Rodriguez of Cokes Industriales. "We occasionally import materials from China but the problem here is that the freight cost is very high. Although the product itself is much cheaper, the total cost works out slightly higher. In a good year, we will import some 3,000 mt of material, but Mexican suppliers also play a key role in our supply chain, particularly when it comes to graphite and anthracite." •

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Mario Tijerina Molina



Director, Administration and Finance
ROCA ACERO



●● Can you give us an introduction to Roca Acero and the company's role in the scrap business in Mexico?

Roca Acero is a Mexican company founded 25 years ago and has developed significant experience in the market. We are mainly focused in northern Mexico, but our business covers the entire country. Roca Acero has an extensive infrastructure of processing and logistics, which are oriented to customer satisfaction and positions us as a leader in the market. We are in the process of opening new operations to expand our regional business. One of the main costs of our material is freight, so we are moving into areas where freight cost is more efficient if we consolidate on a regional basis.

The scrap market is very fragmented in Mexico. Mills that are not integrated must go to an independent supplier such as Roca Acero. The main goal of Roca Acero is to provide integral solutions to the industry, to supply scrap to the mills and to automotive customers, both domestic and foreign.

Our main office and plant are located in Carretera Colombia, Escobedo N.L. We also have a plant in Juarez N.L. and our newly opened plant in Queretaro.

Can you tell us about Roca Acero's different capacities across your operations in Mexico?

Roca Acero actually operates at about 350,000 metric tons per year (mt/y), but our full capacity could be 450,000 mt/y, which would make us one of the largest companies in the market. Mexico imports more than 1 million tons of obsolete scrap from the

United States each year. As is the case for steel, Mexico has a scrap deficit. As a country, we produce 18 million mt/y of steel but are consuming 22 million mt/y. Mexico imports large amounts of steel from the United States, Japan, Russia and China to cover this gap and to source specialty grades, which we do not produce domestically.

Roca Acero acquired the first branch located in Juarez N.L. with a capacity of 96,000 mt/y. Following the trend of the automotive industry, we opened another branch located in Queretaro with a capacity of 120,000 mt/y. All our facilities are equipped according to market needs.

The market is currently very low. As a country, we need to see growth at rates above 3% or we will continue to have a tough market.

With the steel industry on a global level struggling with overcapacity issues, why are Mexican players across the value chain developing new capabilities?

Mexico can achieve growth rates of 4% to 5%, and these investments are foundations for future growth. Mexico has the fundamentals; we have a demographic bonus and need of more infrastructure, which combined with better political regulation and reforms will make for very good years in the future. The government has a plan for its National Infrastructure Program, which will demand a lot of steel going forward. The country's plants are increasing capacity based on that, and we see a better scenario for the long-term.

How would you describe the level of professionalization in Mexico's scrap market?

The scrap market is known as a very informal market. Roca Acero, for its part, is in a deep professionalization process, bringing new, specialized talent into the company. We obtained in 2010 the ISO 9001:2008 certification. We are a certified Company for Import Export (IMMEX). We are also bringing in more information technology to be at the same level as our customers and we are focusing on better company governance. This gives us an edge over our competitors to succeed and grow.

Given that we are seeing a lot of consolidation in the steel industry among mills and service centers; can we expect to see the same process occur in the fragmented scrap market?

As a raw material's suppliers we have to understand the market, which is part of our professionalization process. The global market saw a process of consolidation some years ago, which is still in process. We are part of steel industry and we have to be prepared to take part in this consolidation process.

In the scrap business, are you able to arrange long-term fixed price arrangements or does the market have a more variable price structure?

The markets itself provides the price trend, but it is complicated to negotiate long-term prices. However, we have some agreements that follow the American Metal Market. The mills are competing among themselves for the material. Because it is a deficit market, we do not have to make a great effort to sell. As the mills are increasing capacity, we have to put more effort into buying and fulfilling demand.

In this competitive market, how do you differentiate yourself as a scrap dealer?

Roca Acero differentiates itself by its integral customer service. We offer quality materials based on a classification and process according to the customer needs. Besides competing on price, the market is also looking for contracts that offer integral services. If we win these contracts, we commit to providing customers with just-in-time services for scrap collection. We are seeing this trend toward more integral services and are answering the needs of the market. As more U.S. scrappers are coming to Mexico, they are bringing better business practices. Roca Acero is developing its own abilities and professionalism to compete with them. At the end of the day, we have the big advantage of knowledge of the local market.

Where do you see Roca Acero developing in five years?

The demand of Mexico's scrap market is 8 million mt/y, which is small compared to the 20 million mt/y that is destined for export to the U.S. market. Roca Acero's strategic plan seeks to achieve 600,000 mt/y in about three years. There is a lot of space for Mexico to catch up. We see ourselves with the market preference focused on customer service as the best option. ●



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Ruben Rodriguez Serrano

Director General
COKES INDUSTRIALES (CISA)

●●● **To begin could you provide us with an introduction to the history of Cokes Industriales and bring us up to date with an overview of the company's activities today?**

My father established the company in Mexico City in 1970. We moved to our current facility in Tizayuca in the state of Hidalgo in 1997. This site is ideally positioned, as it is just 30 miles away from Mexico City and has very good railroad access, which is extremely important for the logistics of bringing in coke and coal. Furthermore, at the time, the state was also offering attractive tax incentives to companies looking to invest in the area, so we were able to take advantage of these. Today our warehouse can store up to 1,500 mt, of which approximately one third is covered.

The main products that we stock are anthracite, graphite, petroleum coke, and metallurgical coke: basically anything that looks like coal. Most of our clients are based within a 400-kilometer radius

of Tizayuca: between San Luis Potosi and Veracruz, with some demand in Queretaro, Guanajuato and Puebla. Our main clients are the larger steel mills, foundries, and also companies in the automotive sector. For carmakers, we supply petroleum coke for the production of grey iron, which is used to manufacture brake disks and drums. Our largest clients can require up to 300 metric tons (mt) of coke per month.

Most companies tend to distribute their products via truck. What kind of distribution network does Cokes Industriales maintain?

We make use of both truck and rail based distribution to reach our customers. In the past, Mexico's railroads were extremely inefficient, but since privatization in 2009 the situation has improved considerably. While it is still faster to use trucks, trains are much safer and less vulnerable to robbery. Moreover, because of high gasoline prices, it can be up to 20% to 30% cheaper to use the railway. The main issue is that not all of our customers have railroad access, so it is often necessary to transport our products via truck for the last stages of the journey. We foresee a resurgence in rail usage, as security remains an issue for truck-based logistics.

How would you assess the threat posed by security issues in Mexico?

Security is a serious challenge. There is a thriving black market for stolen steel and this is now also true for coke and coal. Contrary to what is commonly claimed in the media, the situation is getting worse. Since the Calderón government came to power in 2004, crime has risen, and we have not seen any real difference since Peña Nieto took office last year. To mitigate the risk of theft, we use railcars wherever possible and only deliver during daylight hours.

What is the balance between imported materials and those produced nationally? How competitive are Mexican mills on an international level?

We import most of our coke, petroleum coke and graphite from the United States. We occasionally import from China, but the freight cost is very high. Although the product itself is much cheaper, the total cost is slightly higher. In a good year we will import some 10,000 mt of material, but Mexican suppliers also play a key role

in our supply chain, particularly when it comes to graphite and anthracite. On the other hand, Mexico is not a big coke producer, and most coke produced in the country is sold directly to the Comisión Federal de Electricidad (CFE). Most of the coal miners are located in Coahuila, but they are very small operations, so their supply is unreliable and quality inconsistent; hence, we tend to import.

2014 has not been a stellar year for Mexico's economy; how has Cokes Industriales seen demand progress and how do you predict it will evolve?

2014 was difficult for Mexico but we are more optimistic for 2015. It is unlikely that the massive growth figures being thrown around will come through, but the structural reforms should help to drive activity in construction, which in turn would stimulate demand for steel.

Over 70% of Mexico's economy is concentrated in small businesses; will this or will larger enterprises play a more predominant role?

Small companies move Mexico, providing 95% of jobs. Without these small, often family-run businesses, there would be no Mexico. It is vital to stimulate this sector rather than focus only on big headline investments. More work for small companies means more employment, which would bring down poverty and unemployment levels, as well as crime rates.

Where would you like to see Cokes Industriales in three years?

Cokes Industriales has a bright future in the Mexican input distribution market. The company has been on the market for over 40 years and has bested stiff competition from international, high-volume sellers. We can offer good service and high quality, as well as the desire to establish long relationships with customers and suppliers. The economy will pick up, and we will have more work and will be generating more jobs and helping the local community in Tizayuca. ●



Raul Lopez

Managing Director
NOVOCAST

●● Can you introduce us to Novocast and the role the company plays in Mexico's foundry market?

Novocast is in the foundry business in Mexico and produces ductile iron, mainly supporting the automotive sector but also for agriculture, construction and highway trucks. While Novocast is dedicated to ductile auto parts, we have another facility that makes high value-added, complex parts for trucks, off-road, construction and agriculture segments. In total we have 80,000 mt of capacity at our facilities. Novocast is part of Grede Corporation, which is headquartered in Michigan. The automotive industry is very strong in Mexico, and we are the leaders in our products for pickup trucks, SUVs and heavy trucks. We serve customers such as American Axle, Meritor, Linamar, John Deere and Navistar.

When the Novocast facility started operations 13 years ago, it was a busy period for the automotive market in Mexico. Many

OEMs were starting, and Novocast was established in anticipation of future growth. About 90% to 95% of our production goes to the United States, Canada and other countries indirectly. We sell about 85% to 90% of our production to Tier I companies who have facilities in Mexico. They then export our products to the United States or Canada as part of a larger product.

How would you characterize current market conditions and what are your expectations for the near-term?

Right now everybody wants to be in Mexico. Auto production will jump from 3 million to 4.5 million light vehicles; it is projected that North America will reach over 54 million light vehicles in three years. Right now there is not enough capacity to produce such an amount. The coming years will be good for the industry. Suppliers for the automotive sector are working at full capacity and are considering expansion plans.

One future problem will be the shortage of steel scrap, which will cause prices to rise. Mexico imports a good portion of steel scrap, and the large mills consume most of it. Given the growing importance of Mexican steel to the world, the official steel indexes are planning to publish Mexican prices as reference. Getting the right material will be one of the biggest challenges.

Can you provide us with an overview of your client breakdown and the expertise you can offer them?

In the last year, our breakdown was 60% automotive and 40% in other sectors. Our strategy is to have one-third of our business in automotive, one-third in trucks and another one-third split between agriculture, off-road and construction.

Novocast has been successful because it works with customers when they start their initial design. We have the capabilities to make initial designs, work on simultaneous engineering and make prototypes. For example, currently we are working with a customer in the initial steps to design a product they will be assembling six years from now.

Novocast has both ISO and TS certification. What steps is the company taking to improve quality in recent years?

OEMs used to have their own supplier quality departments, but today this has

passed to the supplier supported with third parties. Industry requirements are getting tighter, and our ISO and TS certifications help in acquiring new customers. In the last four or five years we have improved quality by 60% and are running our operations at very high standards.

On a global level for the steel sector, there has been significant investment in capacity across the supply chain. Do you think Mexico is playing into this overcapacity? During 2012 and 2013, Mexico was using all of its capacity. Starting in 2013 many companies started to add capacity. It is not currently excessive because capacity is behind the trend. The question is whether we will exceed demand. Even if there are issues in the global market, OEMs would still prefer to go to Mexico to produce vehicles. Rather than overcapacity, the market is going to see more employee turnover, increased salaries and higher costs for leasing buildings.

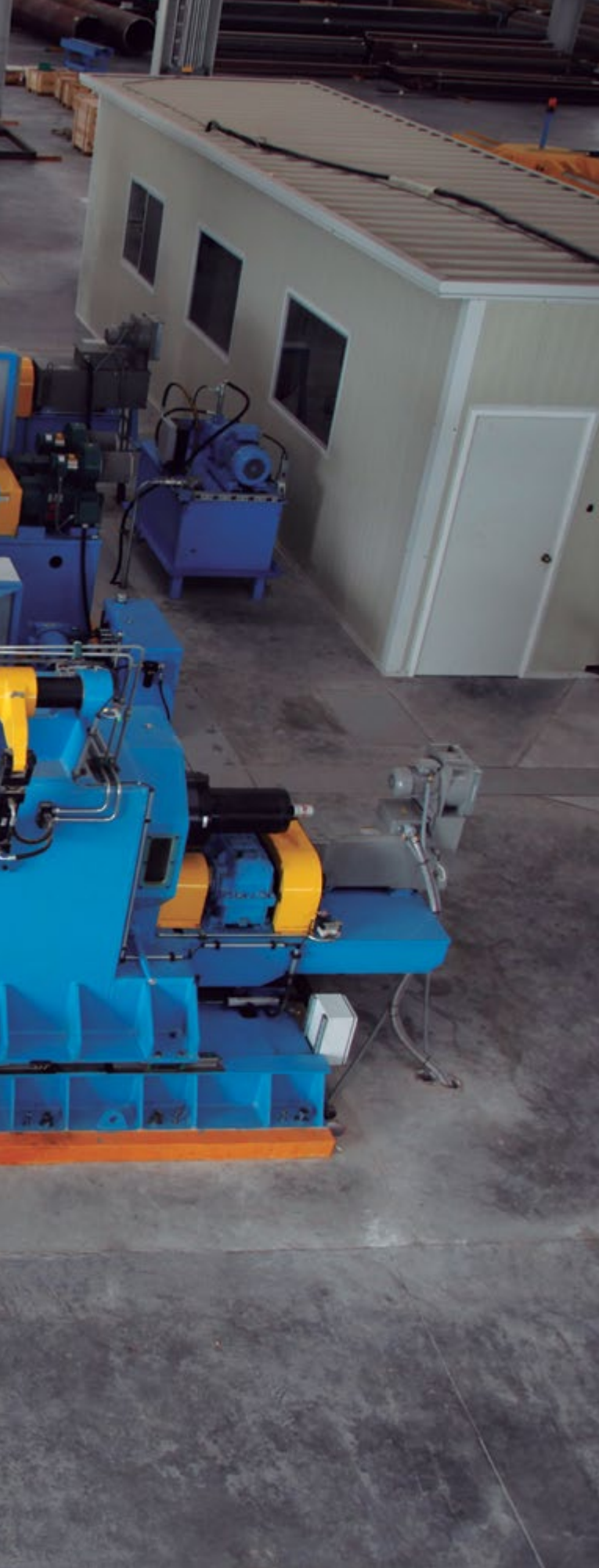
Scrap prices are expected to continue rising. How is Novocast changing its relationships with scrap merchants?

One of our strategies is to enter into long-term contracts. Instead of going to the spot market, we are negotiating with suppliers and scrap generators to establish a formula based on market indexes to secure steel scrap price. Scrap generators are also looking to enter into long-term agreements to avoid the spot market.

What is your outlook for Novocast for the next five years?

Novocast wants to continue being the market leader in products for pickup trucks, SUVs and heavy trucks. We want to grow and diversify into other markets. We are considering other kinds of alloys and products to add more value to our customers. Mexico is an attractive market. It will be tough, as companies compete for materials, talent, and resources, but Novocast will be ready to support the speed of the race. ●





EXPANSION AND DIVERSIFICATION SERVICE AND MANUFACTURING IN MEXICAN STEEL



“The primary change we have noticed in this service sector industry has been a movement to more formal management systems. Size is no longer a barrier to competition and we are seeing small and medium-sized organizations challenging more global and well-established companies. With European and North American companies entering the growing Mexican market, these smaller organizations are focusing on increasing efficiencies and are implementing technologies that allow them to focus on increasing their margins through cost savings.”

- Gunther J. Barajas,
Regional Director,
Epicor Software Corp.

OPTIMISM OR OVERCAPACITY?

Service and Distribution in Mexico

●●● Mirroring the trend for expansion and advancement within the mills themselves, service centers have had to formalize their operations and improve the level and range of services that they offer in order to stay relevant within the market. Distributors that still adhere to the old model of simply holding inventory for small users are rapidly disappearing. Steel distribution is big business in Mexico. In other Latin American nations such

as Brazil or Argentina, mills tend to operate their own distribution networks and maintain fairly direct interaction with their end clients. This is not the case in Mexico, where producers invariably sell only to independent distributors or service centers. This situation has led the sub-sector to grow to extremely large proportions. Member companies of the National Confederation of Steel Distributors (CONADIAC) provide employment for over 40,000 peo-

ple and sell more than 50% of all the steel produced in the country.

It is unclear how exactly this dynamic came about, but it seems likely that it was born of necessity. Traditionally, the companies involved in Mexico's metal processing sector were small, highly localized operations. The original idea of a service center was simply to buy steel and keep inventory for small customers who lacked the purchasing power to go directly to the mills. Today, many heavy consumers of steel – major construction companies, stamping plants and forges, for example – are now large, professionally run operations that could potentially buy their materials from the original producer, but the strength of the distributor still persists.

This does not mean that the sector has remained stagnant. We are seeing a variety of different strategies take shape as distributors alter their business models to adapt to the demands of the changing economy. In order to follow the rationale behind these strategies, it is first necessary to understand



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that a broad division exists within the sector. “It should be noted that companies focus on either commercial or industrial, and that industrial steel has a much larger growing demand at the moment,” explained Mauricio Morales, director of Galvaprime, a fairly new player among Monterrey’s thriving community of service centers that prides itself on the early adoption of modern technology. “Commercial steel, such as that used in the construction industry, has seen stagnant or very low growth.”

In this context, those operators with a focus on commercial steels have had to differentiate themselves primarily through the sheer scale of their inventory. “Ferre Barniedo is one of the largest suppliers of structural steels to the construction industry and has built up a strong reputation behind its brand with over 40 years in the market. Ferre Barniedo’s slogan is “En Acero, Todo,” which roughly translates as “Everything in steel.” This idea underpins our philosophy and we aim to keep an extremely large inventory across a wide range of different products,” commented, José Calixto Perez del Blanco, the company’s director. Across its five different warehouses, Ferre Barniedo manages stocks of approximately 200,000 metric tons. Clearly, this is not a feasible strategy for everyone, as the costs associated with building up such an inventory are very high.

As such, an increasing number of service centers are shifting their approach to appeal more to clients in Mexico’s booming automotive and manufacturing industries. Now, the main thrust is towards adding value to the base steel being sold, which is generally accomplished by incorporating increasingly complex processing technologies to existing plants. A large number of service centers have been acquiring new slitting lines, multi-blanking lines and automated cutting equipment.

One name that is emblematic of this new direction is Plesa Steel, which recently completed a \$50-million investment in a state of the art process plant in Monterrey. “More and more of our clients are looking for better quality processed material, which is why we made the new investment into our facilities. All of the machinery we brought in is providing much higher quality, particularly when it comes to the flatness of the material,” explained director Eduardo Zundelevich. Zundelevich is optimistic about the sector’s future and plans to

roll out further investment programs over the next two to three years.

Still others have pushed even further down the value chain towards the delivery of final products. Aceros del Toro started out as a small scrap trader, before moving into distribution and processing. Although its service center still constitutes the most important part of the operation, director Francisco Vargas sees huge potential opening up through the fabrication of large metallic pieces. He said: “Rather than selling steel, the idea here is to move further downstream and sell components. This area currently makes up about 5% of our total revenues but the eventual goal is to export.” To capitalize on this growing demand for fabrication services, the company has recently purchased a laser cutter to shape thick steel plates for use in their workshop.

Recognizing that demand for commercial steel has been underperforming, some companies have entered the retail market, but this foray is not easy. In addition to the plethora of micro-distributors that exist in every Mexican city and cater to neighborhood construction firms, entrants to the retail market will have to take on high-volume international behemoths such as Home Depot.

The squeeze on margins has also effectively closed the door on retail rebar to small, independent players, which generally need to sell at a 6% or 7% mark-up to stay afloat. That being said, there is still room to maneuver in other commercial profiles, such as beams, which are not usually manufactured within Mexico.

Looking to the future, it seems certain that Mexico’s distribution sector is here to stay. The growth of foreign producers such as Ternium and Gerdau, which are used to running their own distribution networks in their home countries, may shake up the scenario to a degree, but large distributors are so entrenched within the market that it will prove difficult for the new mills to dislodge them. Francisco Ponton, director general of American service center, Steel Warehouse, believes that the current overcapacity will give way to a new wave of mergers and acquisitions: “In terms of market, I hope that we see more consolidation. Currently there are too many players fighting for the same space . . . just look at how many slitters are around the Monterrey area. With so many players, consolidation is bound to occur.” ●



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Eduardo Zundeleovich

●●●

Director
PLESA STEEL



●●● **Plesa Steel has a long history in Mexico's steel sector. Can you give us a brief overview of the key milestones in the evolution of the company?**

Plesa Steel is a family-owned company, which was started in 1965 as a small business in the hardware segment. We expanded into different areas, including trading steel, eventually operating four different companies. In 2001, we restructured our business and fused our companies. We are now dedicated to the wholesale business, buying steel from different mills and transforming the material at our facilities to the specific needs of the client. We work with most sectors related to steel as well as all fluid sectors, where we specialize in pipes, valves and fittings, as well as slotted pipe.

A recent development for Plesa Steel is the addition of new machinery that allows us to service the automotive industry. We have also recently inaugurated a new facility in the northern part of the country, which allows us to attend to this area competitively. Previously we had not been working in the northern part of Mexico because of our location in Mexico City. With most of the mills being in the north, transportation costs were too high to do business in the area. Our expansion will open up this region. 2015 is our 50th birthday, and we are looking forward to many more years of growth.

Plesa Steel inaugurated its new facility in November 2013. Can you explain in further detail the strategy behind this investment decision?

We set up our facilities in Monterrey five years ago, but it was used for warehousing and sales, not for processing. We saw the growth potential of the steel industry in Mexico in the next few years as well as the need for memory free material and decided to

invest in a new, state of the art service center. We started with this project four years ago and today are now fully operational. We brought cutting-edge machinery from Spain, the United States, and Germany to ensure that we could supply the most demanding clientele with high quality.

In the past, Mexican steel suffered from an unfortunate reputation of low standards. What types of measures have Plesa Steel put in place to ensure that its quality and that of its suppliers are consistent?

Mexican mills provide products of the highest quality and now with a higher range of specification grades and measurements. For Plesa Steel, the order and control of both our plants are its top priorities. More and more of our clients are looking for processed material of a higher quality, which is why we made the new investment into our facilities. All of the machinery that we brought is focused on providing a much higher quality material, particularly when it comes to the flatness of the material. We have introduced a new technology that breaks down the molecules in the material to remove its tendency to return to its original shape. This technology can be applied to all industries, for customers who use longer materials so they will have less welding to do as well as for clients who need laser quality products. This technology allows us to supply memory free materials with exceptional flatness.

Considering the labor market in Mexico, what initiatives have you introduced to develop your human resources?

Plesa Steel's goal is to develop better quality operators, so that we might have better trained and more highly paid workers. To achieve this, we have personnel training centers in Mexico City



Image: Plesta Steel

and Monterey. All of our personnel go through a special training. Moreover, many of our clients are now requesting and sending their staff to be trained at our centers to learn about our processes, quality, and uses of materials.

While the construction and infrastructure industries have dipped in the last few years, what potential do you see for the steel market going forward?

Over the last two years, demand has been lower across the country; however, we are very optimistic that the market will grow. The government has announced many upcoming projects that will boost the economy in the coming years. Oil, energy, and gas in particular are new areas for our company to target. The oil and gas industry is preparing for its next wave following the new energy reforms that have been introduced. There will also be other new infrastructure projects, including the new international airport, which will demand a lot of steel.

Alacero, the Latin American Steel Association, predicts that consumption of steel products across Latin America will increase by 3.5% this year. What are your thoughts on this prediction, and how will Mexico fit into this forecast?

In 2014, we saw that there was still constraint in starting projects. The second half of 2015 will see stronger demand, and we will have a growth rate higher than 3.5% in 2015. There will be a lot of growth because of the energy reforms, in addition to new water and infrastructure projects. Mexico will have to invest significantly in bringing water to the north, as the automotive industry is seeing a lot of growth.

Does increasing competition from Asia negatively affect the

domestic steel market?

As a service center we are not seeing competition from Asia on the processed materials side. Generally, it is only steel materials that are imported, not processed pieces that have added value. Nevertheless, our government is doing a great job that controlling materials that are coming in, because many of these imports prices are subsidized by some countries. Fortunately, the Mexican government combined with CANACERO have done a very good job protecting steel industries from dumping priced materials.

In two to three years, what growth objectives do you have for Plesta Steel?

We decided to invest in our new plant because we believe in Mexico's future. The steel industry is essential to the growth of any country. Our \$50 million-investment is only the first stage. We are now planning a second stage to expand our operations in Monterey. In two to three years, we will be more consolidated and hopefully start our next investment phase. Even if the country does not grow as expected, we have just opened up the northern part of the country as a new market and are very optimistic about the future.

Do you have a final message about Mexico's steel industry to share with our readers?

A lot of investments are happening in Mexico, not only in steel. We have not seen these types of investments in any other part of the world. All of the country's steel mills have been making new investments to expand their capacity and build new mills. Plesta Steel has made investments in new, high quality machinery and a new facility. Steel consumption in Mexico will grow in the future, and we will see a very fruitful industry. •

Francisco Pontón

●●●

Director General

STEEL WAREHOUSE MEXICO

●●● **Could you start us off with a brief history of Steel Warehouse here in Mexico and the milestones that have occurred since its inception?**

We are certainly not the first American-owned company to enter Mexico, but for Steel Warehouse this was the first project outside of the United States that we invested in. The decision to move south stemmed from one of our clients, Caterpillar, which hoped that we would be able to provide them with materials in Mexico. Steel Warehouse first assessed the viability of opening a facility in Mexico 15 years ago, but decided not to enter the market then. Six years later, we reassessed the market and decided that it had become much more attractive. This can largely be attributed to the modernization of fabrication and steel service centers. One such example is the shift in cutting technologies. The market is demanding higher and tighter specifications, more accurate laser cutting technologies, and high quality, precise measurements. In order to supply products to this demanding market, companies have shifted and invested in technology to better respond to these demands.

The truth is the idea of productivity as a whole has shifted and evolved in Mexico. In the past, the market competed primarily on low cost labor. Today, the focus has shifted to total cost of operation. It is about quality, being efficient, getting things done right the first time, reducing yield, and productivity as a whole.

This has led to Steel Warehouse being able to provide quality products to the Mexican market. Our Temper Pass rolling mill provides high quality steel plates through a process that changes the molecular qualities, not only on the surface of the steel, but also by re-arranging the molecular struc-

ture inside the steel. By applying tension and pressure, thus stretching the steel, we are changing the molecular holds of the materials. There are only 25 of these lines worldwide (out of which Steel Warehouse operates seven of them) and although many leveling lines claim to eliminate memory, this is the only process that can deliver memory-free steel and total flatness in the full range of thicknesses and grades that the market demands.

What is stopping others in the market or your competition from purchasing similar technologies?

Entry barriers into industries such as ours are very high. Not only cost barriers but also these lines are not easy to maintain and a large amount of technical expertise is needed. We develop our own workforce and talent in order to better service our lines locally. We have created a large amount of knowledge sharing networks with our U.S. counterparts. In addition, we have a large amount of support from the north; this includes remote access in order for our technicians to assess real-time problems that may occur. For the steel industry, which is portrayed as a traditional economy, this is really a new state-of-the-art technology and is therefore still in its infancy.

This high quality technology is obviously filling a niche in the market. Who are your clients that are demanding this higher grade, quality steel that Steel

Warehouse is offering in Mexico?

The purpose of putting the line here in Mexico was to serve the Mexican market. It was not to export, although we are now exporting some products. We sell directly to most of the largest and medium-sized OEMs here in Mexico. However, it is important to note that not everyone demands, or is willing to pay, for the high quality products that we supply.

On the other side of the value chain, who is supplying you with raw materials?

We are buying directly from the mills. We are not huge in terms of operations: as far as service centers go, we would be placed in the welterweight category. As such, our purchasing power cannot be compared to that of a huge user. We buy from AHMSA and Ternium domestically, but we also buy high quality grades or niche dimensions from Europe, Japan, Korea, or even China if needed. We were the first to upgrade our lines to service thicker and wider coils. When we first started with this capability, the mills in Mexico were not offering these sizes, so we looked elsewhere to import the products that we could service. This has since shifted and some of these products are now available, but we will look to different markets for the products that we can service when demanded.

A lot of distribution and service centers are investing in further capacity and capabilities. Do you see overcapacity in the

market as a problem in the future?

It is already a serious issue. Most of Steel Warehouse competitors are investing heavily in their operations in order to meet the raising quality standards that are being demanded from the market. The truth is that these players are all entering into competition with each other on a quality standard that is lower than what is offered by Steel Warehouse. In order for some of these players to match the amount and quality that we are able to provide, they would have to buy six of the lines that they are currently investing in. At the end of the day the question is simple: are these competitors really saving money in the long-term by investing in lower quality or lower productivity machines?

Is Steel Warehouse interested in expanding into other markets, such as the oil and gas industry?

Oil and gas invests more in tubing and pipes rather than the products that we offer, but some of those tube and pipe makers are already buying the benefits of a product like ours. Rather than focus on new markets, we hope to further support the current OEMs that we are working with. I see an industry here that is highly fragmented, with a lot of smaller players fighting for a piece of the distribution business. However, being a distributor is different than providing support for OEMs.

If we were to return in five years, what will we see in the market and what goals and objectives does Steel Warehouse have moving forward?

In terms of the market, I hope that we see more consolidation. Currently there are too many players fighting for the same space. Although this is different than the solutions we provide, I expect that we will see a natural consolidation for these players. Just look at how many slitters are around the Monterrey area. With so many players, consolidation is bound to occur.

As for Steel Warehouse, I see us delivering further value added support for our OEMs and moving into first fabrications on the OEM side. We are doing part of this already, such as laser cutting service parts. We do not wish to compete with our fabricators, which are a part of our client base, but we would like to further integrate into providing these solutions. •

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Francisco Vargas & Francisco Guajardo

●●●

FV: Director General
 FG: Operations Manager
ACEROS DEL TORO

●●● How did Aceros del Toro evolve into the large operation that it is today?

FV: Aceros del Toro has its roots in a scrap trading company started by my father in Monterrey. After working for Hylsa, he decided to go into business for himself, and he had great success buying and selling the waste products of the large mills. From this point we began to diversify, buying first a leveler to process coils and then a fleet of forklift trucks to rent out. We set up a dedicated steel service center in 1986. Today we have four main business areas, which employ a staff of 700 people. Our core business remains the steel service center, but we also operate a forklift rental business, a steel coil distribution network and a fabrication shop.

Aceros del Toro has 14 leveling lines in its service center, whereas most suppliers have just one or two. What is the need for so many different lines?

FV: We have a different line for each type of material: we have levelers for cold and hot rolled coils, for galvanized steel, for extra thick coils and for wide coils, as well as several other varieties. This allows us to process our clients' orders more quickly and keep our machines running at their optimal levels. In this way we will always have one leveler ready to use if an order

needs to be processed urgently. We keep an inventory of approximately 55,000 metric tons, so we can usually rely on stock to fill a customer's order. In addition to our main facility in Monterrey, we operate a smaller service center in Mexico City and a distribution center in Guadalajara.

Most of our steel is destined for commercial uses in construction, but we are now branching into the industrial market. Approximately two years ago, we purchased a laser cutter that can deliver precise shapes from steel plates. We can then use these in our fabrication shop and thus add value to what we are selling. Rather than selling steel, the idea is to move further downstream and sell components. This area currently makes up about 5% of our total revenues but the eventual goal is to export. In parallel, to cater to Mexico's growing auto industry we also brought in a state-of-the-art blanking line with very precise tolerances that can produce more complex steel forms.

Aceros del Toro's latest venture is a move into fabrication capabilities. What was the motivation behind this new division?

FG: In the USA, there is a sharp increase in oil and gas activity, which is driving demand for drilling and other exploration

equipment, so we have been developing our manufacturing capability to take advantage. We are now able to produce finished steel skids for gas compressors in our fabrication shop, which are then exported to our clients in the USA. We are currently delivering two per day. We can also produce the tanks themselves. There is a huge potential to develop this market abroad, and when the energy reforms take hold in Mexico we believe there will be substantial opportunities here as well. Outside of the oil and gas sector we can also fabricate the frames and cylinders for extra-large overhead cranes, which are frequently used in the mining industry. The only aspect that we do not handle is the machining. Our welders are all certified by the American Welding Society (AWS) and we therefore have auditable records of every job we have completed, what materials were used and who was working at the time.

Could you explain to us the mechanics of your logistics operation? What are the benefits to your clients of storing their steel coils with you?

FV: Our logistics business works as an intermediary between the mill and the final client. We store their coils in our warehouse so they do not have to. The large

mills prefer to work with large-scale deliveries, and most plants now use just-in-time production techniques, so they only require a small quantity of steel at a time. Specialized steel must be stored in warehouses with strict temperature and humidity controls. We offer the ideal environment for these coils and deliver the exact amount required by the end user.

You are moving into the forklift rental area, which is very different from your other businesses. How does it fit in with the rest of Aceros del Toro's operations?

FV: Actually, the provision of forklift services fits in very well with our other business areas. Almost all of our clients and providers require forklifts, but often they do not have the expertise to operate them on their own. The mills want to focus on their core business, which is producing steel. Aside from the forklift itself, we provide a qualified operator, all the fuel and a full maintenance package. In this way, our clients do not have to worry about any part of their onsite coil maneuvers. We own a fleet of over 80 vehicles. These range from 15,000-pound (lb) to 36,000-lb and 55,000-lb trucks. We are now buying an 80,000-lb truck to rent to AHMSA.

It seems that Aceros del Toro has many plans for the future. Where would you like to see the company five years from now?

FV: In the future, we want to produce forklifts under our own name. We have the fabrication capacity to manufacture the most important parts, and the more technical components such as the engine and the transmission can be purchased from other OEMs. This would allow us to make the next step in our rental business. In the short-term, we are opening a new distribution center in Celaya, which will incorporate a 13,000 square-meter warehouse with four overhead cranes and a truck weighing station. We also plan to open another plant in Coahuila and are working on an industrial park here in Monterrey.

On a more general level, Mexico's largest problem has been security, but the government has significantly improved the situation in Monterrey. Mexico is open to new investment, and Aceros del Toro is ready to provide steel products and integrated solutions to the new players in the market. •



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Aceros del Toro, S.A. de C.V. is company of Del Toro Group. Now a day is one of the top service centers of the region, and the most important steel manufacturer with more than 20 years of experience in the market, we are an expanding enterprise group with branches in Mexico city, Guadalajara, and Celaya.

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Our vision is to continue our efforts towards being the best service center and steel distributor in Mexico, offering top quality in all our products and services.

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AG

Alfredo Garcia & Rodolfo Galban

●●●

AG: President
RG: General Director

INDUSTRIAL LOGISTICS (LAVISA)

●●● **Could you start off by telling us about Industrial Logistics and the main milestones that have occurred for your company in Mexico?**

This company is very relevant to the steel industry. Started in 1933 as a hardware store, the business grew into a large industrial conglomerate. When the markets opened up to international players, the conglomerate suffered as a result of this competition and in 2003 the decision was made to purchase the company.

Today, we participate primarily in the oil and gas industry but also the steel industry. More than the logistics itself, we are a distribution company. Logistics is really about improving the entire supply chain, and this is what we do in our business. We now have a sister company in the United States known as Industrial Logistics and have a new company in Ecuador that focuses on distribution.

We are seeing the changes in the market and energy sector as important opportu-

nities for growth. We want these changes to occur as soon as possible. This is not without its challenges, as we know more players will want to enter our market and competition will increase. This change is not being brought on by political will but rather through business necessity. At one time, controlling our national resources and being protective of our resources served its purpose but opening the market is necessary now for businesses to excel moving forward.

Who are Industrial Logistics' clients and is there an opportunity to take advantage of the quickly growing automotive sector in Mexico?

We primarily provide carbon steel pipe for the oil and gas industry. We deal with contractors that sell directly to Pemex. About 85% of our business is selling directly to these contractors. Lately, we have begun to diversify and focus on other markets. We provide welded pipe to clients, but this market is highly fragmented. Large producers such as AHMSA have a limited number of distributors that it utilizes and we work as the intermediary between large producers and service centers.

Most steel produced in Mexico takes the form of unsophisticated high-carbon grades. Specialty steels, such as those with high alloy content, have to be sourced from international markets, which is where our relationship with our sister company in the United States comes into play. We are able to ship more specialty-based products in between the companies in order to meet clients' demands. This has allowed us to enter other industries and expand our current offerings to more accessory-based products.

In terms of the automotive industry, we currently offer a number of products that are currently utilized in the automotive industry. As the market is adapting and new technologies are being introduced, we are seeing an increase in the need for more specialty-based products and, in collaboration with our sister company, we are poised to provide these products to the market

As a company focused on logistic and distribution services, do you own and operate your own fleet or do you utilize third-party providers?

We own and operate our own distribution fleet, which is our core business offering.

We are distributors. In addition to the local distribution, we are also focused on distribution across borders. Since the North American Free Trade Agreement (NAFTA) was implemented, more stabilization and better regulations have made it easier to cross the border between Mexico and the United States. Pre-NAFTA, it was often an obstacle transferring products across the border. Today, as we are shipping consistently across the border, this is no longer seen as an obstacle and is actually done quite efficiently and easily.

Moving forward, what objectives does Industrial Logistics hope to achieve over the next five years and what changes can we expect to see in the Mexican market?

One of the shifts that I expect to happen in the future is more access to capital. I expect the reforms and market changes to help reduce corruption within business, advance technology in the market, and further professionalize the market as a whole. In three years, we expect to have even more distribution in place and hope to further represent international bodies that are hoping to do business in Mexico.

The industry is currently very fragmented. There are no appropriate channels or established supply chains, which have led to a large number of informal relationships in the market. As we see the Mexican market open, there will be a shift in businesses focusing less on informal 'compadres' relationships and more on professional relationships between businesses. Professionalism will prosper and this is something that we have as a foundation for our business and this is something I am very proud of. This will really help us to excel moving forward. ●



Mauricio Morales

Director General
GALVAPRIME

●●● Could you provide a brief history of Galvaprime and explain the relationship that it has with Aceroteca?

Aceroteca started as a steel trading company in 1996, selling steel to mills, service centers, and any businesses that needed steel. As the years went by, many of these trading companies established businesses in Mexico. Aceroteca moved away from simply trading and began to focus on providing equipment to major players in the steel industry. Aceroteca now represents a number of different brands here in Mexico.

My father, Hector, and myself, have been partners since 1996 and although Aceroteca focuses on a different type of industry, the two businesses have been continuously complementary. In 2007, Galvaprime was created as a service center that focuses on customers with lower volume demands. In our case, lower volume is representative of customers that service 20 metric tons per month (mt/m)

up to 500 mt/m. In the beginning we were simply commercializing and then we decided to buy the equipment. We started to add value to customers' steel but were supplying for all customers and did not really have a targeted strategy. In 2009, we switched our focus and concentrated primarily on the industrial market.

You mentioned that you focus primarily on industrial clients. Can you give us an example of your client base?

Our business primarily focuses on tier one and tier two clients with an emphasis on the automotive industry. Approximately half of our business is connected to the automotive industry, which are often mid-sized companies. One quarter focuses on home appliances, and we often go directly to these large players, such as Whirlpool, or go through stampers or suppliers that will do more value-added treatments such as welding or stamping. The final one quarter of our business operation is spread throughout the market.

We have heard from a number of people that the Mexican market can be conservative in terms of adopting new technologies. Do you find this statement to be true?

If you look back 40 years ago, the large majority of service centers, or any company that processed steel, would buy used equipment and keep investments low by avoiding technology. However, within the last ten years, mills and service centers have begun to invest large amounts in new equipment and technologies. This is largely due to the fact that the automotive industry has such high quality standards. The more specialized the service center is, the more they must invest in technology to ensure quality. Old equipment does simply not meet minimum requirements.

Overcapacity is proving to be a worldwide problem when examining the steel industry. Here in Mexico, a large number of companies are investing in order to expand capacity. Do you see this as a problem moving forward?

Overcapacity concerns me. Research has shown that there is excess capacity, especially in the northern part of Mexico. But companies must invest to ensure that they remain competitive and can react to growing demand in the market. It should be

noted that companies focus on either commercial or industrial and that industrial steel has a much faster growing demand at the moment. Commercial steel, such as that used in the construction industry, has seen stagnant or has experienced very low growth. The government is saying that it will invest in large infrastructure based projects but this injection has simply not been seen yet. Industrial, however, is starting to grow. Automotive, home appliances, and other industrial-based clients are having a growing demand.

What do you think of the government reforms currently being introduced and what impact will these reforms have on the steel industry in Mexico?

The energy reform will have a positive impact on the steel industry as a whole and should help with high production costs. Looking more specifically at the industrial steel market, these reforms will really help. We have already seen some negative push back in terms of eliminating tax incentives for toll processors. Issues like these are actually deterring investment from companies into Mexico.

Many believe that there is going to be a large growth in the steel industry by the end of 2014. Do you agree with these positive projections?

Yes, I agree. We use a statistical metric that is stapled to Mexico's GDP to forecast specific steel industry growth. Based on these metrics, we are forecasting growth. In addition, the automotive investments and other large investments are adding to the Mexican steel industries attractiveness.

What are the objectives of Galvaprime over the next five years?

We have a number of goals related to volume that we are hoping to achieve. We are trying to double our size in terms of sales by 2018. We are hoping to gain larger partnerships with both suppliers and clients. And we want to continue to focus our efforts on industrial steel rather than commercial, but I feel the Mexican economy, as a whole, is looking promising. ●



Hwangbo Won

●●●
President
POSCO MEXICO

●●● What were the main factors that made Mexico an attractive destination for POSCO?

POSCO first set up operations in Mexico at the end of 2006. Our first footprint into the country came in the form of a string of service centers across the Bajío region and in Puebla. Our first galvanizing plant in Tampico came online in 2009. Globally, POSCO is increasing its focus on automotive steel, and this trend is reflected in Mexico. Given Mexico's strategic location next to the United States and the growing number of automotive plants appearing in the country, we see it as an ideal investment destination. We mostly sell directly to the original equipment manufacturers (OEMs), and our main clients are Japanese and European automakers, as well as the American big three. From Mexico, we plan to expand our presence within Latin America and begin exporting to Brazil and other growing markets in the region. At the moment, it is very difficult to export

to Brazil because of the strict duties that it imposes on incoming steel products.

Although POSCO is one of the largest steel producers in the world, there is no steel mill in Mexico. Where do you source your raw materials from currently?

In Mexico, we only operate galvanizing plants and service centers. As such, most of our raw material is imported from Korea and a few other countries. Last year, some of the local mills in Mexico filed an antidumping petition against cold-rolled coils imported from Korea. This case has now been settled, but we are trying to collaborate more with local producers and secure more domestically produced raw materials. The quality of the steel produced in Mexico has improved dramatically over the years. Nevertheless, domestic mills still lack the capacity to produce AHSS grades in the sizes that we need for our processes.

How will POSCO's second hot dip galvanizing plant help to reduce the reliance on imports for automotive steel?

Most automotive manufacturers depend on imports in order to meet their own demands for HDG products, especially AHSS. The new plant of POSCO Mexico is able to produce 500,000 metric tons per year (mt/y) of galvanized and galvanized steel coils. This brings our total capacity to 900,000 mt/y, which we believe will be able to supply 60% of Mexican automotive manufacturers' needs and supplant some of the need for imports. In line with the current trend in automotive manufacturing to favor lightweight materials, POSCO Mexico's second facility is focused on producing AHSS grades.

Given the continued rise in automotive manufacturing here, why have we not seen Mexican mills invest so heavily in producing auto grade steel?

As a consequence of the global steel oversupply, most customers are getting very good deals with their suppliers. Within the automotive steel sector, however, there is not enough production. This makes it a very attractive area to invest in. The main reason why Mexican mills are not producing enough automotive steel is that they lack the technology. To produce high quality auto steel, it is necessary to have a

high level of expertise and very advanced processes. Mexican producers are looking to move in on this market, but it will take time, as their main area of expertise is primarily in commercial grades.

How have you found the level of engineering expertise present in Mexico? Has it been necessary to bring over many Korean staff?

When we first set up our operation here, it was necessary to bring over a number of Korean engineers and technicians to bring the plant online and commence with the operations. Now, we are training up local staff so that they can take over the running of the plant. Our vision is to phase out the reliance on expatriate labor gradually and develop a truly Mexican company.

How do you hope to see POSCO Mexico develop in the long-term?

Although we are one of the largest steel producers in the world, for now, POSCO is still a small company in Mexico and Latin America. We are now looking to establish long-term relationships with automotive OEMs on a global level and increase our business operations in different parts of the world. In today's situation of global overcapacity, it is very important to differentiate your products in order to remain competitive. As such, we plan on leveraging our superior technology and years of expertise to focus on AHSS production and other specialties. On a broader level, automotive steel is facing stiff competition from new materials such as aluminum and plastic composites. To fight back, we are working together with automakers to develop stronger and more lightweight steels that can help build the vehicles of the future. ●

Pablo Villarreal Valle

Commercial Director
ACEROMEX

portant are these services to your overall operation?

Aceromex began life as a steel distributor, buying and selling products with no processing whatsoever. However, as time went on we realized that we could offer a higher level of value to our customers by shifting our focus slightly and opening a service center. In terms of flat products, we can cut, fold, bevel, roll, drill, weld and others to plate level and slitting coils. As for long products, we can cut, roll, weld and drill structural. To do this processes, our facility is equipped with cutting machines, saws, press brakes, levelers, rolling machines, robots, slitting line, machining and others. Galvanized and paint materials are another offer of Aceromex: blanks, slitting, and corrugated sheets for roofing.

Given the wide variety of products that Aceromex can provide, do you also work across a broad spectrum of different markets?

Today, we participate more on the construction and infrastructure sector. Many of our clients are not contractors, but the end use for our products is almost always related to this sector. At our transformation plant, we produce annealed wire, bright wire, stirrups, high strength rebar, nails and electro welded wire mesh, which is used to reinforce concrete floors and for the columns of the small houses of the government programs. Between 2006 and 2012, construction of this type of building experienced something of a boom in Mexico, but activity has slowed somewhat since. That being said, we are optimistic that in the near future activity will increase.

What is the balance between imported materials and those produced domestically? How competitive are Mexican mills on an international level?

Looking at Aceromex's total steel consumption, we currently use more domestically produced material than imported. Over the past few years, there has been a phase of consolidation amongst Mexican steel mills, which has led to dramatic improvements both in quality and price competitiveness. There are still certain products, particularly beams, which are not produced in Mexico.

There are a number of cases pending in Mexican courts relating to the sup-

posed dumping of surplus produce from Russia and China. Has this has affected Aceromex?

The arrival of vast quantities of material from the Asian market in Mexico has been a contentious issue for Mexican steel producers. In principle, we are in favor of imposing certain restrictions on countries that seek to dump their surplus produce onto us at very low prices, thus disrupting the natural market dynamics. That being said, competition is obviously healthy and necessary to ensure that local producers do not get too complacent. Essentially it is about finding the right balance between protecting local industry without shutting out international trade. Mexico remains a very open country, and we encourage free trade across the world; what we do not want is unfair trade.

Security is perceived as a major challenge to doing business in Mexico. How have you seen the situation evolve in recent time?

There was a phase when steel theft from trucks was a common occurrence, but thanks to efforts from the government there has been a notable drop in such activity. In two years, crime rates in Monterrey have improved dramatically.

There are relatively few Mexican steel companies selling to customers in the United States. Why do these clients come to Aceromex?

On the one hand, some of our clients in Texas are actually located very close to our own facilities, so we are able to be very competitive on shipping, as logistics are simpler. Mexico is also very competitive in the production of some steel products, as labor costs are competitive. The fact that as distributors we strive to maintain good levels of inventory means that we are always able to give a good service.

Looking to the future, what strategy will Aceromex be taking to continue its expansion through Mexico?

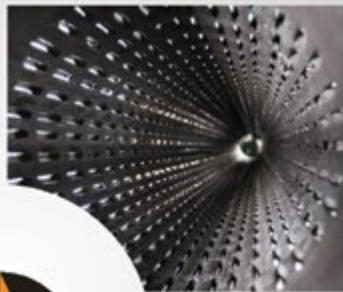
We are open to any possibilities. While we have no concrete plans for expansion or to bring in new capacity at present, if the Mexican economy begins to grow as some are predicting then we see good potential to fill our capacities with new projects. Looking to the long-term, we aim to keep up our participation and contribution in the steel sector. •

●●● **Could you provide us with an introduction to the history of Aceromex? How has the company evolved over its 40-year history?**

Aceromex is a Mexican company focused on the marketing and value-added processing of steel products for the metalworking and construction industries. More than 40 years of experience demonstrate the company's serious commitment to quality and client satisfaction.

Aceromex's headquarters is based in Monterrey, where our new facility was finished in 2007. We also run two smaller branches within the city of Monterrey that cater more to our retail clients and distribution centers in Guadalajara, Reynosa, Leon and Mexico City. Although we export some product outside the country, primarily to the United States, the vast majority of our sales are generated within Mexico.

Aceromex operates both a service center and a transformation facility. How im-



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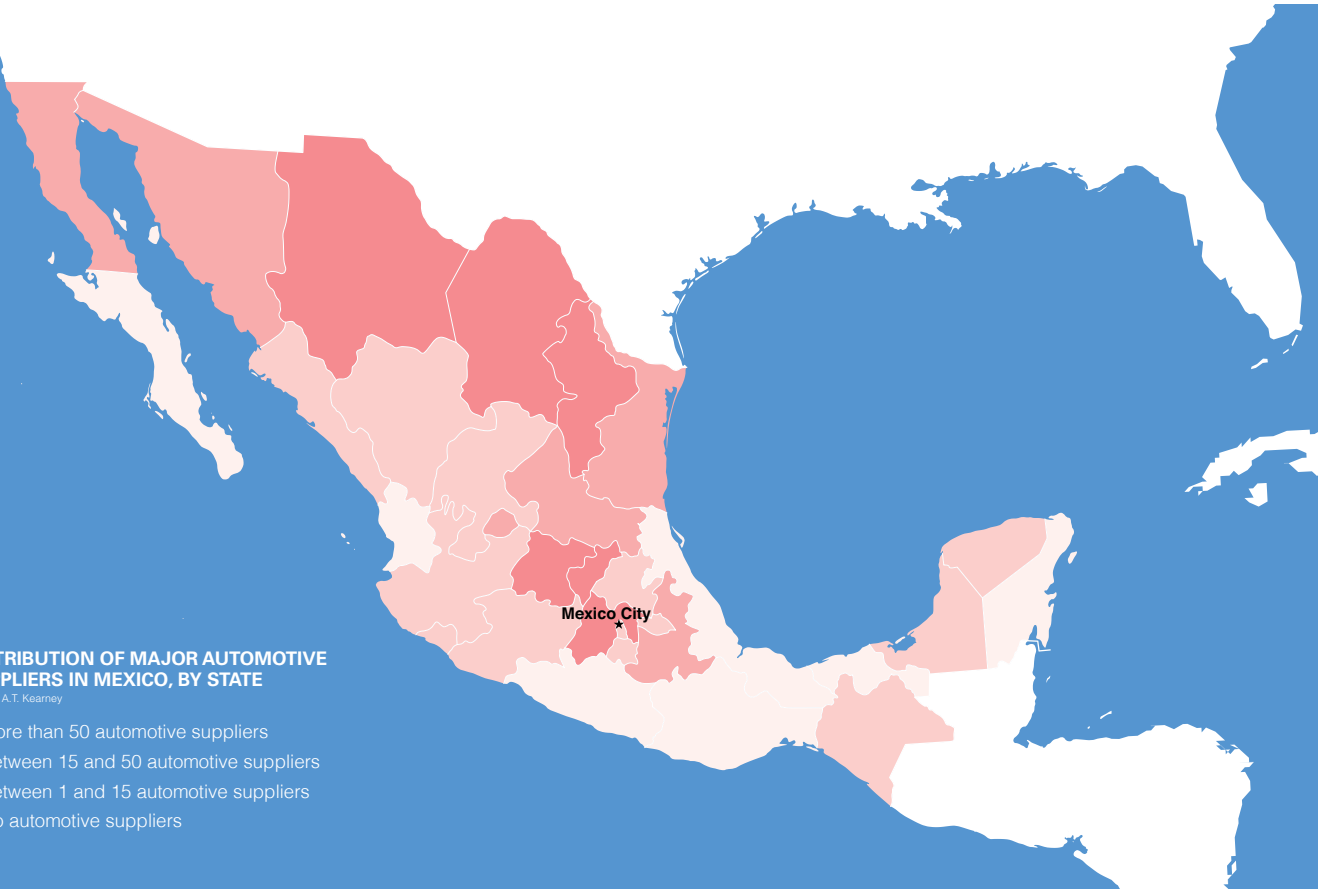
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DISTRIBUTION OF MAJOR AUTOMOTIVE SUPPLIERS IN MEXICO, BY STATE

Source: A.T. Kearney

- More than 50 automotive suppliers
- Between 15 and 50 automotive suppliers
- Between 1 and 15 automotive suppliers
- No automotive suppliers



MEXICAN MANUFACTURING SHIFTS INTO HIGH GEAR

●●● “Everybody wants to be in Mexico.” This is how Raúl Lopez of Novocast sums up the automotive industry’s current sentiment toward the country. It would seem that Mr. Lopez is entirely correct in his assessment. The past five years have seen extremely high levels of investment from new entrants and established players alike. Since President Peña Nieto took office in December 2012 approximately \$10 billion of automotive projects have come online or been announced. In 2014 Kia Motors, BMW and Daimler AG and Nissan Motor Co. all confirmed that they would be opening new facilities in the country. In 2013, Mexico produced just over 3 million cars, or approximately 18% of all the

cars made in North America. By 2020, this figure is expected to climb to 25% as Mexican plants steal market share from producers in Canada and the Southern United States. Since 2009, employment in the sector has risen by 46% and now provides jobs for some 580,000 people, principally in the central Bajío region.

Why has the country suddenly become so popular for automakers?

Low labor costs play an important role, as is the case in any manufacturing industry. According to numbers from the Centre for Automotive Research, the average Mexican worker earns approximately \$8 per hour, compared with \$37 in the United States. However, in the long-term, an

over-reliance on low wages could prove to be shortsighted; as Mexico’s economy develops, wages and living standards should see a commensurate improvement. As such, promoters of the industry within Mexico are keen to point out the country’s other competitive advantages.

Oscar Albín, president of the National Autoparts Institute (INA), emphasized four key factors that play in Mexico’s favor. The first is the country’s geographic situation. Next door to the United States and Canada and in close proximity to growing markets within South America, producers in Mexico are in an advantageous position when it comes to distributing their products. “Vehicles are expensive products to

transport, so being positioned close to end markets is very important for manufacturers,” he pointed out. While China or India may be able to offer even lower labor costs than Mexico, when total shipping costs are taken into account, it is cheaper to deliver a car from Mexico to the United States.

The second key advantage is derived from Mexico’s status as a signatory to trade agreements with over 40 different countries. 90% of Mexican vehicles eventually find their way to these destinations. The third attribute is the high number of part manufacturers present in Mexico. The country is home to over 1,100 part makers, which helps bring down costs for the assembly lines located here. The final point is the level of automotive expertise concentrated within the country and particularly within the central region. Forty years of significant car production has contributed to a very deep talent pool. Mexican plants have a good deal of experience in lean manufacturing, quality control and supply chain management.

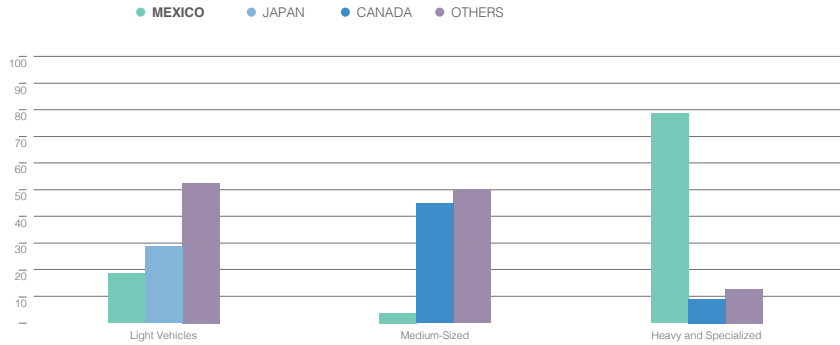
It is a peculiarity of the Mexican industry that, despite its lengthy association with auto production, there are relatively few truly Mexican players involved. The big name OEMs are based out of Europe, the United States and Asia, and so too are the major parts producers. “In order to gain a foothold in this market, Latin American part makers must have a very high level of internationalization,” explained Albin. “But in the 1990s most major Latin manufacturers were acquired by larger, global corporations.”

Nevertheless, there is a solid core of small and medium-sized Mexican operations that are building up off the back of automotive producers and beginning to integrate themselves into the supply chain. Unicar Mexicana is a tier-two supplier to the sector, producing small, stamped pieces that eventually find their way to VW’s Puebla assembly line. Director Teodoro Bordas believes that a high level of quality control is of paramount importance to be considered as a supplier: “When producing for the automotive industry it is important that you are ISO TS certified, as we became in 2009/2010. ISO TS is connected directly to the automotive industry and has more specific regulations than simply ISO 9001.”

While this was previously only a requirement for tier-one suppliers, demands from the OEMs are becoming increasingly exi-

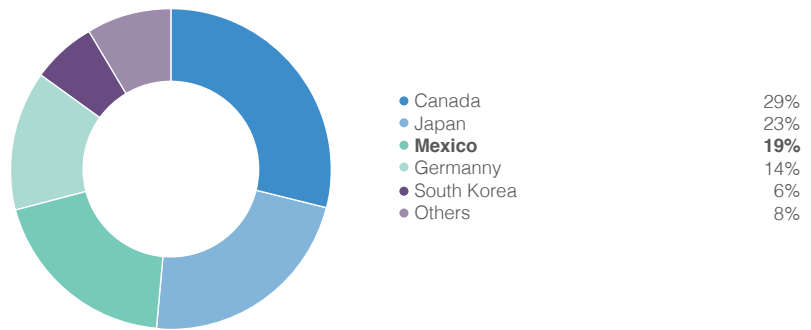
MEXICAN AUTOMOBILE EXPORTS TO THE UNITED STATES BY VEHICLE CLASS, 2011

Source: A.T. Kearney



TOTAL MEXICAN AUTOMOBILE EXPORTS TO THE UNITED STATES, 2011

Source: A.T. Kearney



gent, which has a positive effect on quality levels throughout the supply chain.

It is highly likely that Mexico’s automotive sector will play an ever-increasing role in the Mexican economy, but it is not without its challenges. The country suffers from relatively weak domestic demand, which has still not recovered from the 2008 financial crash. High exports can be healthy, but the current level of 80% is too high, according to some analysts.

The primary contributing factor to this low Mexican demand is the large number of cheap, used cars coming in from the United States. “It is estimated that seven million used vehicles have been imported into Mexico from the United States since 2005. The problem with these imports is that they cannot get circulation plates in the States anymore due to environmental or safety problems,” said Fausto Cueva, president of the Mexican Automotive Industry Association (AMIA).

As Mexico has no real controls over emissions or mechanical standards, vehicles that would be illegal to operate in the USA are routinely being shipped across the border

and sold off cheaply. AMIA is currently lobbying the government to introduce regulations similar to those seen in the USA, thereby reducing the number of dangerous vehicles on the roads and stimulating demand for Mexican produce.

The Need for Specialties

Increased automotive activity will have a profound effect on steel production. While aluminum is gaining favor among luxury car manufacturers, steel remains the material of choice for the vast majority of light vehicles. However, the steels used within auto manufacturing are extremely specialized and, at present, Mexican mills are more geared towards commercial grades, which are only sufficient for some interior parts and chassis components.

A shift is underway, though. Steel is a conservative industry and not one given to rapid change, but even the most stubborn of CEOs cannot fail to see the value of catering to Mexico’s biggest growth sector. Since 2012, it is estimated that steelmakers

have invested \$3 billion in developing their auto-grade steel production.

In June 2013, Korean producer POSCO completed construction of its second continuous galvanizing line in Tamaulipas. “The new plant is able to produce 500,000 mt/y of galvanized and ‘galvannealed’ steel coils,” said POSCO Mexico’s president, Hwangbo Won. “This brings our total capacity to 900,000 mt/y, which we believe will be able to supply 60% of Mexican automotive manufacturers’ needs and supplant some of the need for imports.”

POSCO has tended to import its raw materials from its mills in Korea or bring in steel from Japan or the United States. However, following an anti-dumping petition brought by Ternium, the Koreans are looking to work closer with their Mexican peers and plan on using an increasing amount of domestically produced raw material.

The second major investment in speciality production is Tenigal, a joint venture between Ternium and Nippon Steel to produce cold-rolled galvanized coils. The \$1.1 billion plant constitutes the single largest investment by a foreign entity in Nuevo Leon for the last 10 years. Geared specifically towards supplying the automotive sector, Tenigal has the capacity to deliver

2 million mt/y when production ramps up. These new plants will have a positive impact further down the value chain. Larger domestic capacity will allow transformers and manufacturers to cut down lead times and control production costs to a much greater degree. However, at present, car-makers seem to be investing much more rapidly than the mills, so imports will continue to play a key role for some time to come.

•••

Maquiladoras

Catering to those companies that rely on imports is a range of specialist importers and toll processors or maquiladoras, as they are called in Spanish. The maquiladora is a uniquely Mexican phenomenon that came to prominence in the mid-twentieth century.

The idea is that a company in Mexico can temporarily import goods or services that will then be transformed or manufactured, and eventually re-exported as finished or semi-finished products without incurring any duties or other taxes. The system was first introduced in an effort to attract high-level manufacturing operations to the coun-

try, a goal that has been achieved. However, it has drawn criticism from certain quarters for allowing foreign-owned firms to profit from cheap Mexican labor without delivering any real value to the country.

From an automotive perspective, the system is ideal. A range of companies has now sprung up that combine the role of maquiladora with that of a service center. Acero Prime imports large volumes of auto-grade steel coils on behalf of its clients and also provides a full warehousing service, delivering the coils or processed sheets as and when their clients require them. “The supply chain is getting very tight and customers do not want to keep a lot of inventory. We do shorter runs and deal more with customers shipping material in by truck because they want to keep less inventory,” said general manager Arturo Marroquín.

Toll processors do not buy or sell steel like a traditional distributor. They are never the legal owners of the material; they simply manage the importation and storage aspects. Marroquín now plans to expand the business by incorporating further processing technologies such as blanking and laser cutting in order to supply products that integrate more easily into the assembly lines. •



Image: Acero Prime

Arturo Marroquín



Director General
ACERO PRIME

●●● Can you tell us about the history of Acero Prime and its recent expansions?

Acero Prime is celebrating its 15th anniversary this year. The company was founded as a joint venture between the U.S.-companies Feralloy Corporation and U.S. Steel and the Mexican company Intacero, a representation of USS International in Mexico. After two years of preparation, we began our operations in January 1999 with one slitting line in San Luis Potosí. In 2000, we started the expansion for our second slitting line and the construction of our facility in Ramos Arizpe, to support the launching of a new automotive program so Acero Prime built a warehouse that started up operations in 2001. We expanded our operations to Toluca to be closer to our customers, so in 2003, we built a 4,000-square meter facility for coil storage with a rail inside the building. Today, we have two slitters at our facility in San Luis Potosí; at Ramos Arizpe, we have one slitter and one multi-blanking line and in Toluca we have a warehouse and distribution center.

Acero Prime has a unique business model as neither a trader nor a distributor; can you tell us more about the strategy behind your value proposition?

Acero Prime is a toll processor. We are not engaged in buying and selling steel; instead, we integrate solutions for our customer to optimize the supply chain of different industries such as automotive, appliance, heavy equipment and manufacturing in general. We work with domestic and foreign companies and we provide services such as temporary importation, using the IMMEX program, which is widely used among the highly export industries; we also

provide coil storage, processing, and delivery to stamping plants and OEMs.

How much of your business is dedicated to the automotive sector?

Roughly 80% to 85% of our business is dedicated to the automotive sector. We are also diversifying, but the automotive industry is continuing to grow and providing more opportunities for us. In terms of market expansion, we would like to grow more in the appliance area and are interested in working with heavy equipment manufacturers.

What is your average capacity and how do your capacity expansion plans fit in with industry trends?

We beat a record in 2013 when we handled and shipped 550,000 metric tons (mt) of steel. Products sit in our warehouse for two months if coming from Europe or Asia, and one to one and a half months if coming from the United States or Brazil. The supply chain is getting very tight and customers do not want to keep a lot of inventory. We do shorter runs and deal more with customers shipping material in by truck because they want to keep fewer inventories. In terms of our rail network, we have a rail capacity of 13 coil cars per day in Ramos Arizpe, while we have the capacity for 18 rail cars in San Luis and eight in Toluca.

While Acero Prime is mostly working within NAFTA, how important is Asia as a source for material?

Our customers choose their source. We mostly work within NAFTA



but have some customers using sources from Asia. We help them with all logistics from the port and provide storage, processing and delivery services. We are currently moving over 70,000 mt of steel per year from that region.

Acero Prime has grown as demand for its services is increasing. What are the main drivers behind this demand spike?

The automotive sector's growth is contributing significantly to this, as are the relationships that we have developed with our long-term customers. We are also trying to work more with domestic mills now that they are looking to increase their supply to the high-end markets. We are expecting the pickup that we will see to come from domestic mills.

As domestic mills move into high-value specialty steels, how will this affect the steel imports that are highly used in the automotive industry?

While the domestic production of specialty steel will definitely substitute some imports, the demand in the manufacturing sector will continue to grow in the future, allowing imports to fill the gap between the consumption and production of steel in Mexico.

Acero Prime is working to build stronger relationships with domestic mills to provide them with services beyond their main business as a mill.

Our solutions benefit all the players in the supply chain of the industries that we participate in, including the steel mills, stamping houses and OEMs. We see an opportunity to service domestic mills, as they increase their participation in the automotive industry.

As foreign automotive companies increasingly come to Mexico, such as Audi and Volkswagen, why should they come to Acero Prime rather than to a service center?

We are differentiated from other service centers. Acero Prime can provide solutions that make automotive companies' work easier. The original idea of a service center was to buy steel and keep inventory for servicing customers who cannot go directly to a mill. Most of the service center companies in the field use this traditional model. Acero Prime is a toll processor and as such we do not buy or sell, we determine a fee for the servicing of processing and storage. We are targeting high-volume customers and we are trying to add more value to supply chains. We have 15 years of experience and we can provide customers with competitive services and solutions so that they can focus on their core expertise.

How is the company working to further expand the technology and services it offers to customers?

We are evaluating different ideas about how to integrate services and make our customers' day-to-day work easier. From adding new services and processing capabilities to growing in different regions, we are continuously looking to provide solutions to enhance our customers' position in the supply chain.

What is your vision for Acero Prime in the next five years?

We have a 2020 goal and are on our way to double our business by offering additional capacity and services and adding more value to our customers by growing our facilities and locations. •



Juan Carlos Herrera



Regional Sales Manager,
Press Technology Division

KOMATSU

●●● Komatsu is best known for its large trucks and excavators for the mining and construction industries. What can the company offer to companies involved in the steel sector?

Komatsu has two divisions relevant to steel processing: press technology and cutting tools. The press technology division has been present in the Mexican market for approximately 18 years and we have many clients throughout the metallic processing industries. We sell primarily to clients involved in the automotive, electrical, furniture and appliances sectors. Aside from these main areas, we also have some involvement in aerospace and a handful of agricultural customers who use our servo presses to create frameworks for greenhouses.

What are the advantages to Komatsu's free-motion servo presses compared to more conventional machines?

In a traditional mechanical press that makes

use of a conventional clutch and brake system there is only one axis of motion: the press can simply move up and down. Since 1994 Komatsu presses have followed a different model. We make use of servo-motors rather than a clutch and brake system and this serves to drive down energy consumption. Compared with a standard mechanical press, our servo presses consume between 30% and 40% less energy per year. This system also allows for much more flexibility in terms of the actual movement of the press. In the past, it was necessary to adapt the material to fit within the press, but now our machines are able to adapt to the material, which makes life much easier for designers. It also means that our presses are able to work with a more diverse range of metals including titanium and stainless steel. Our machines operate with much more precision than a standard press and it is possible to control speed and pressure to minute levels of detail so as to avoid exerting undue stress on the material.

Could you tell us some more about Komatsu's cutting division in Mexico?

Komatsu's cutting division has only been present in Mexico for one year, so we are in the early stages of developing the business. In the coming years, we hope to bring in more staff, open up a large warehouse and increase our inventory levels. We now have a significant number of machines in operation around the country and it is important to maintain high levels of stock pieces to minimize downtime for our customers.

How have you found demand for your machines given that much of the market in Mexico is composed of smaller companies without substantial capital reserves to invest in cutting edge technology?

Small and medium-sized enterprises (SMEs) form an extremely important part of our client base in Mexico, but when dealing with them a different approach is often needed. SMEs often face serious budget limitations and must turn to finance companies or government assistance programs to invest in new machinery. As such, there is a strong preference to purchase used equipment, so we are working to educate the market about the value of buying new machinery. It can be difficult for our smaller clients to pay up front so we working with several finance companies and now offer attractive payment schemes, including 12

months paying installments with no interest, which then increases to around 2.5%. Unfortunately, banks in Mexico see loans to small companies as extremely risky and so often charge exorbitant interest rates. As a result, finance companies, which offer far more competitive rates, are becoming much more prevalent in the market.

What do you see as the main drivers of growth for Mexico?

The automotive industry will be of pivotal importance to the growth of the Mexican economy and to our own business. Many important international carmakers are now viewing Mexico as an ideal company to work in: Mazda has recently established a manufacturing base in Central Mexico, and Audi is setting up a factory in Puebla. We have just heard that Honda will also be developing a second plant in the coming years and Toyota and BMW are both considering production plants in the country. In parallel, the structural reforms to the energy sector that will open up Mexico's oil and gas reserves to private investors will attract a new swathe of foreign investment. While we are not involved directly in hydrocarbons, it is a positive move for the economy and boosts our international profile.

Beyond the simple provision of equipment, what level of services does Komatsu offer to its clients?

Komatsu Mexico has a strong team of engineers who are always on hand to deliver spare parts and services should any problem arise with one of our machines. We also offer periodical inspections on an annual or six-month basis. Of course, we also have the full support of Komatsu America, which is a much larger operation with an exhaustive inventory of spare parts, which can be shipped to Mexico in a matter of two or three days. We have built up a solid network of collaborators in areas such as transport, customs brokerage and insurance, which ensures that we are able to move parts between the two countries with ease. ●



Esteban Rivero

●●●
Dirección Comercial
MINERA AUTLÁN

●●● **Could you start us off with a brief history of Minera Autlán and the milestones that have occurred since its inception?**

We are a 60-year-old company that has been built around manganese. We are integrated in all aspects of manganese from extraction through to beneficiation into manganese nodules, which a very unique manganese product. We are the only producers of manganese nodules in the world. This is a unique product that was developed in-house in the 1960s, and has been evolving since then, that allows us to produce our ferroalloys in a more cost effective way. We use the manganese nodules to produce silicomanganese and ferromanganese. It is important to mention that approximately 90% of manganese is used for the steel industry and 10% is allocated to a variety of other industries. We are the only integrated manganese company in North America and hold the only sizable manganese reserves in the region.

In terms of milestones, at the end of last year, Minera Autlán invested in power generation. This is a relevant point due to the energy reforms that are currently taking place in Mexico. We believe that these reforms will be a powerful tool for the entire country. As energy is one of the most expensive raw materials, we have integrated into the hydroelectric power generation in order to reduce our costs. This energy investment is now able to cover 30% of our energy needs. Last year, in addition to the investment in the energy sector, we also began production at our new open-pit mine called Naopa. This is a large investment and one that will ensure production for the next ten years.

In 2012 and 2013, Minera Autlán broke production records in terms of manganese ore production, and this year, we are in line to see record numbers in both manganese ore and ferroalloy production.

Although we have been certified in the past few years, a large aspect of our business operations is focused on social responsibility and has been for the past 60 years. We are engaged fully with our people and work with the communities in which we operate in order to provide opportunities.

How do you expect the energy reforms and infrastructure investments to af-

fect Minera Autlán's business operations moving forward?

As mentioned, we have been investing in the energy sector because we are optimistic about the reforms being introduced. We believe that we will be able to not only supply the energy that our mines and production plants utilize but also to supply power back to the grid in the long run. Obviously, this will most likely mean more competition that will translate into lower energy costs but we hope that this will be a profitable market in the long term.

The reforms will also attract further investments in oil and gas, and these projects will require large amounts of infrastructure to support their operations. These investments will require substantial quantities of steel, and as we are 90% correlated with the steel industry, we expect large growth due to these infrastructure investments.

With regard to the projects that are going to be tendered by CFE or Pemex, we are hoping that the government will allocate national content to these projects. This means that a proportion of the materials of each project will be sourced domestically here in Mexico. Obviously this benefits our operations as well as the Mexican market as a whole.

What are the objectives and goals that Minera Autlán hopes to achieve moving forward?

First of all, Minera Autlán will continue to support the national steel industry, and we will continue to not only provide, but to also be strategic partners in the process. Due to the important correlation with this industry we will continue to help the Mexican steel industry prosper and grow moving forward.

Secondly, we want to be as efficient as producers as possible. We have invested in our own energy division in order to service our needs and raise total energy supply. It is our hope that as this investment into the energy sector prospers, we will eventually be able to provide energy backs in to the grid and cover 100% of our operating energy uses.

Finally, we want to focus on creating more efficient processes in order to produce more and better manganese nodules with as little waste and sustainable practices as possible. ●





AFTER AUTOMOBILES CONSTRUCTION, FOUNDRIES, AND RAILROADS IN MEXICO



“The government has pledged \$400 billion to the development of major new infrastructure and reforms of existing ports and railways throughout the country. However, as of yet, most of these projects remain at the planning stage...There will be a number of opportunities created by the energy reforms and this public spending commitment, but the official timelines are very optimistic and it will take a few years for the benefits to be felt.”

- José Calixto Perez del Blanco,
Director,
Ferre Barniedo

CONSTRUCTION

Big Numbers, but Where Is the Money?

●●● Although Mexico’s construction industry currently ranks just below Brazil’s as the second largest in Latin America, with a total value of \$75.7 billion, in recent years its performance has been less than stellar. After a forlorn 2012, the industry contracted by 4.5% in 2013. As construction applications account for more than 49% of metal structures and products, and 29.5% of forged and stamped metal products in Mexico, this downturn has had serious repercussions for the mills. It is generally accepted that the main reason behind this drop in demand is a lack of government projects coming online. State investment accounts for more than half of all Mexico’s construction projects, and since 2012, the government has been preoccupied with pushing through its extensive reform agenda, rather than focusing on project implementation.

That said, there is some cause for optimism. The first quarter of 2014 saw the beginnings of a moderate recovery and government infrastructure spending was up 14% on 2013 levels. “Now, we are starting to see a shift towards more active implementation of infrastructure projects,” commented Alfonso Camargo, director for commercial steel at DeAcero. “As the state coffers are re-opened and cash begins to flow more freely we should see a sharp rise in construction, and a subsequent boost in the demand for steel products.”

Aside from the slowdown in government spending, analysts also point to the house- building sector as a weight holding back construction growth. The market crashed in 2013 and many domestic residential property developers went into bankruptcy. The cessation of their operations has not been compensated by the arrival of international investors, who tend to view the sector as still too risky. This is an area that the government will have to address as a priority, as the country still suffers from an urgent need for affordable housing. It is estimated that it will be necessary to deliver approximately 500,000 new houses per year to satisfy demand, but current averages hover around 100,000 to 150,000.

There is, however, one notable exception to this trend: Puebla. The city of nearly six million people is the fifth largest in Mexico and has been growing rapidly for the past few decades, primarily thanks to the arrival of Volkswagen (VW) some 50 years ago. VW’s plant is now the largest automotive facility in the Americas and has transformed Puebla into a beacon for young engineers. “More than 150 universities have been established, bringing high volumes of students and young people, which has stimulated demand for housing: right now 500 new houses and 4,000 apartments are under construction,” said Jorge Zarick, director of local steel distributor, Tycsacero.

Looking to the medium-term, economists are forecasting a rebound in Mexican construction and some are predicting growth of 5% by

2015. Whether this is accomplished or not is highly contingent on the government’s success in rolling out its ambitious National Infrastructure Plan.

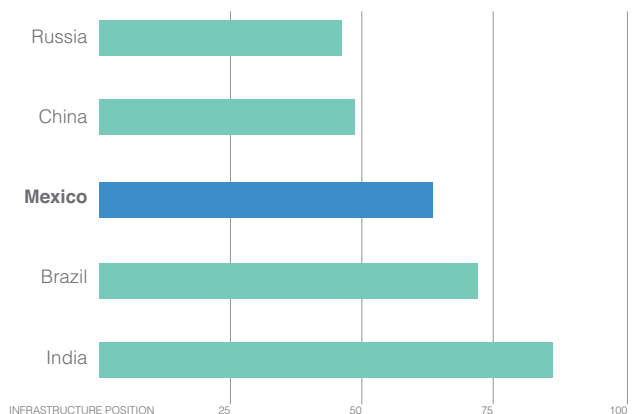
Announced in April 2014, the investment program encompasses some 743 projects across six areas: communications and transport; energy; water; health; housing; and tourism. Total investment is projected to reach \$619.1 billion, of which 53% is earmarked for Pemex. This high figure has been the subject of much debate, but Humberto Ibarrola of the Chamber of the Mexican Construction Industry (CMIC), is confident that we should have faith. “Our researchers at CMIC have extensively analyzed the plans laid out within the National Infrastructure Program and we believe the figure of \$619.1 billion to be accurate.”

To meet this lofty target, the government is counting on a much higher proportion of private participation than previously seen in the country; up to 37% of funding is expected to come from the private sector. This will be enabled in part by a new framework to encourage more public-private partnerships (PPPs) and also by the arrival of purely private investment into the oil and gas sector.

While many of the projects are linked primarily to road construction and will have a relatively low impact on steel demand, there are several large expansions planned for the country’s major ports, as well as the construction of a Transpeninsular Train in the Yucatán, all of which will be steel-intensive developments. Skeptics point out, however, that the last National Infrastructure Programme, overseen by former President Felipe Calderón, pledged 152 billion pesos to 76 projects, but only 25 of these were ever completed. As 2015 gets

MEXICO'S INFRASTRUCTURE COMPARED TO BRIC COUNTRIES (2013-2014)

Source: Management of Economy and Finance, CMIC with data from World Economic Forum 2013-2014



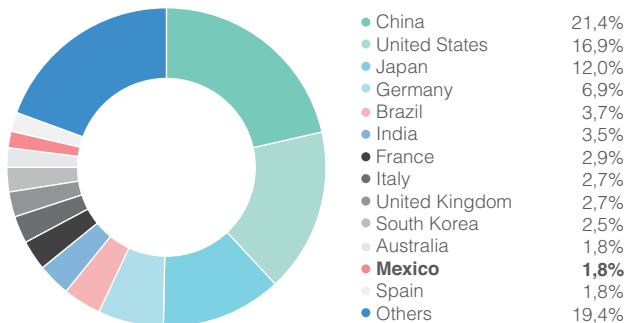
underway, we are yet to see ground broken on most of these new major public works. More cynical commentators fear that the current spending commitments may evaporate in much the same way as the previous wave. “The federal government has committed 40 billion pesos to infrastructure investment in the state of Michoacán but, as of yet, this has not materialized,” complains Victor Cairo, CEO of ArcelorMittal Mexico.

The expansion of Michoacan’s Lazaro Cardenas port has long been a key factor in the public spending agenda and, for many years, it has been showcased as one of Mexico’s truly world-class logistics hubs. Developers now want to boost capacity and leverage its close proximity to the United States in order to attract freight away from the heavily congested Port of Los Angeles.

At the end of the day, Peña Nieto, unlike his predecessor, has a proven track record of infrastructure spending and has repeatedly shown his strong commitment to encouraging private investment in the sector. In this light, the issue is not so much whether or not these projects will come to fruition, but when. Spokesmen from the government claim that the ball is already rolling, but the state bureaucracy is a lumbering giant and it will take some time to build up sufficient momentum. Calixto Perez of Ferre Barniedo’s views are representative of the whole sector in this regard: “We are optimistic about the future and we believe that there will be a number of opportunities created by the energy reforms and this public spending commitment, but the official timelines are very optimistic and it will take a few years for the benefits to be felt.” •

VALUE OF CONSTRUCTION INDUSTRY BY COUNTRY (2013)

Source: Estimates made by CMIC’s Management of Economics and Finance with information from Oxford Economics and Global Construction Perspectives.



Mexico ranks 12th in the world





Ing. Humberto Ibarrola Diaz



Director General

CHAMBER OF THE MEXICAN CONSTRUCTION INDUSTRY (CMIC)

●●● **Many commentators asserted that 2014 see a new boom in the Mexican economy, but this did not happen. What are the reasons behind the continued stagnation?** Initial predictions for GDP growth in 2014 were for 2.7 percent growth, but this was overly optimistic. We will likely see a more modest increase of approximately 2 percent, due to the fact that Mexico has built up substantial debts in recent years and must now pay them off. Furthermore, the government is focusing on implementing profound structural reforms that will drastically alter the business environment and will surely help to revive the economy, but they will only begin to have a tangible effect on the economy in 2015. At this point we will see the beginnings of a boom across many sectors, including construction.

How important is construction to the Mexican economy as a whole?

In 2013, the Mexican construction industry contracted by 4.5 percent, primarily

as a result of the government's focus on planning projects that will be developed after the structural reforms come into force. State investment accounts for 60 percent of major construction projects, so the drop in government spending had a significant impact. Nevertheless, the sector was still worth \$75.7 billion, making it the 12th largest construction industry in the world by production value. Construction accounts for some 7.6 percent of GDP and is the second highest provider of employment after agriculture. In addition, the multiplier effect of the industry is considerable: it is estimated that for every 100 pesos invested in construction, 43 pesos are spent on materials and related services. In 2014, the sector has undergone a moderate recovery and public sector investment in construction rose 14 percent over 2013 levels.

How would you characterize the relationship between the steel industry and the construction industry in Mexico?

The construction industry enjoys a very good relationship with the steel industry, which is based out of mutual necessity: without steel there could be no construction, and without construction, steel mills would not have enough clients for their steel. 49.4 percent of manufactured steel structures and products are destined for use in the construction industry, and this figure is set to increase because of the urgent need to build new houses, roughly 500,000 per year, to satisfy the demand for residential property. The current average hovers between 100,000 and 150,000. The structural reforms will offer opportunities for outside investors and will open the door for new property developments, which will in turn contribute to a substantial rise in demand for steel. Although Mexican steel production is rising, it will not be sufficient to satisfy demand, and imports will still be necessary.

Through the National Infrastructure Program, the government plans to invest \$400 billion in new infrastructure between 2014 and 2018. Is this a realistic target?

Our researchers have extensively analyzed the plans laid out within the National Infrastructure Program and believe the figure of \$400 billion to be accurate. In terms of infrastructure quality, Mexico is ranked 64th in the world, which is far below where

we should be when you consider other economic metrics, so heavy investment is sorely needed. 53 percent of the total investment will be directed towards the energy sector, with the remainder divided primarily between housing, transportation and communications, water and tourism. Many of these projects, including the Transpeninsular Yucatán Train, the expansion of Veracruz port and the expansion of Mexico City's airport are underway, but the majority will start in 2015. If all the proposed plans are carried out, Mexico would rank among the top 25 economies in the world for infrastructure quality by 2025.

Construction in Mexico is dominated by small to medium-sized enterprises (SMEs). As the economy matures, will these players be able to survive in their current form?

The role of SMEs cannot be overstated. Of the chamber's 10,000 member companies, 9,400 are small companies. While the large construction companies have the capacity to oversee the largest projects, statistically speaking they are far less important to the economy than SMEs. The government plans to bring out a series of programs that will help SMEs grow and develop their capabilities.

Could you provide us with an overview of the main activities in which CMIC is engaged?

As the predominant association for the construction industry in Mexico, CMIC's activities are highly diverse. We have two main educational institutions: the Training Institute of the Construction Industry (ICIC), which delivers practical courses in construction trades, and the Construction Technological Institute (ITC), which offers graduate level programs in advanced construction techniques. Further to this, through the Inter-American Federation of the Construction Industry, we have agreements with our counterpart organizations throughout Latin America to promote new techniques and best practices on a regional level. We encourage foreign companies to participate in the Mexican market, but only if they operate in a fair and equitable manner. Throughout the year, CMIC organizes a number of conferences, seminars and other events to bring together relevant actors across many different sectors including infrastructure, transport and oil and gas. •



Jorge
Zarick

Director General
TYCSACERO

●●● **How did Tycsacero come to be such a strong name in Mexico's steel and construction industries?**

Tycsacero was born out of the remains of a previous company, Trefilados y Clavos, which was a producer of wire products and nails. In 2000 we stopped production activities and became a pure distributor. In 2008 we created a new company, which is Tycsacero as it exists today. We accept contracts of any size: from one nail through to large-scale construction projects. The largest project we have worked on so far is the LNG plant at the Port of Manzanillo, which required approximately 16,000 metric tons (mt) of rebar. We also have a key client that is involved in the construction of cement plants, which has opened many doors for us and allowed us to grow substantially.

Our main supplier is Arcelor Mittal, and our secondary provider is Deacero. We are only able to go to other suppliers in the case that Arcelor Mittal does not produce

a specific product that we require, or they are unable to supply us due to problems within their network.

Since the year 2000 we have formed part of a chain of industrial suppliers led by Cemex, which is known as Construrama. Through this arrangement we are now one of more than 2,000 distributors of Cemex brand cement. In addition to cement, the network also supplies four basic steel products: rebar, nails, wire and heavy wire, and some suppliers also include structural steels.

Within your sales mix, what is the balance between large projects and smaller day-to-day transactions?

Our bread and butter is made up of small to medium-size housing projects, for which a developer will build 50 to 100 houses, or 15-storey apartment block. Our participation in large industrial projects is concentrated in new cement plants and breweries. While these projects can be very profitable for us because of the required volumes, demand is not consistent. We pride ourselves on being a serious company that can provide extremely high levels of service to our customers; this is why they keep returning to us. Price is undeniably a key factor in attracting customers, and our prices are competitive, without being the cheapest or the most expensive in the market.

The auto industry seems to be the main driver for growth within the Puebla area. Are you targeting this market yourselves?

We have been indirectly involved in the auto industry for nearly 20 years through several of our clients that are part of the auto supply chain. Two years ago, 70% of our sales were generated outside of Puebla. Today, the situation has equalized and approximately half of our sales are made within the state and half outside. Most of our sales in Puebla are smaller volumes, while the larger projects are usually found in other states.

Why would a large client in a different state come specifically to Tycsacero instead of purchasing from the mill?

It is true that a customer that requires 5,000 mt of rebar for an industrial development could go to another distributor, but they prefer to use us because we have a proven track record of responsibility and quality

service. Generally speaking, the mills do not sell directly to end users, even if the volumes are quite high. That being said, Gerdau is starting to skip out the distributors and deal directly with customers. We see this as a negative development. Distributors in Mexico are a very important link in the supply chain and have experience in delivering what our clients need. It is not economical for a large mill with 10,000 end users to distribute their products effectively.

How are you able to compete against Home Depot given the size and scope of their operations?

When it comes to steel, Home Depot destroys prices. It has such a huge range of different products and can offer simple materials like cement and rebar with margins of just 1% or 2%. Other items such as power tools and finished pieces like doors are sold at a huge markup. Distributors that specialize in rebar obviously cannot work with margins of 1%. We need at least 7% or 8% to survive. In the United States, distributors sell rebar with margins of nearly 16%. We have introduced several new tools to make our offer more competitive. We offer payment by credit card with 30 days interest free as well as rewards for loyal customers that spend a certain amount in Construrama stores.

Where do you hope to lead Tycsacero over the next few years?

Looking forward, steel distributors are stocking new product ranges to move into new markets. Furthermore, we are working closely with the mills to ensure that they understand our needs and the dangers that the sector faces from external competition. We have just opened a retail branch to specialize in structural steels such as beams, angles and bars. It is possible to sell these products with a slightly higher markup and is under much less pressure than the rebar market. ●

FORGING AHEAD

Foundries in Mexico

- Mexico's foundry industry has seen strong growth over the past five years. In 2011, the World Foundry Organization ranking of casting industries put Mexico in 11th place. By 2013 the country had overtaken Korea, France and Italy to become the seventh largest global player, contributing approximately \$4.2 billion to the national economy.

Unlike the steel industry, which is facing overcapacity both in terms of production volumes and service center facilities, Mexican foundries are struggling to keep up with the surge in demand. 75% of castings produced in the country are destined for the automotive sector, which is continuing to grow rapidly. In the long run, this over-reliance on auto production could prove to be a point of weakness as demand for cars is cyclical: a sudden drop in sales volumes could send shockwaves through the industry. To combat this, many foundries are diversifying their client base, carving out niches producing specialized pieces for the oil and gas industry or components for electrical motors. For now, however, these remain minority markets: oil and gas accounts for just 4% of total demand. "By opening up the oil and gas industry to foreign investment we believe that the energy sector's participation could increase up to approximately 6%. In parallel, we will see a slight decrease in the dominance of the automotive sector," claims Bruno Jaramillo, executive director of the Mexican Foundry Society.

Traditionally seen as a sector dominated by small operations, heavy investment from foreign casting houses has shaken up market dynamics. Large enterprises have flourished, while smaller jobbing foundries have lost out. According to statistics from the Society, 5% of SMEs have closed their doors since 2011.

Germán Sánchez Madrigal is sales manager of Qualy, a medium-sized foundry located on the outskirts of Monterrey that caters to a range of high-level clients in the USA. He believes that many of these new foundries are heading south due to difficulties meeting the high environmental standards required in the USA. "Environmental regulations are more relaxed in Mexico. Qualy fulfills government requirements, but we believe there is more that can be done in this regard. Our facility has equipment to measure and prevent pollution, such as filters and measuring stations on the roof.

We are very concerned about the foundry's relationship with the government and the community around us."

While environmental compliance may not be an issue for Mexican casting, the industry is not without its challenges. Patricio Gil is director of Blackhawk, one of Mexico's largest ductile iron foundries. He sees the lack of human capital as an issue that will become more acute in the future. "The enrollment in foundry or metal related degrees in developed countries is continuing to decrease year after year. We have been creating positions for graduates in order to attract more young engineers out of school. We are trying to get young people more excited about the industry," he stated.

A shift towards higher levels of automation will help to mitigate this problem, but there will always be a need for qualified operators and, in the absence of new personnel coming through the local universities, Mexican foundries will have to look elsewhere for their new members.

Another setback for domestic forges and foundries, particularly those looking to focus on pieces for the automotive sector, is the relative lack of specialty steel production in the country. Forja de Monterrey is a good example of a local operation that has been able to integrate itself into the automotive supply chain by adopting international standards and investing in strict quality control mechanisms. Director Edgar Moncayo is optimistic about the impact that increased specialty capacity will have: "It is going to affect our business by shortening our purchasing cycle. Currently our purchasing cycle takes four months, so we must predict the market in advance. A specialized steel mill in Mexico would reduce the cycle to two months, shortening our lead times and reducing our credit lines to buy the steel."

Nevertheless, he does not believe that a more reliable supply will be enough to attract new domestic investments in the forging industry. The upfront capital costs associated with opening a new forge are extremely high. Furthermore, the process itself is self-destructive, leading to very high operational costs. The level of expertise needed to run such an enterprise is very specific and not very well developed in Mexico. •



Patricio Gil

Executive Director
BLACKHAWK

●●● Could you provide a brief history of Blackhawk in Mexico and its milestones since its inception in 2001?

As a subsidiary of Quimmco Group, we are one of the top five foundries in all of Mexico with a primary focus on the automotive industry, which accounts for approximately 75% of sales, and farming equipment, which makes up the remaining 25% of sales. Following the recession in 2008, the organization's strategy shifted to focus on the United States. We started developing customers in the United States, and this strategy has led us to grow around 30% a year since the recession. We have invested in increasing our capacity and last year we built a second foundry. Our success can be attributed to the right focus on the right market. Mexico, especially in the north, has proven to be the right place to manufacture, and this growth will continue moving forward.

We cover a very large area. We have clients from southern Mexico up to the

northern United States. We have also done some spot selling to clients in Argentina and Italy; however, this aspect of our business is not constant.

What is the position and strategic importance of Blackhawk within the Quimmco Group?

The Quimmco Group is a large group valued at \$1.2 billion. Within the group, Blackhawk is actually one of the smaller players. We provide some of the casting materials to other organizations within the Quimmco Group, but we also provide to other customers. One important advantage of the Quimmco Group is the ability to incorporate various processes like casting, pattern making, forging, precision machining and service centers, which allows clients to have a fully integrated service. The organizations within the group really work to complement each other. In 2003, 100% of Blackhawks sales were to the Quimmco Group. In 2005, we began to search for different clients and today 40% of our clients are external to Quimmco Group.

We primarily focus on larger clients. On the automotive side, we can be classified as a tier two or tier three supplier. We can machine the products ourselves or leave the machining efforts to the clients or next tier on the value chain.

Can you tell us more about the production process utilized by Blackhawk?

The primary raw material utilized is steel scrap that comes from stamping plants or big machining plants. We then melt the scrap using an electric induction furnace. This requires a substantial amount of electrical energy, which can be seen as the second major raw material needed. Carbon, copper, magnesium and other metallic elements are then added to make the proper alloy. We use semiautomatic equipment to create the molds using sand, clay and chemical binders as the main raw materials. However, the main materials utilized from a cost standpoint are steel scraps and energy. Due to the fact that we supply for much larger corporations, they often prefer to handle transportation and logistics.

We also focus on both gray and ductile iron. In the past, in 2003, we produced 100% gray iron. Today, we are producing 95% ductile and 5% gray. Ductile iron is more complex and we are able to be more

competitive by producing products using this grade of metal.

Overcapacity is proving to be a large problem globally. Do you see the fact that Mexican companies are continuing to invest in building capacity as a problem?

More manufacturing is moving to Mexico, and demand will rise, as these organizations continue to invest. Both domestic and international companies are coming to Mexico and will continue to need our products. Overcapacity will not be a problem because Mexico offers competitive advantages for the metal casting industry, so more investment on the foundry industry will come as well.

The future outlook for the foundry business and Blackhawk looks promising but what challenges exist moving forward?

The first is the cost of utilities. Electricity and other utilities are huge operating costs for us. In order for us to be competitive internationally we must ensure that we are able to control these costs, via technology and processes, and raise awareness of these costs with government bodies. If you compare a foundry today to 20 years ago, you would be amazed with how much more efficient we are now than in the past. However, we see these costs incurred to assure the efficient use of energy as an investment, which will save money in the long-term.

People are another challenge. Enrollment in foundry or metal related degrees in developed countries continues to decrease annually. We have been creating positions for graduates to attract more young engineers.

What role does automation and technology play in the foundries?

We have different kinds of automation depending on the operation: for dangerous or hot operations, where it is simply unsafe to use human capacity; for controlling and regulating heating and energy use; and for solidification simulations, where the computers can simulate how the casting is cooling down. Automation and technology are the only way to fulfill the constantly increasing quality requirements of the market. ●

Edgar A. Moncayo

●●●

Director General

FORJA DE MONTERREY

●●● Can you tell us about the history of Forja de Monterrey and your relationship with Grupo Quimmco?

Forja de Monterrey began production in 1998 as a forging company. Today we have 50% to 60% market share of front axle I-beams for commercial vehicles, including class 7 and 8 trucks and buses, in the NAFTA market, as well as strong participation in the Brazilian market. We supply to major companies like Axle Alliance, Volvo, Mack Trucks, Sisamex, Meritor and Scania. We have supplied as far as to Australia for several parts in our I-beam business. We supply different crankshaft programs to Ford and are a tier two supplier to General Motors for almost a decade now. Grupo Quimmco, our parent company, owns different companies in the metal mechanical, construction and chemical industries. Forja de Monterrey acts as its forging division.

How were you able to develop your U.S. client base, as many U.S. auto manufacturers have been reluctant to deal with foreign forging companies?

Forja de Monterrey began by manufacturing I-beams, which is essentially a safety item in that the steering axle. The quality requirements for I-beams are very high. Forja de Monterrey has metallurgical labs to ensure that the quality of our steel meets the highest industry requirements. We use special steels, which are considered to have specific properties for better performance and application. In addition, we have ISO 140001 and ISO-TS 16949 certifications to meet industry demands.

Forja de Monterrey makes use of microalloy steels. Can you explain the benefits of using this technology?

Both alloyed steels, which we use for I-beams, and microalloyed steels are special steels; however, they have different applications. Microalloyed steels are used, for example, in applications for Volvo in Sweden for load transportation. Because the forging process is transparent, both of Forja de Monterrey's lines can use either steel. The difference between the two applies to the heat treatment. The alloyed steel requires conventional quenching treatments, while the

microalloy does not require quenching. Using microalloys has the benefit of energy saving because you do not use gas in the process, as you do with alloys, while at the same time reducing deformation as a result of the thermal cycles of the heat treatment process.

Scrap prices have increased along with prices for specialized metal used for alloys. What strategies are you using to deal with these cost increases?

We use base prices negotiated in long-term contracts. There is a variable portion of the price, for which we use the American Metal Market's standard monthly price. Depending on when the shipments are going out, we determine the variable portion.

Forging companies in Mexico have a handicap because domestic steel mills are not producing specialized materials. These materials that we use come from the United States and while our facility is heavily automated, U.S. plants have more automation. Therefore, our lower labor costs in Mexico are not a source of competitiveness.

We are seeing a lot of developments within Mexico, as new mills are starting up with a focus on specialty steels. Do you see this forecasted broad diversification of production affecting your business in the near future?

Several companies are seriously pursuing projects for steel mills that produce special steels. It is going to affect our business by shortening our purchasing cycle. Currently our purchasing cycle takes four months, so we must predict the market in advance. A specialized steel mill in Mexico would reduce the cycle to two months, shortening our lead times and reducing our credit lines to buy the steel.

Do you anticipate that the introduction of a domestic, specialized steel supply will stimulate the entry of new forges into Mexico?

Forging is a very expensive business with high upfront capital investment. The processing itself is also self-destructive, making operating costs very high. As well, the quality demanded by customers is very high so the finishing of the machine must be at that level. With Forja de Monterrey's certifications and systems, our programs

are well-managed and of very high quality. We are competing with the best in the world. As such, we do not see the introduction of specialty steel capacity triggering a substantial increase in new forges.

How did Forja de Monterrey build up its initial expertise, the level of which is rare in the domestic market?

When Forja de Monterrey's owners first started the company, they brought in outside expertise from Spain and Brazil and began training our staff. Today, we are all Mexicans. We have all the disciplines of engineering within the company from hydraulics to metallurgical and do not depend on people outside of the limits of our property. We also have our own design and simulations on site. In terms of the maintenance of our machines, we develop our own technicians to run and service the machines.

For Forja de Monterrey, which has achieved Clean Enterprise certification, what is the company's approach to environmental regulations set by the government and by the company itself?

In order to be a top industry supplier, you need to meet best-in-class industry standards such as Q1 certification, which requires being ISO 14001-certified, ISO-TS, and a strong administrative culture. It is important that our people understand that environmental controls are non-negotiable. At our facility, we have very strict control over industrial water and waste management. It is part of our company culture.

As we see more growth in the automotive sector and new steel capacity coming online, where would you like to see Forja de Monterrey five years from now?

The industry is moving towards having more forging capacity. We are seeing a trend in the crankshaft business towards more efficient smaller engines, with the technical demands of bigger engines. Due to the necessities of higher torque and performance, these pieces cannot be casted. Eventually we need to grow to install more high-speed lines of presses to forge crankshafts. Those investments are going to be made in the near future. As for the I-beam industry, it is growing but ultimately is cyclical. The biggest growth that we expect to see is going to come in building smaller and higher volume engines.

Do you have a final message for our readers about the future of Mexican steel?

A lot of companies are making big investments in Mexico and domestic companies are growing, which is pulling in more suppliers. Mexico is becoming more industrialized as a big actor in the industrial growth of the region. We have very talented technical experts and are seeing more Mexican R&D. There are more technical centers to look for innovations and more universities. In the next ten years, we are going to be very busy, supplying not just for North America but also the world. •

FORJA
DE MONTERREY

**THE POWER BEHIND
THE POWERFUL TRUCKS**

Forja de Monterrey began production in 1998 as a forging company. Today we have between 50% to 60% of the market share of the fabrication for I-beams of front axles for buses and vehicles in the United States. We supply to major companies like Axle Alliance, Volvo, Mack Trucks, Sisamex, Meritor and Scania. We have supplied as far as to Australia for several parts in our I-beam business. We supply crankshafts to Ford and we are a Tier 2 supplier to General Motors. Grupo Quimico, our parent company, owns different companies such as the tractor company CNH. Forja de Monterrey acts as their forging division.

Since our products are essentially safety items, the quality requirements are very high. Forja de Monterrey has metallurgical labs to ensure that the quality of our steel meets certain parameters. We use special steels which are considered to have specific properties for better performance and application. In addition, we have ISO 140001 certification to meet industry demands.

Forja De Monterrey, S.A. De C.V.

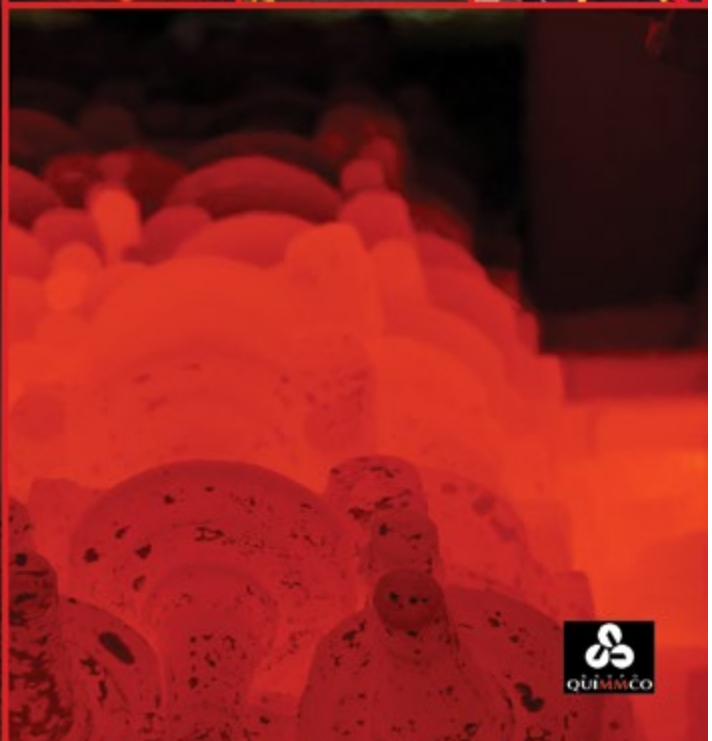
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LOGISTICS IN MEXICO

The Beginnings of a Railroad Revival

●●● Truck-based transport reigns supreme in Mexico. Approximately 78% of freight is moved on the highways, compared to 58% in the United States, and close to 40% in Canada. However, railroads are clawing back market share from the truckers, particularly when it comes to cross-border movements between Mexico, the United States and Canada. Between 1994 and 1998, Mexican rail underwent a privatization process, which left two domestic carriers – Ferromex and Kansas City Southern de Mexico (KCSM) – in charge of the nation’s railroads.

Since that time, the proportion of freight moved by rail within Mexico has jumped from 8% to 22%, and heavy investments in new tracks and better technology have created a seamless integration within NAFTA’s rail networks. This is extremely important to the country’s steelmakers, which are heavy users of trains, both for importing raw materials from its northern trading partner and exporting finished products back to the United States.

The automotive sector, in particular, is a key client for the rail companies. Over 80% of the cars produced in Mexico in 2013 were exported to the United States by train.

Lately, there has been renewed interest in implementing reform of the railroads. There have been calls for new tracks to be built and for the sector to be opened up more to outsiders but Bernardo Ayala, vice president, Mexico Marketing and Sales for the Union Pacific Railroad, says there is no real need for new lines as most of Mexico’s major cities offer good rail access to ports and the United States.

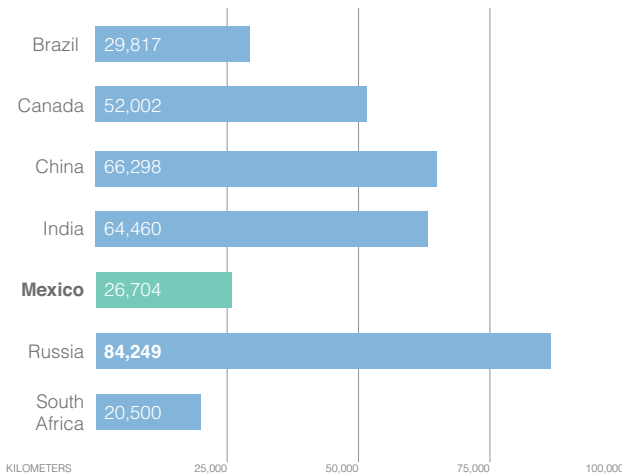
The World Economic Forum’s infrastructure index places Mexico in 64th position for overall infrastructure quality. An analysis of the cost of rail transport, trucking, and the inefficiencies of border crossings reveals there is room for improvement.

Yet, these statistics do not present an entirely clear picture of the reality. Ricardo Haneine is a partner at AT Kearney in Mexico City. He believes there is a regional divide within the country and argues that the quality of the main corridors between major northern cities and access to the United States are both very good. This reflects the more general divide between the booming industry of the north and central regions, and the stagnation and informality characterizing the south. National Infrastructure Plan investments should help to level the playing field across the country, but the trickle down effects will only become apparent over the next 20 to 30 years.

It is assumed that infrastructure investment goes hand-in-hand with rapid economic development, but not always. There is a need to co-ordinate infrastructure spending between the various involved bodies to ensure maximum return. Along the Pacific coast, Mexico has many ports, and the respective state governments and local authorities have always sought to improve the quality of their own facilities. However, there is not enough demand to keep the minor ports busy. There are two dominant terminals – Mazatlan and Michoacán – and the rest are unused, in spite of their relatively high quality and the modern technology. ●

TOTAL RAIL LINES BY COUNTRY (2012)

Source: World Bank





Ricardo Haneine



Partner

A.T. KEARNEY

●●● Could you start us off with an introduction to the interaction that A.T. Kearney has with the steel sector?

We have been engaging with both the public and private sectors to study various different areas of the economy such as the automotive industry, oil and gas, transportation and logistics, and also steel. In 2005 – 2006 we conducted a full strategic vision project for the automotive sector in collaboration with the Ministry of the Economy and the two principal Mexican automotive associations, INA and AMIA. We investigated several different growth scenarios for the industry and drew various conclusions regarding Mexico's key competitive advantages: we were very competitive on labor productivity and labor costs, but suffered from a lack of technology and high prices for raw materials and utilities. Mexico's steel mills mainly produced commercial grade steel, primarily for export, and the industry had to import most auto-grade materials. As such,

we recommended that Mexico should try and attract investments in higher-grade steel production.

In 2006 we were commissioned by CANACERO and the Ministry of the Economy to carry out a study into the competitiveness of Mexico's steel industry, and how feasible it would be to produce high value-added grades within the country. We broke the sector down by product and analyzed our cost-competitiveness relative to the countries from where we were importing. The conclusion was that Mexico could provide a competitive manufacturing base for several of these products, and that demand for steel would continue to grow. Our forecasts proved to be accurate, and the study opened the eyes of some local and foreign producers leading to a range of new investments.

What do you see as the main factors holding back Mexico's global competitiveness?

High energy costs and logistics remain key challenges. There are still issues with the country's infrastructure, and if you analyze the cost of rail transport, trucking and the inefficiencies of border crossings, more work needs to be done. The government has been talking about reforming the energy sector since 2001. Now it seems that it will be opened up for private investment in all areas apart from transmission and the retail side. As it stands, private power generation is not possible; there is the option for co-generation contracts or IPPs, which are more efficient, but they are not widespread.

What will be the impact of the National Infrastructure Plan on Mexico's logistical framework?

Although there are gaps in Mexico's infrastructure, the quality of the main corridors between major cities and the access to the United States are competitive in terms of speed, time and cost. However, the infrastructure in less developed regions, particularly in the south, is very poor. This new investment should help to level the playing field across the country, but the trickle down effects will only become apparent in 20 to 30 years.

Good infrastructure does not always lead to economic development. Along the Pacific coast, Mexico has a huge number of ports, but demand is not sufficient to oc-

cupy all of these facilities so now we have just two dominant ports – Mazatlan and Michoacan.

How should the government act to overcome Mexico's low level of productivity?

Across the whole economy, productivity has been growing very slowly in recent years, with an average yearly increase of just 1%. However, if you segment the market by region and by industry, a new picture begins to emerge. Looking at the Bajío region, which has become a hub for the automotive sector, or the northeast where you find several industries that compete on a global level, productivity has grown. Mexico is a divided nation: we have very productive companies and industries that work to world class standards but also many informal SMEs that constitute the majority of domestic businesses, but contribute relatively little in terms of value.

Could you provide us with an idea of the services that A.T. Kearney can provide for private companies in the steel sector?

We worked on a project for a global company with operations in Mexico, Europe and South America that wanted to market their products more efficiently and break into new industries. They are focused on the oil and gas sector but wanted a clear strategy to diversify into construction and automobiles. We helped identify opportunities, redefine their portfolio, and present new investments. It is important to remember that within these large multinationals there is fierce internal competition between different countries over where investments are targeted, and we can help present the case for Mexico.

How do you assess the impact of the energy sector reforms on Mexico's investment climate?

Interest in Mexico has certainly been piqued by the activity surrounding these reforms. Other A.T. Kearney offices have called us upon to prepare reports explaining what the reforms will entail and where the opportunities will arise. There are clearly huge opportunities in the form of new exploration activity in deep water reserves, but also in the substantial service sector that the oil and gas industry requires. ●





EXOGENOUS ELEMENTS OF SUCCESS ENERGY, SECURITY, AND THE ENVIRONMENT IN MEXICO STEEL



“The reforms will also attract further investments in oil and gas and these projects will require large amounts of infrastructure to support their operations. These investments will require substantial quantities of steel, and, as we are 90% correlated with the steel industry, we expect large growth due to these infrastructure investments.”

- Esteban Rivero,
Dirección Comercial,
Minera Autlán

ENERGY REFORM IN MEXICO

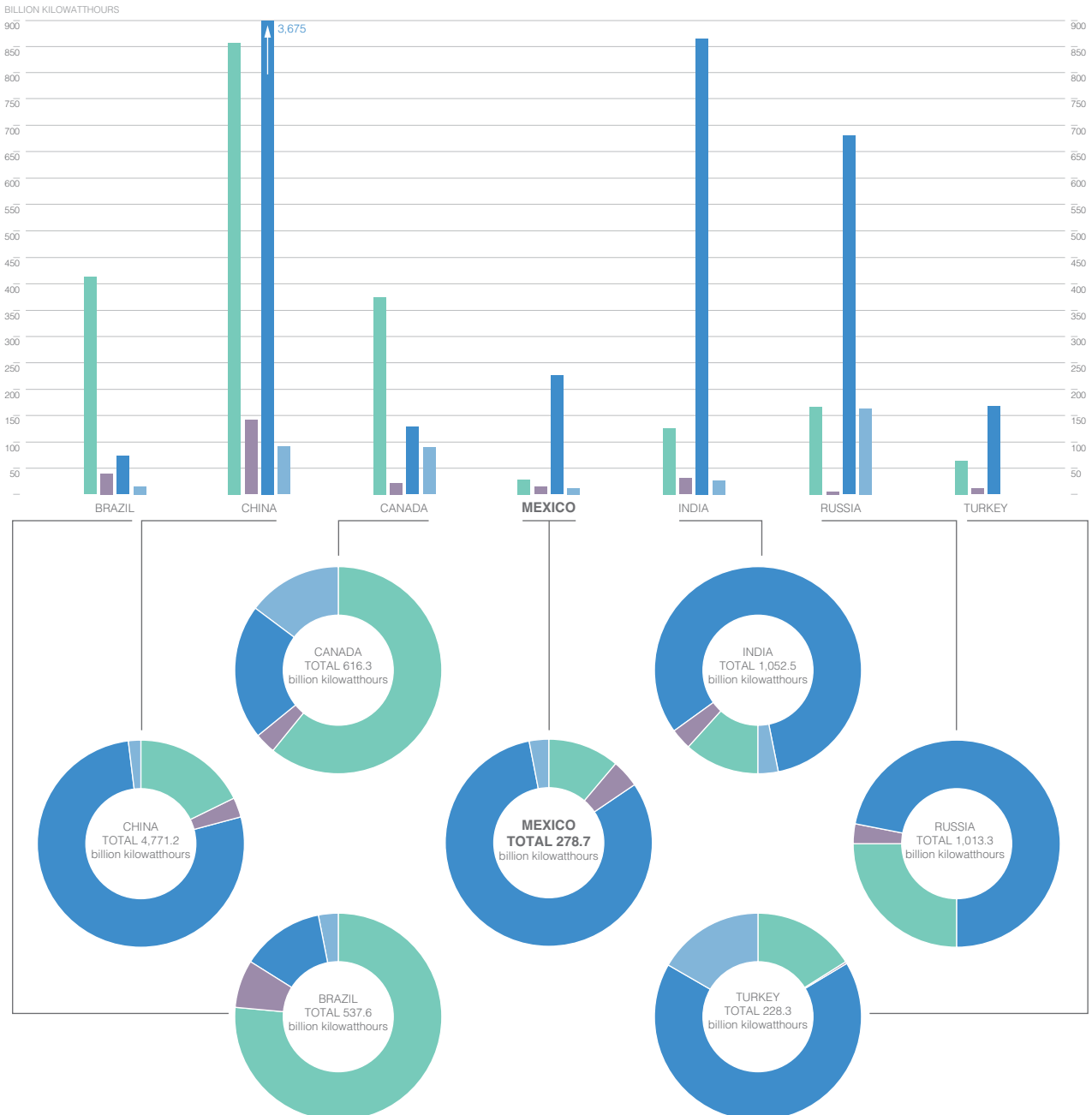
Impetus for Growth or More Hot Air?



ELECTRICITY GENERATION MIX, MEXICO AND PEERS (2012)
Total Net Generation by Fuel Source

Source: U.S. Energy Information Administration, International Energy Statistics

● Hydroelectric ● Non-hydroelectric Renewables ● Fossil Fuels ● Nuclear



- 2013 was a busy year for Mexico's President Enrique Peña Nieto. The first-term leader succeeded in breaking down a long-lasting deadlock between the two main political parties and pushing through an ambitious program of reforms to the national Constitution. The so-called structural reforms are the first step in a radical overhaul of the largely inefficient systems that governed major parts of the state apparatus such as education, telecoms and taxation. On August 12 2014, Congress approved the most far-reaching reform package yet: energy.

The underlying philosophy of the movement is to open up Mexico's hydrocarbon resources to foreign investment for the first time since nationalization in 1938. Under the previous legal framework, the state producer – Pemex – was the sole body entitled to explore and extract Mexican petroleum. Over time this has caused severe setbacks in the development of the country's oil and gas production. More than half of Mexico's oil reserves lie buried deep underwater and, thanks to several decades of underinvestment, Pemex has never built up the technical capabilities to exploit them. Teodoro Gonzalez, director general and CEO of Tubacero, one of Mexico's most important producers of carbon steel tubing for oil and gas pipelines, sees the reforms as crucial to unlocking this potential: "When oil prices first began to rise in the 2000s, the government began to invest in delineating new reserves, but as prices receded, so too did exploration funding," said Gonzalez. "Now Pemex's reserves are severely depleted and it is necessary to invest heavily in making new discoveries. We are very optimistic that the new reforms will help to bring about this much-needed investment."

The benefits to the steel industry could be immense. Mexico has long suffered from extremely high electricity prices, which have forced mills to make savings in other areas and develop very robust cost structures. Roberto Benavides, audit partner at Deloitte Mexico, sees an immediate positive impact on local producers: "If the new energy reforms bring down gas and electricity bills as they are supposed to, Mexican manufacturers will be very well positioned to compete on an international level, especially with the USA where they are accustomed to very low gas prices."

The new framework will also offer potential to private companies to generate their own electricity, which could be a huge boost to heavy industrial users. Some steelmakers, including Deacero, are already eyeing opportunities presented by this shift. Alfonso Camargo explained the company's plans to take advantage of the new laws: "Energy remains the largest cost for steel producers. As such, we have taken the decision to build a gas powered thermo-electric power station in Ramos Arizpe that will supply all the electricity we need at our plant. The facility will also generate excess energy that we will be able to sell to the grid, thus turning a cost into a profitable enterprise."

At the same time, the upturn in oil and gas activity will spur demand for specialty steels and should provide growth opportunities for companies involved throughout the value chain. "There is great potential in certain areas, such as production of steel tubes. All across Mexico we are seeing significant investments in pipelines to carry natural gas between the main production sites and the large urban centers. With the arrival of the energy reforms we expect that this sector will continue to expand rapidly," said Dieter Femfert, director of Cryoinfra, one of Mexico's key industrial gas suppliers.

Increased steel production is good news for gas providers too, as it presents many opportunities to create on-site generation capacity and higher-volume supply solutions. In addition to tube-makers, fabrication shops will be among the immediate beneficiaries of this petroleum boom. San Luis Potosi-based special equipment fabricator, Aceros Hercules, has traditionally focused its efforts on the international market due to the complications associated with doing business with Pemex. Julio Güemes, Aceros Hercules' director, believes that the predominance of the state-owned giant has hindered the growth of more local operations: "Pemex is the only company that can move the oil and gas industry in Mexico. The development of workshops has been determined by Pemex because it either has its own workshops or selected workshops that it works with. New workshops will enter into the industry because these new players will look for competitive price, service and quality." Not everybody has greeted the reforms with open arms. Privatizing the sector remains a hugely sensitive issue and feelings run high among the Mexican population. Many believe that the country's oil and gas reserves form part of the national patrimony and should not be extracted for the benefit of foreign companies. Detractors from the opposition Party of the Democratic Revolution (PRD) accused Peña Nieto's Institutional Revolutionary Party (PRI) of selling out the country to multinationals.

Others believe that the reforms will not live up to the hype. Victor Palencio Huevo is sales director of Grupo Mim, a key supplier of tubing and valves to Pemex that has seen double-digit growth in recent years. After many years in the industry, he is skeptical about the much-vaunted impact of the reforms: "While we believe that the opening up of Mexico's hydrocarbons to private investment is a great step forward for the country, we do not foresee a boom on the scale that is being hailed by politicians."

The recent mining tax hike to 7.5% has had a negative impact on mineral investment and there is a fear that some investors may view Mexico's entire resource sector with suspicion.

Falling oil prices have also dampened enthusiasm as the major oil producers' appetite for acquisitions has dropped off. The government originally planned to auction 169 blocks in 2015 but as prices drop below \$60 per barrel, shale gas fields and other unattractive units have been crossed off the list. Nevertheless private producers have been lobbying for access to Mexican oilfields for decades and sources in Pemex claim that up to 50 companies are still queuing up to bid.

However, the main frustration for most domestic businesses is the slow pace at which the reform agenda has been pushed through. The government has promised an economic boom but so far the opposite has been true. "Business leaders are complaining that the reforms are taking too long to implement and that we need concrete changes now," said Roberto Marquez Hiriart, director general of Villacero's industrial unit. "This is not possible. You cannot overhaul an entire state infrastructure overnight. These reforms constitute a turning point for the country, and it is vitally important that we do it right. If this takes time, so be it."

At this point, opinions are divided as to exactly how the reforms will affect the wider economy. It is generally accepted that opening up the oil and gas industry will spur growth and inject some much needed momentum into Pemex, but skeptics fear that low oil prices and the potential for mismanagement of tenders will undermine the reforms' potential. •



Ing. Roberto Marquez Hiriart

Director General Adjunto de
Negocios Industriales
VILLACERO

●●● How has Villacero grown and developed over the last 60 years and what are the main areas of operation for the company today?

Villacero has been a pillar of Mexico's steel industry for the last 60 years. Over this period we have evolved from being a simple company that provides storage and sales operation into a company that offers integral services such as selling, distributing, transforming and financing a wide range of steel products according to the requirements of each customer. Today, the Villacero Group can be split into two main areas: steel and financial services. Both have presence in Mexico and other regions or countries. This allows us to offer our customers a complete solution for their steel needs.

For infrastructure projects we produce large and small diameter tubular and pipe products. For industrial and commercial customers we have a galvanizing, wire and special coil cold strips plant, as well

as the largest service center in Latin America, which encompasses over 7Ha of covered space. In the 1990s, we entered the international market. We have a majority stake in the American company, Adelphia Metals, which is one of the most important steel distributors in the United States and operates a string of service centers across the country. We also run a tubing company called TexTube based in Texas. Finally, Villacero has a trading company, C&F International, which has three main offices located in Hamburg, Essen and Houston, as well as 30 other offices around the world.

Fifty percent of our sales are in the area of value-added products, while the remaining 50% is made up of pure steel trading. In commodities trading it is hard to differentiate yourself because you are dealing with a fixed price so Villacero aims to stand out through the wide scope of products on offer. We stock a huge variety of both flat and long steel products, and have the ability to deliver processed goods for those customers that who require both products. Alongside the sale of steel, we can help our customers with financing solutions as well through our financial arm, Grupo AFIRME.

Will we see large mills trying to muscle in on the distribution sector in an effort to get closer to their end clients?

2007 was a year of great change for the Mexican steel industry. The arrival of transnational players such as ArcelorMittal, Ternium and Gerdau brought about a shift in market dynamics. These mills are all vertically integrated, in some cases all the way from iron ore extraction through to final product sales. This has altered the distribution market, putting pressure on margins for distributors throughout the value chain. Although these large players may wish to enter even further into distribution, this will not be an easy task in Mexico. Mexican distributors are extremely solid and have a strong presence and tradition in the market; the largest players hold more inventory than the mills themselves. At the end of the day, distribution is about maintaining a close personal relationship with your customers. Steelmakers are very slow and do not have the capacity to deliver high quality service to a wide spread of customers. As such, the distribution sector is here to stay.

Construction across Mexico has stagnated in the past few years, but industrial manufacturing is booming. How are distributors reacting to this sudden shift?

Most distributors can no longer rely on selling commercial steels to the construction industry as their core business. An increasing number of service centers and distributors are looking to develop their industrial customer base, particularly with companies involved in the automotive supply chain. Working with these customers requires much more long-lasting relationships and a high level of quality certification. Further to this, there is an increased demand for special steels, which Villacero is already involved in.

What is your position on the alleged dumping of steel products from China?

Everyone involved in the sector should have the chance to compete on a level playing field. Chinese producers are heavily subsidized by their government, particularly for exports, meaning that they are able to sell all kinds of steel products at prices with which Mexican producers cannot compete. Our steel industry is calling for a national content clause for all domestic infrastructure projects to ensure that Mexican producers receive their fair share of the business.

What steps is Villacero taking to make the most of the new opportunities?

Villacero is diversifying rapidly towards financial services through our partnership with Grupo AFIRME. We have recently undergone a profound internal restructuring in order to operate in a more efficient manner and be more profitable. There is a real need now to control costs and we will be analyzing the structures that we use across our service centers to identify opportunities to be more productive. In parallel, we are developing close relationships with our suppliers and customers as an important element of our long-term vision. Rather than buying from a range of 200 different producers, we would rather work with 20 and develop long-term relationships with them. •



Ing. Teodoro Gonzalez G.

Director General and CEO
TUBACERO

●●● Tubacero has weathered Mexico's turbulent economic tides for over 70 years. Could you relate some of the key events in the company's history?

Tubacero was established by the Kane family in Monterrey in April 1943. The idea was to produce high quality piping for the oil and gas industry, which had been nationalized in 1938 by President Lazaro Cardenas. The company continued to grow and prosper through several periods of economic turmoil until the 1980s. At this time, the large Mexican steel producers began to suffer, and the industry was nationalized, with Tubacero becoming part of the state apparatus. This situation lasted until the arrival of President Salinas in 1988, who ushered in a series of neoliberal reforms and privatized many important industries, including steel. In August 1990, Tubacero reverted back to being a private company with 100% Mexican shareholders. The 1990s proved challenging but after 2001, oil prices began to rise, new investments

in exploration and production started to roll in, and the demand for pipelines began to boom. In 2010, our board approved a far-reaching three-year plan encompassing a range of investments geared towards expanding and modernizing our business. Through the implementation of this plan we have increased our production capacity from 350,000 metric tons (mt) to 800,000 mt.

The company operates five plants in Monterrey and has recently opened a new facility in Veracruz. What are the reasons behind this geographic concentration and why the decision to build the latest installation so far away?

The reason behind our focus on Monterrey is that our most important suppliers, AHMSA and Ternium, are located close by. As for the new facility, a pillar of our growth plan is to diversify our portfolio and move into new markets. At our first five operations, we only have capacity to produce tubes with walls no more than one-inch thickness. As such, we chose to open a factory for the production of extremely high gauge pipes for deep water conduction. At this new site, we can manufacture pipes of up to 2.5 inches (in) thickness, with a diameter of 144 in, or 3.7 meters (m). The choice of Veracruz for the site was related to logistical issues. We are located on the River Panuco, which has a draft of 7 m, meaning that fairly large barges and ships can enter. Furthermore, we have excellent rail access. As it stands, the plant covers some 15 hectares (ha), but our property incorporates more than 80 ha, giving us room for expansion.

The domestic oil and gas sector is your main market but how important are exports?

The export market is extremely important to Tubacero, and some years we have exported more than 50% of our total output. One of the largest projects that we have worked on was the construction of a gas pipeline in India, for which we provided 22-inch pipe. We have a number of clients in the southern United States, particularly in Texas, where the production of natural gas has triggered heavy demand for pipes. That being said, over the past three to four years, exports have only accounted for some 10% of our sales, as the Mexican market has been extremely vibrant. Over

these four years the company has actually quadrupled in size.

What impact will the energy reforms have on Tubacero?

Pemex has always been a highly important source of revenues for the government. When oil prices first began to rise in the 2000s, the government began to invest in delineating new reserves, but as prices receded, so too did exploration funding. Now Pemex's reserves are severely depleted and it is necessary to invest heavily in making new discoveries. We are optimistic that the reforms will help to bring about this much-needed investment, which in turn will stimulate demand for pipe, which Tubacero will be well positioned to provide.

In the medium term, if the right incentives are created then there is potential for a shale gas boom in Mexico to mirror that of the United States. The north east of Mexico actually shares part of the same extensive basins that have helped make Texas one of the great centers for fracking. This will serve to bring down gas and electricity prices for industry and consumers alike, and many thermal-electric power plants will be able to switch to more efficient combined-cycle burning technologies.

Could you describe the Los Ramones Project?

One of the key development projects for Mexico is the Los Ramones gas conduction line. To illustrate the scale of this project, the entire metropolitan zone of Monterrey consumes 750,000 cubic feet (cf) of natural gas per day. At full capacity, the Los Ramones pipeline will deliver a further 2,000,000 cf per day. Tubacero won the supply contract for the first phase of the project, which will take gas from the border at Rio Bravo to the town of Los Ramones, nearby Monterrey. We were able to deliver the pipe in 80-ft long pieces, which is twice as long as imported tube, reducing the number of joins throughout the entire installation and thus driving down the installation costs. ●

Dieter Femfert Mateos

●●●

Director

CRYOINFRA

●●● Could you talk us through some of the key milestones in Cryoinfra's development?

Cryoinfra was founded over 90 years ago. In 2015 we will be celebrating our 95th anniversary. The group was set up by two brothers with the surname Franco. They started off with a simple welding shop but as the operation grew they decided to introduce an oxygen plant to supply their needs. From this point, the group began to diversify into nitrogen, argon and carbon dioxide, quickly establishing itself as Mexico's premier supplier of industrial gases, a position that it maintains today. In 1980 we entered into a partnership with Air Products of France, which owns approximately 40% of Cryoinfra's shares. This relationship allows for a bilateral knowledge and technology exchange, which has been extremely fruitful for both parties. Today, we operate more than 30 production plants for gases throughout Mexico and supply almost every industry in the country, from steelmakers and miners to petrochemical and beverage producers.

Industrial gases are fundamental building blocks for a broad assortment of industries, but what role does the steel industry play in Cryoinfra's business?

Steel production is a highly important market for Cryoinfra because the mills consume a very large quantity of oxygen. The high volumes make it economically feasible to build on-site plants at their facilities.

We like to work in this way because it allows us to stay very close to our clients, better understand their needs, and support them through application development.

Productive R&D is a cornerstone of success in a rapidly evolving sector such as gas supply. Could you explain how Cryoinfra's development process works?

Although we work closely with Air Products, our own technological development division here in Mexico is one of the strongest in the country. This is because we have a highly qualified team that works directly with the client to help them reduce their costs, improve the quality of their products and help their operations run in a more efficient and environmentally friendly manner. For the steel industry in particular, we have designed and produced high-efficiency burners for preheating ladles and various burners for steel foundries. Looking outside of steel, Cryoinfra has been granted patents for other innovations in the petrochemical and food industries.

Industrial gas production in Mexico has been a very stable market for many years, but the recent arrival of a significant new player has shaken up the sector's dynamics. How is Cryoinfra responding to this new influx of competition?

Beyond the simple supply of gases, which are essentially commodities, we always seek to add value to our clients' operations through additional services. We can help

them with the design and installation of their supply lines, including flow meters, totalizers, and gas mixers. In addition to this, we provide comprehensive maintenance services to ensure that their operations continue to run at the optimum level. We have an in-house engineering unit in Mexico that works in collaboration with Air Products' engineering teams to design new plants for our clients. However, the construction and operation of these facilities are carried out by Mexican technicians, which makes us very competitive.

A third key advantage that Cryoinfra has is the wide dispersion of its production sites around the country: as we have so many across so many different regions, we have very low distribution costs. Our clients have fewer plants, so they often have to transport gases great distances via tanker truck, which is very expensive. This also means that we have technicians all around the country who can arrive at any of our clients' operations quickly in the case of any problems.

We have recently inaugurated our newest production facility at Grupo Simec's new site in Rio Bravo, Tamaulipas, which is capable of delivering 85 metric tons per day of oxygen. We are beginning to work on a plant that will supply the new Braskem Idesa petrochemical hub in Veracruz. This is the largest chemical site ever built in Mexico, and our cryogenic plant will provide liquid and gaseous nitrogen and oxygen, liquid argon for the entire site as well as for our other clients in the region.

Given the wide distribution of your clients throughout Mexico, what strategies do you use to deliver product to your customers on time?

We have three distribution options. The first is to install a plant at our client's operation or very close by. The second is to build gas pipelines, and the third is to liquefy the gases and transport them by tanker trucks. When it comes to a pipeline, the required volume has to be sufficient to justify the substantial costs incurred through building the infrastructure. If the demand is high enough, it can be economical to build a pipeline of up to 50 kilometers. Today, Cryoinfra operates a large number of these pipelines throughout the nation.

Mexico's GDP growth has been notably sluggish in the past two years. Do you see this trend changing anytime soon?

We recognize that, thanks to the recent labor and tax reforms, Mexico is living through a difficult situation right now. The uncertainty left by these reforms has led to a drop in foreign investment, which has occurred in tandem with a slowdown in government spending on large construction projects. As such, the national economy has suffered and is growing at a very low rate. The large steel mills are reducing their output because the demand is not there.

On the other hand, there is great potential in certain areas, such as production of steel tubes. All across Mexico, we are seeing significant investments in pipelines to carry natural gas between the main production sites and the large urban centers. With the arrival of the energy reforms, we expect that this sector will continue to expand rapidly. However, unfortunately progress in this area is very slow.

What do you hope for Cryoinfra to achieve over the next three years?

Our goal is to retain our position of market leadership in the area of industrial gas supply. To achieve this we will position ourselves closer than ever to our clients, work hard to reduce our costs, and strive to be more productive and more creative. In the past two years we have invested over \$150 million, which is a clear demonstration of our belief in Mexico, our belief in our clients and our belief in ourselves. •

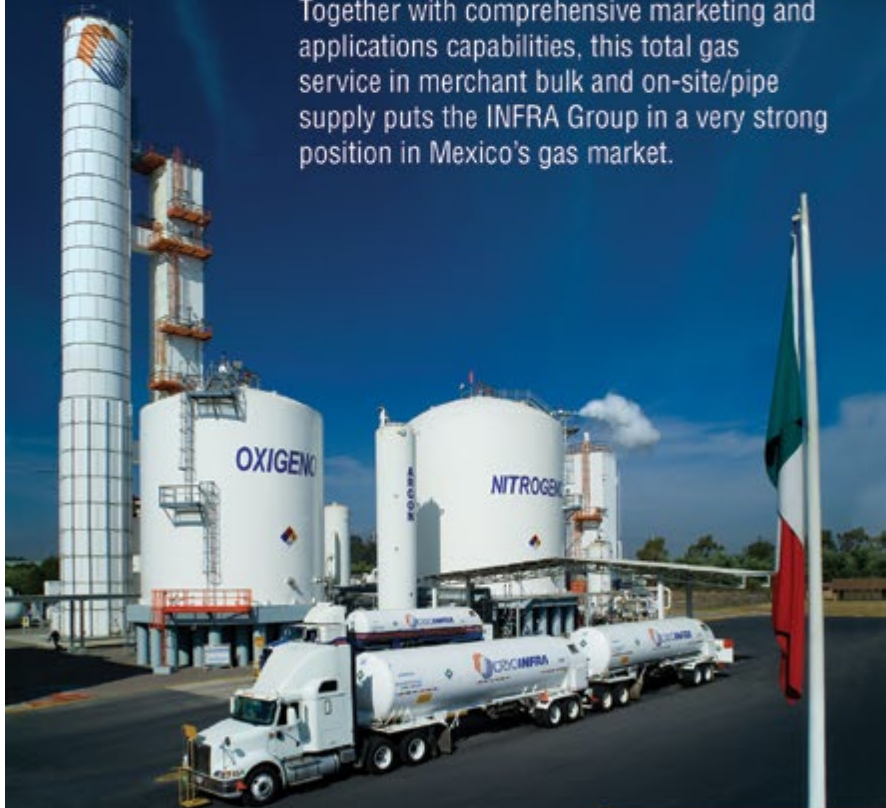


A LEADER IN INDUSTRIAL GASES



CryoInfra, a subsidiary of Infra Group, is a joint venture with Air Products which produces, sells and distributes merchant bulk and pipeline gases to large number of customers with widely varying requirements. CryoInfra provides these products and services for Oxygen, Nitrogen, Argon, Carbon Dioxide and Hydrogen. In 2014, CryoInfra built three merchant liquid plants, for O₂, N₂ and for CO₂.

Together with comprehensive marketing and applications capabilities, this total gas service in merchant bulk and on-site/pipe supply puts the INFRA Group in a very strong position in Mexico's gas market.



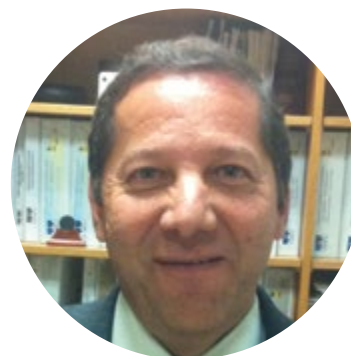
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José Alberto García Lastra, Gerardo Martínez Lastra & Víctor Palencia Huevo



●●●

JAGL: CEO
GML: Director
VPH: Sales Director
GRUPO MIM

●●● **Grupo Mim has a long history dating back to the 1970s; could you give us an idea of the main milestones that have taken place since the company was founded?**

GML: Our company was founded by my father back in 1972. He had a background in steel distribution, having worked for one of the first companies to supply industrial steel in Mexico. Even though he had to compete with some of the most well established distributors in Mexico, the market reacted exceptionally well to what he was offering, and the company went from strength to strength. Between then and now, Mexico has undergone a series of financial crises, but Grupo Mim has continued to thrive and is well positioned today. According to data gathered from our main suppliers, such as Tamsa, Cominox, Villacero and Walworth, we are routinely ranked among the top three distributors in terms of purchasing power. We operate nine different companies around Mexico, and 100% of our sales are generated within Mexico. Aside from this, we also run an office in Houston, which allows us to maintain even better relations with our U.S.-based suppliers.

Many companies complain that they have been struggling in recent years as a result of general economic stagnation in Mexico. How has Grupo Mim been able to perform so well given these negative conditions?

GML: Although Mexico's total economic growth has been fairly poor in recent years, the industrial sector has outperformed most other areas, with an average growth of 5% per year. Thanks in part to this relatively strong performance, Grupo Mim has been able to achieve double-digit growth in the same period; on some occasions, we have seen growth rates of up to 20%. On the other hand, this growth cannot be solely attributed to prevailing macroe-

conomic conditions. We have also been focusing on incorporating new products to our existing lineup and adding value to our clients' operations through additional services.

VPH: The logic behind expanding our product offering is to make our clients' lives easier. Rather than having to shop around at a range of different suppliers, they can find everything they need within our inventory. Aside from pipes, we now boast a varied portfolio of specialized connections and valves. Our goal is to offer a complete package of products to take care of all fluid conduction needs.

JAGL: We also need to draw attention to our staff and the high level of expertise that they bring to the operations. Many of our people have been with the company for many years and are extremely knowledgeable when it comes to the steel market. Of course, we also invest heavily in the training of our new staff. Every Friday we provide courses to our people regarding the different product lines that we stock. The industry standard is to spend 2% of all man-hours on training, but Grupo Mim spends 2.8%.

From where do you source your materials? How do your main markets break down?

GML: Most of our materials are sourced from domestic suppliers, but we import certain products from producers in Asia, Europe and the United States. Our main markets are the mining, oil and gas, and construction sectors. We have governmental clients in the form of Pemex and Federal Electricity Commission (CFE), but the majority of our clients are engineering, procurement, and construction (EPC) contractors that work under these state bodies. Dealing with these large government clients has helped to improve our quality control systems, as they have extremely demanding standards for

compliance. Looking to the other end of the spectrum, small and medium enterprises also play a strong role within our client base and are an important part of the Mexican economy. In order to cater to these clients' specific needs, we have a specialized sales and service division that is dedicated to smaller companies.

How do you believe that the long-promised structural reforms to the energy sector will affect the Mexican business environment?

VPH: While we believe that the opening up of Mexico's hydrocarbons to private investment is a great step forward for the country, we do not foresee a boom on the scale that is being hailed by politicians. It is certainly true that Mexico has rich resources to be exploited: the northeast of the country shares similar geology with the southern United States and is endowed with similarly expansive shale gas basins. Nevertheless, security issues around these border areas are very serious, and many investors would not be prepared to put their money into such a risky environment. Furthermore, the recent raise in the mining tax to 7.5% as part of the fiscal reforms has served as a deterrent to investment activity and many now view Mexico's resources sector with some suspicion. We feel that the main goals of the Peña Nieto government should be to maintain the economic stability that was created by their predecessors and to reduce crime rates, so as to encourage more foreign investors to Mexico.

JAGL: All eyes are now on Mexico. Foreign investors believe that

we will see an economic boom, which motivates them to put their money in Mexico. A serious number of international companies are looking to move into the Mexican market. Of course security is an issue in Mexico, but it is not a deterrent to industrial investments. It relates more to the quality of life for people living in certain parts of the country. The reforms will not arrive quickly, and there is some resistance from Pemex, as they do not want to relinquish the privileges they have enjoyed for so many years, but when they do it is certain that Mexico will see a bonanza that will last for several years to come. This will have very positive repercussions for Mexico and for Grupo Mim as well.

What is your vision for the future development of Grupo Mim over the coming years?

VPH: We are optimistic for the future and believe that Mexico, as well as Grupo Mim, will experience strong growth in the coming years. It remains to be seen what the impact of the governmental reforms will be. The Peña Nieto government has very strong credentials as a legislative body but has not proved itself as an administration in the true sense of the word. The legal framework is almost in place, now it is time for action.

JAGL: The future for Grupo Mim is very bright. The next years will be extremely profitable for Grupo Mim. We have survived through economic crises, and now the good times are coming. We have an excellent opportunity to expand and develop into exciting new areas. •



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SECURITY

Time to Face Up to Mexico's Demons

●● Security, or rather perceived insecurity, is probably the single greatest concern for outside investors looking to move into Mexico. While violent crime is decreasing – homicides dropped by 16% between 2012 and 2013 – corruption is endemic in many police forces and law and order is startlingly absent in certain regions. Public anger at the government's failure to tackle these problems reached a tipping point in September 2014. Following the abduction of 43 student teachers by municipal police and their subsequent murder at the hands of drug traffickers a wave of anti-government protests swept the nation.

President Peña Nieto's response to the massacre, which garnered close scrutiny from the international media, was slow and indecisive. Five months down the line, a public investigation into the events has been stalled. Most analysts consider the government's proposed solution of replacing municipal forces with state police to be ineffective. In the wake of this debacle, Peña Nieto's approval ratings have dropped to below 40%, the lowest ever for an elected Mexican president.

Nevertheless, his administration can point to a few success stories. According to the results of The

American Chamber of Commerce's annual security survey, Nuevo Leon is the state with the worst security risks and Monterrey ranks as the most dangerous city. However, this is not an opinion shared by many of the state's inhabitants. "There was a particularly bad period when crime got out of hand, but thanks to coordinated efforts from the state and federal governments, the situation has improved considerably," said Alfonso Camargo, sales director of Deacero and long-term Monterrey resident.

A decade ago, Monterrey was considered to be one of the safest cities in Mexico and enjoyed lower crime rates than nearby Texas. However, in 2010, cartel activity that had previously been confined to informal communities on the outskirts began to spill over into the elite residential neighborhoods scattered among the hills that surround the city. Carjackings became commonplace and dead bodies were left hanging from bridges as a warning to those who might choose to cross the drug lords.

Realizing that existing police efforts were not effective, and that many police officers were in the pay of criminal gangs, the govern-

ment began to collaborate with the private sector to build up a new police force from scratch.

Known as the Fuerza Civil, its members are recruited from outside law enforcement circles to ensure that they are free from the influence of corruption. Before being admitted to the force, they are subjected to a barrage of psychometric tests, which find their origin in the HR departments of Monterrey's largest corporations.

After passing through military training they are equipped with heavy firepower and dispatched to patrol the city's streets and highways. Their formidable presence has served as a powerful deterrent and anecdotal data suggests that they enjoy a far greater degree of trust from the general public than any other law enforcement body. While initiatives like this may have had an effect on reducing violent crime, opportunistic theft is harder to police. "Companies within

the steel distribution sector are directly affected by criminality through cargo theft and there is a thriving black market for stolen metal," complained José Antonio Ruiz, general director of Tubos Monterrey.

According to the American Chamber of Commerce, robbery is by far the most common crime

that member companies suffer from. Worryingly, 20% of the companies that experienced robberies in 2013 saw more than five separate incidents over the course of the year.

While there are no statistics available as to the financial impact of these crimes on business, it is clearly high enough to justify the heavy costs associated with installing top-level security systems and employing 24-hour guards. Most companies that took part in the survey invest up to 4% of their yearly operating budget on security.

Crime and the government's response to insecurity are now one of the most concerning issues for Mexican voters but it seems that the overall impact on business is fairly minimal. "Of course security is an issue in Mexico, but it is not a deterrent to industrial investments. It relates more to the quality of life for people living in certain parts of the country," said Grupo Mim's CEO, José Alberto Garcia Lastra. His diagnosis is backed up by the fact that only 2% of the companies surveyed by the American Chamber were considering relocating their operations outside of Mexico because of security problems. •

●● *Of course security is an issue in Mexico, but it is not a deterrent to industrial investments. It relates more to the quality of life for people living in certain parts of the country.*

- José Alberto Garcia Lastra,
CEO, Grupo Mim



José Luis Vargas

General Manager
**HARSCO INDUSTRIAL
 IKG MEXICO**

●●● Could you tell us a little bit about the operational history of Irving and Harsco in Mexico?

Irving is an American company that was set up after the Second World War. When they decided to internationalize Mexico was one of the first targets and in 1955 they started their operations here. In 1966, Harsco acquired Irving. At that time, ICA was building the Mexico City subway system, which obviously required an enormous quantity of steel gratings. By then, Irving had 100% of the market, so it decided to open its own company specialized in gratings.

In 2011, a corporate decision was taken to implement a more global brand strategy, and we adopted the name Harsco Industrial IKG for all of our operations in Mexico. However, Irving is still used as a brand name under Harsco in Mexico. This is due to some reluctance in the market to leave Irving behind. It is an extremely well known brand in this country and syn-

onymous with quality. At this moment, we have only one plant here in Querétaro and four distribution centers in Monterrey, Mexico City, Puebla and Villahermosa.

Mexican producers throughout the value chain are complaining of unfair competition from Asian companies. How do you perceive Chinese imports in terms of price and quality?

Asian imports do not represent a serious challenge for us at this moment. We have been coordinating with CANACERO to avoid dumping activities from China. Moreover, it is still more expensive to import gratings from China than to buy from us in Mexico. Additionally, products coming from China usually represent low quality. There is another factor: PEMEX is responsible for 4% of our sales and it requires 60% national content in any product it purchases. It simply does not accept Chinese products.

How satisfied are you with the raw materials you have been acquiring domestically?

We are very satisfied with the quality of Mexican steel. We mainly buy our supplies from AHMSA. The master coils are put through a slitting process in a service center in our manufacturing facilities in the United States. When we buy steel, we are looking for a very consistent composition. Harsco uses Electric Arc Furnaces (EAFs), and if the composition is not homogeneous, you will notice defects to your final product.

Harsco has recently diversified its portfolio by moving into fencing systems for penitentiaries. Could you tell us more about Harsco's variety of products?

The new products strategy was born a couple of years ago. Our customers were telling us that we were reliable, transparent and easy to trade with, but we had a restricted portfolio. So we turned to our production site to find out what kind of products we could bring to the market in a short time, without implementing great changes to our manufacturing base. We ran an internal contest with our employees to gather ideas. Fencing came as an ideal candidate since it was easily adapted from what we already had. We had already sold our gratings as fences in the past, but never as a special product to a niche market. We now

offer something special with added value. It is not a regular fence, but rather a secure, reinforced fencing system. Unfortunately, security remains an issue in Mexico, and there is considerable demand.

Consulting your employees to develop a new product must have a connection with your background in HR. Would you say you have a human resources approach?

When I was hired as human resources manager to Harsco 13 years ago, people were not at the core of our strategy, but we have worked hard to improve the quality level of our collaborators. We changed people in key positions, which brought new life to the operation. When I was named sales manager, I brought that mindset to the sales team. Our sales representatives based their pitch solely on their personal relationships, and there was a lack of institutionalization. Harsco needed to build stronger relationships with its customers. This coincided with a more general shift in the mindset across Mexico's private sector towards greater professionalism and less corruption. When I became General Manager, I had a clear understanding of the importance of having the right people. The value of ensuring proper compensation, tools, guidelines, and training makes working at Harsco much more attractive.

Harsco grew by 10% in 2013 and is predicting 8% growth this year. Where do you want to take the company in the next five years?

Harsco wants to consolidate its leading position in the market. We want to focus on new product development because products such as security fences have much larger markets than gratings. We have around 1,000 customers in Mexico and aim to supply all of their security products. We are no longer simply a gratings business; we are a security company. Now more than ever, Mexico needs a reliable and honest business community, concerned about environmental impacts and its social responsibilities. Harsco is positioning itself to be this kind of company. ●

GREEN TRACTION

Mexico's Shrinking Environmental Footprint

●● *Most of the major steel producers are investing heavily to improve their environmental footprint, but it will take time for their changes to have real effects.*

- Andrés Delfino,
General Manager, Vesuvius Mexico

●● Mexico used to be seen as a jurisdiction whose lax enforcement allowed industrialists free reign to cut corners on safety and environmental issues. While legal obligations for steelmakers may not yet have reached the high levels of compliance demanded by EU overseers, Mexico's reputation as a center for cowboy outfits to operate however they please is beginning to fade. New rules and regulations relating to climate change and environmental stewardship have been introduced and the government has indicated that it is now prepared to go after those who transgress these requirements.

Andrés Delfino is general manager of Vesuvius Mexico, a company dedicated to the manufacture of flow control units and refractories for steel mills and foundries. He believes that while regulations themselves may be tight, enforcement is still lacking: "At Vesuvius we have a corporate policy to abide to the letter of the law in every country where we work, but not all companies are so diligent. Most of the major steel producers are investing heavily to improve their environmental footprint, but it will take time for their changes to have real effects."

It seems, though, that regulators are starting to catch up with industrial offenders. The past 20 years have seen a decentralization of governmental handling of environmental issues. Previously, the Secretariat of Environment and Natural Resources (SEMARNAT)

dealt with all environmental complaints through its head office in Mexico City, regardless of the nature of the offence or where it took place. Now, responsibility has been devolved to branches working at a local level. "While some of the smaller local authorities are not particularly sophisticated in terms of the resources at their disposal, they are more inclined to act than a distant centralized body," explained Manuel Ortiz Monasterio Q., director general of ERM Mexico.

According to data gathered by PwC, 25% of the total \$11.5 billion invested by steel mills between 2010 and 2014 was dedicated to environmental improvements. This is partly a consequence of tougher laws, but also relates to the imperative of reducing energy consumption in the face of high electricity rates. Mills are increasingly looking to new technologies to help them reduce the amount of energy used in processes; a reduced environmental footprint is merely a happy by-product of the need to cut costs. Gracida is Mexico's only manufacturer of industrial electromagnets. Over 40 years designing specialist equipment for steel mills, Gracida's president, Fidel Agustin Gracida Canseco, has seen steelmakers become increasingly demanding of their products: "In order to save energy, modern mills try and maintain high temperatures throughout their production chain, rather than cooling the steel down to transport it. This means that where we used to receive



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demands for magnets that could transport metal at 200°C, now our clients are looking to move steel at 400°C,” he notes.

In parallel to this increased focus on environmental performance, Mexico has witnessed a resurgence of civil society activism and community empowerment, which has led to far stricter operating conditions for Mexican industry as a whole. If a community has a complaint relating to the way a large plant is operating, they now have ways and means of making their voice heard. “Although this is usually more of an issue with extractive industries, there has been at least one case where a steel mill in a peri-urban area was motivated to investigate their environmental performance solely because a local community was unhappy with their operations,” said Roberto Frau, ERM’s social and sustainability team leader.

The idea of a social license to operate is one that has gained much traction in Mexico over the past decade. In tune with this trend toward greater interaction with local communities, Mexican steel producers are increasing their expenditure on CSR and community projects across the board. In the words of José Luis Varga, general manager of Harsco: “Now more than ever, Mexico needs a reliable and honest business community, concerned about environmental impacts and its social responsibilities.”

For the past three years, ArcelorMittal has been awarded socially responsible enterprise status from the Mexican government for its contribution to improving living standards in the communities where it operates. According to CEO, Victor Cairo: “This is thanks to more than 30 different programs that we manage within the communities where we are present. These include diverse initiatives covering a variety of causes, from helping female entrepreneurs develop their businesses and providing funding for child education projects to developing sustainable habitats for turtles.”

To date, the company’s social programs have helped over 6,000 young people by ensuring that they have access to clean water and food, as well as the chance to receive a proper education.

In addition to social inclusion programs within the communities where they have operations, Deacero has also collaborated with various branches of the federal government to design solutions for affordable housing. “Many poor people, particularly in rural areas, build their houses from adobe with no structural reinforcement,” said Alfonso Camargo. “This can be very dangerous, so Deacero has engineered a wire reinforcement system to improve those properties’ structural resistance and that can be sold at very economic prices to low-income communities.” •

●● *While some of the smaller local authorities are not particularly sophisticated in terms of the resources at their disposal, they are more inclined to act than a distant centralized body.*

●● *- Manuel Ortiz Monasterio Q., Director General, ERM Mexico*

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Andrés Delfino



Director General
VESUVIUS MEXICO



●●● Could you update us on the latest developments in Vesuvius Mexico in the past few years?

Vesuvius has been present in Mexico for many years but the operation really began to take off in 1992 with the acquisition of Flo-Con, which operated a small facility in Monterrey and Ferro and ran the plant that we now use as our headquarters. The past five years have been a busy time for Vesuvius. The Mexican operation has doubled in terms of sales, manufacturing capacity, and headcount. This growth was made possible in the beginning thanks to the 2008 acquisition of Foseco by the Cookson Group, which was the owner of Vesuvius at that time. Over time, we have made several key improvements to our slide gate assembly plant in order to boost efficiency and overall output. Today, we can boast some of the lowest conversion costs of the entire global network; within Vesuvius, it is a point of reference around the world. Right now the site is fully occupied, which means that any future expansion will be a greenfield site.

How is the Mexican operation divided in terms of different business units?

Vesuvius operates three global business units: advanced refractories, flow control, and foundry, which deals with products for the foundry industry. Flow control is focused on controlling and protecting the flow of liquid steel and represents the most significant activity in Mexico from a manufacturing perspective. We have an extremely strong presence in continuous casting facilities here and are market leaders. In the case of advanced refractories, most of our refractories are imported from the United States so the team here is mostly focused on sales and services, while for foundry we operate a manufacturing base that produces crucibles and mold paints.

What is the balance between product sales and services offered to your customers?

Over the past five years the market has evolved and is now much more demanding of services, an area in which Vesuvius excels. We always aim to establish a very intimate relationship with our clients' operations so as to gain the deepest possible understanding of their processes. At our biggest customer, for example, we have a permanent team of 200 people providing 24-hour coverage, 365 days per year. Our offer goes far beyond the simple sale of products: we install their refractories, maintain their equipment and operate our systems.

Vesuvius Mexico is also able to provide engineering services to its clients; could you explain to us exactly what area of engineering you operate within?

I recently received approval from our corporate headquarters to boost our local engineering capacity. This will allow us to establish local suppliers for all our systems, rather than using centralized supply routes. We are already working on engineering contracts for several projects, including new steel plants in Mexico. This requires a high level modeling capability to determine exactly how the steel will flow into the mold and what shape refractory will be needed to ensure that the submerged entry nozzle is able to provide an even distribution. We recently worked on a similar style contract for another customer, providing all the lining and flow channel design for the tundish at their New Caster project. This move towards a more integrated service offering is driven by shifting market demands around the world, but it is not a trend that is seen everywhere. In the United States, for example, it is much harder for companies to expand into other service areas because of the strength of the unions.

This move into more engineering services requires a strong multi-disciplinary team; how have you been able to build this up given the apparent scarcity of engineers in Mexico?

The scarcity of engineers in Mexico is a myth. Compared with most other developed countries in the world, we have a very high number of exceptionally well-qualified engineers coming through the system. The universities in Monterrey in particular produce a very high caliber of young graduates. If we post a job opportunity, we can expect to receive lots of resumes, most of which will have a master's degree. On a more corporate level, Vesuvius always aims to empower its local staff, to promote from within and allow a certain level of autonomy. This greater independence allows each operation to be truly innovative and make the most of its local expertise.

How do you see environmental regulations affecting Mexico's steel sector?

At Vesuvius we have a corporate policy to abide by the letter of the law in every country where we work, but not all companies are so diligent. Most of the major steel producers are investing heavily to improve their environmental footprint, but it will take time for their changes to have real effects.

Since coming to Mexico five years ago, how have you seen the business environment change? Has the much-vaunted liberalization process really delivered as much as was expected?

Mexico has experienced a very positive evolution since I first came to the country in 2009. Although we have not seen the type of dynamic growth figures enjoyed by BRIC countries, the previous government's control of macroeconomic forces was commendable. The country has remained remarkably stable in this period. The GDP growth of the country has not been large enough to allow people to make the transition from poverty to the middle classes, and thus creating an important foundation for future growth.

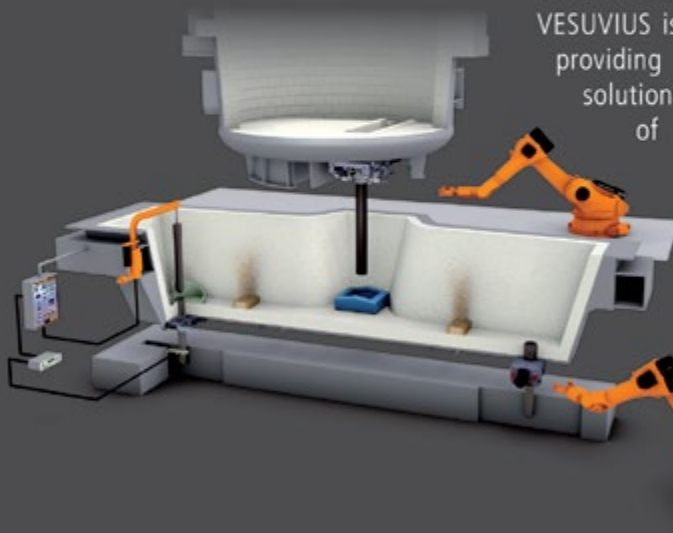
As for the reforms to the oil and gas sector, they mark a huge step forward in Mexico's development as a nation. We are already seeing the effects, and this year gas prices fell for the first time in 30 years. Energy still represents the largest cost for steel makers, so a downward trend in gas and electricity prices will help them to become more competitive on the international market.

As Mexico is once again being hailed as a highly attractive investment destination, where do you see Vesuvius in the next five years?

As domestic steel making capacity continues to grow, Vesuvius Mexico will grow as well. We will see the company start to supply more and more technical services and engineering. Prompted by the growth in automotive manufacturing, local steel makers will begin to manufacture more advanced specialty steels. These more demanding manufacturing processes require the most advanced service providers, and Vesuvius will be happy to lend our expertise to further these efforts. •



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Fidel Agustin Gracida Canseco

●●●

President
GRACIDA

●●● **What was your reasoning behind founding a company dedicated to the production of electromagnets? How has Gracida evolved over its long trajectory?**

My background is in electrical engineering, and electromagnetism was an area that always interested me, so I decided to become an expert in the field. Steel has always been an important industry in Monterrey, with most of Mexico's largest producers located in or around the city. I realized that electromagnets are a basic requirement for companies involved in the production and transport of steel, and at the time there was no local supplier in Mexico so in 1972 I took the decision to set up the first electromagnet manufacturing operation in the country. The local steel companies were very interested in what we had to offer and very quickly the orders began rolling in. We have continued to thrive for over 40 years and today we are still the only producers in Mexico.

Gracida started off as a specialist supplier to the steel industry but has diversified considerably over the years. What is the relative importance of the steel sector today?

Although we supply equipment to a diverse range of markets, including mining, oil and gas, pharmaceutical and food production, steel is still of pivotal importance to Gracida. When it comes to the steel industry, there are many different applications for electromagnets across many different environments. Sometimes it is necessary to supply a magnet that is resistant to extremely high temperatures, other times they need to withstand high humid-

ity or other hostile conditions that generally lead to rapid wear of components. We have even designed magnets to work on the bottom of the sea to recover ferrous components from oil drilling platforms.

Given the wide variety of products that Aceromex can provide, do you also work across a broad spectrum of different markets?

All of our products are designed and built in house according to the needs of our clients. This can be a long and complicated process, as we move from initial designs through to prototypes and eventually a finished product. To achieve this we have an experienced team of over 100 people including engineers, designers and production specialists, as well as personnel that specialize in quality control. Most of our new recruits arrive with an engineering degree, but the real learning process begins when they join Gracida. There are no university courses that specialize in magnetism, so a lot of the knowledge must be gained on the job.

The products that you manufacture are extremely specialized. How are you able to gain the necessary understanding of your clients' operations to deliver exactly the right product?

Much of the information comes from the clients themselves: we present them with a questionnaire in which they tell us exactly what they need. We then design a product that meets their spec-



ifications. Of course, we also visit their plants so as to gain a deeper understanding of their operations, and this process can take several weeks or even months. Each magnet that we produce starts off as a bespoke piece based on the needs of our clients. The most successful examples will make it beyond the prototype stage and may eventually form the base for one of our standard product lines.

What has been the most challenging project that you have worked on to date? What properties are new steel mills looking for in their magnets?

One example of a particularly challenging project that we worked on was the development of a magnet for an extremely demanding steel company that wanted an extremely versatile piece of equipment that was able to work underwater and withstand very high temperatures. In order to save energy, modern mills try and maintain high temperatures throughout their production chain, rather than cooling the steel down to transport it. This means that where we used to receive demands for magnets that could transport metal at 200oC, now our clients are looking to move steel at 400oC. We were able to deliver a suitable product very quickly and the client was impressed. Now we supply similar magnets to most of the mills in Mexico.

Gracida may be the only producer of electromagnets in Mexico, but how have you been able to weather competition from international suppliers?

Since we first went into business the world has become increasingly globalized and we cannot rely on simply being the only providers in Mexico. Over the years we have had to face stiff competition from other manufacturers in Europe, the United States, and now increasingly from Asia. In spite of this changing competitive landscape, we continue to control a large market share. In fact, we have used this to our advantage to commercialize our products in far-flung locations such as Eastern Europe, the Philippines and other Latin American markets. We have even sold magnets to the United States Army. Technically speaking, the quality of our magnets is simply better than the vast majority of our competitors. We also try to send our technicians out to clients' operations on a regular basis to ensure that everything is working smoothly and deal with any potential problems before they cause any difficulties for their business.

Alacero is predicting that steel consumption will increase by 3.4 percent across Latin America this year. How do you think this trend impacting Gracida's business?

Demand will increase substantially in the next few years. In response, we have established a new division that will specialize in renting out our equipment. Many clients do not need electromagnetic tools all year round, but just require them at peak times, so the option to rent will be of great benefit to them. Of course, we will also provide all maintenance and certification services, sending out technicians around the country to ensure that all our equipment is in optimal working order. •



Carlos Garza

●●● President and CEO, Metals Division
TENOVA HYL

●●● **The United States has been an exciting market for Tenova HYL due to the shale gas boom. Can you tell us about the new investments that Tenova HYL is helping to develop in Louisiana?**

Tenova HYL is helping to develop an investment by Nucor Corporation in Louisiana, in which it has already announced the first stage of which was \$750 million. The plant is a landmark for Tenova HYL and a good platform to show the benefits of our Energiron technology. The plant is performing very well, having started out at the end of December 2013. We are currently ramping up production and Nucor has announced that it will start a second phase with another module. Tenova HYL will be participating in the bidding process for the second phase.

Can you explain the benefits of Tenova HYL's direct reduction technology over other methods?

We have developed an innovative direct re-

duction technology that produces high-carbon Direct Reduced Iron (DRI) mostly in the form of iron carbide. The difference between regular DRI and iron carbide is the content of carbon and the way that the carbon is mixed with the iron. With Tenova HYL's technology, more than 90% of the carbon content of the DRI is in the form of iron carbide. Therefore if you have 4% carbon you have in one metric ton (mt) of DRI 36 kilograms (kg) of carbon mixed as iron carbide. This 36 kg of carbon can form 540 kg of iron carbide, so for every mt of DRI produced with our technology will produce 540 kg of iron carbide. Hence in one mt of Energiron DRI, there is more than 50% of it in the form of Iron carbide. This is the reason for the brand, ENERGI-IRON. Compared to regular DRI produced in the market, the carbon content is just above 2% and usually only 20% to 30% of this is iron carbide. This means you will only produce 60 kg or less of iron carbide in one mt of DRI. With higher iron carbide, the DRI has better performance since the carbon, along with oxygen injected into the EAF for steel making, releases its chemical energy that reduces the process timing and saves electrical energy.

The second benefit is CO₂ management. For every mt of DRI that is produced, there is 250 kg of CO₂ as a byproduct, which can be sold in the market at \$20/mt to \$25/mt, instead of releasing CO₂ emissions into the atmosphere. Additionally, sulfur is a byproduct that can be commercialized. On the other hand, since in-situ generation of reducing gases, reduction and carburization take place inside the shaft; the ENERGIIRON process is very efficient and presents the lowest overall (gas and power) energy consumption. Unlike other technologies, which present a different scheme for each particular application, the same ENERGIIRON basic process scheme configuration can be used for any available energy source.

These advantages led to our alliance with Nippon Steel, which chose our technology to develop a new direct reduction process to work in tandem with a blast furnace. It is a symbiotic scheme whereby the excess energy produced by an integrated mill is used by the direct reduction plant. Nippon chose our technology because of the high carbon content in our products. By using this high carbon DRI as the metallic burden for the blast furnace, the target is to reduce CO₂

emissions and increase productivity. Nippon is contributing its sulfur and hardware, and cutting-edge blast furnace technology. Our technology will double the benefits of feeding blast furnaces with DRI.

When will this technology be introduced to the market outside of Mexico?

Tenova HYL is a Mexican-based company, but the technology will be commercialized worldwide, enhancing equipment, services and innovations sourced in the country. Tenova HYL's alliance with Nippon is intended to develop a new way to produce steel. This technology could be adapted by many European, Chinese or Indian mills to boost their production, increase quality, and lower emissions, and we are already cultivating our first customers. We have one potential customer in India and another in Europe and expect to start our first trials soon.

Particularly within steel, it is a very precedent-driven industry. What are your strategies for market entry?

We are working on different fronts to expand the technology's applications. Nippon has its own gasification technology using low-rank coal, which is visionary and efficient. We are now trying to develop a scheme of direct reduction that will work with this new gasification process. Looking at world coal consumption, the world burns around 7 billion mt of coal per year. Less than 1.5 billion of that 7 billion was low-rank coal, while 50% of the world's reserves are low-rank coal. The focus is to use this resource that has not yet been used to gasify in an efficient way and then use the gas efficiently to produce DRI. •

Ing. Manuel Ortiz Monasterio Q. & Roberto Frau



MO: Director General

RF: Social and Sustainability Team Leader

ERM MEXICO

●●● To begin, could you fill us in with some information about the history of ERM's operations in Mexico?

MO: ERM's story in Mexico begins in 1991. It was originally a venture based out of our ERM Southwest office in the United States. Back then, regulations in Mexico were still emerging and enforcement was relatively weak, so our presence was not driven by regulatory demands. Our role was to assist clients that wanted to avoid future liabilities, or multinational companies that wanted to ensure their operations complied with their own internal policies. From this early client base our business began to grow considerably. This was aided partly by regulatory drivers as Mexico began to implement tougher environmental legislation, and partly by social drivers as the role of civil society and NGOs became more predominant. Today we have a team of 50 people with extremely diverse skill sets, allowing us to offer a wide variety of different services to clients across many

different sectors. Many of our first clients were involved in manufacturing and pharmaceutical, and these industries continue to play a key role for the company. However, we also have significant participation in oil and gas and mining.

When it comes to steel and iron producers, what are the main areas that ERM can assist with?

RF: We try to offer services that benefit our clients throughout the lifecycle of their projects. When it comes to steel, this begins with transaction services, which encompasses advising on social and environmental liabilities at the merger and acquisition stage. For greenfield projects we can provide a complete package of solutions relating to impact assessment and planning. We can assist in the permitting process, in sustainability planning and stakeholder engagement. During operations we have a performance and assurance team that supports the clients with auditing and compliance services, evaluation of their quality management systems, risk management and health and safety. In the case of environmental contamination, ERM has a dedicated contaminated site management team that will carry out a full site investigation, design a remediation strategy and then implement it. We also provide services for the long-term side of sustainability: climate change risk, alignment with international best practices and environmental footprint reduction. Coming to the end of a plant's life cycle we work with decontamination and demolition, often helping to reclaim industrial land to serve other purposes.

How does ERM work with companies to ensure that health and safety practices are actually followed?

MO: When it comes to health and safety practices, companies are waking up to the fact that it is not enough to simply have good procedures in place. It is about changing the culture of the workforce. We provide a service known as Safety Transformation, the aim of which is to work directly with our clients on the ground and bring about a real change in their behavior, which has yielded measurable results and tangible reductions in fatalities among clients. The first step is to conduct an audit of our client's systems, then establish where there are shortcomings, document

them with photographs and videos and demonstrate exactly where the problems arise. We try to underscore the importance of safety by highlighting the real world consequences that can occur if guidelines are not followed. The aim is to bring the whole workforce on board so that they are prepared to intervene without any sense of embarrassment if they see an example of poor health and safety.

RF: We identify any unsafe behaviors and instead of chastising those involved we ask questions and let them come to the right conclusions. We just finished a project in Brazil for one of the largest steel mills in Latin America. There were real issues in their safety culture. As a result of the global consolidations in the industry, most mills now employ staff from several different countries, who speak several different languages, which can lead to communication difficulties. By implementing global best practices, we are able to offer our clients a platform that transcends these linguistic barriers and create a common language.

Will Mexico's many SMEs adopting international best practices?

RF: ERM does not usually engage with SMEs and our client base is strongly weighted towards large multinationals. However, as a general rule, once large players introduce high-level practices to their operations, the smaller companies begin to realize the value of aligning themselves with the bigger players. This process will not happen overnight and much work remains, but we are definitely in a better place than we were 10 years ago.

How do you hope to see ERM's Mexico office develop over the next five years?

MO: ERM will continue to invest in Mexico and is currently expanding its office to accommodate 50 more people. Over the past four years, we have experienced 20% CAGR, which we expect to sustain into the coming five years. Now the structural reforms to the energy sector will bring in exciting new investments, and we see a huge opportunity to take a piece of this cake. ●





INTO THE FUTURE FINAL THOUGHTS, COMPANY INDEX, AND CREDITS



“All our manufacturing takes place in Monterrey. While our capacity is still somewhat limited, we have sufficient capabilities to supply most of the Mexican market. Our operation is very versatile. If demand picks up quickly, we will be able to expand rapidly. All of our raw materials are sourced in Mexico, with the exception of graphite, which we import from the United States.”

- Gustavo G. Schiuma,
Managing Director,
Forgelube

“Last year we worked on a series of apron feeder, which was previously only fabricated in the United States. These conveyors use high-resistance metal plates instead of belt feeders. Now we are also in the final stages of a new project in oil and gas in Canada, which will be the first time that a “catwalk,” as a pipe positioner is called in the oil and gas industry, is conected in Latin America. It is highly regulated because it is used during the extraction process, has high added value, and is a new market for us.”

- Julio Güemes, General Manager,
Aceros Hercules

“Part of our business is targeted towards regional distributors throughout Mexico. These are medium-sized operations that do not have access to the mills or the capacity to purchase cut-to-length coils. The other clients that we service are fabricators that create a variety of products, such as side rails, metallic furniture, or anywhere steel can be used.”

- Eduardo Trevino, Chief Operating Officer,
Fortacero

“We are primarily selling to the main steel manufacturers players such as Ternium, AHMSA, Deacero, Tamsa, and Girdau. They use our cameras for slag detection in their mills. Since slag is very opaque relative to steel in the infrared waveband, our cameras help operators in the mills to detect the presence of slag when pouring the steel to avoid contaminating it.”

- Daniel Marroquin, Operations Manager,
Ditek

“We are starting to see PVC and CPVC substituting metallic pipes for certain applications, but they are generally replacing copper rather than steel pipes. Plastics manufacturers are improving the quality and the durability of their pipes but are limited by their pressure and temperature resistance and are unsuited to many applications in oil and gas. Another disadvantage is space. Dispatching a truck full of plastics is essentially the equivalent of shipping air, so the transport cost per ton to is extremely high.”

- José Antonio Ruiz Torres, International Business Manager,
Tubos Monterrey



“Currently, the largest supplier of raw materials is PEMEX contractors, and the pipelines that they use. We also collect large amounts of scrap from various shipyards geographically dispersed across Mexico and the United States. With these two sources, we cover 80% of the scraps and the remaining 20% comes from a variety of sources, including left over construction materials such as rebar. It is also important to point out that we do not melt steel. We bring it up to the temperature before the melting point and reroll the shape to better suit our client’s uses, which allows to be flexible in our production system.”

- David Villanueva S., Director,
Industrial de Acero Vilsa

“One of the most complex maneuvers that we have worked on was the replacement of a 66-metric tons heat exchange in one of Ternium’s plants. It was necessary to coordinate the movements of two crane operators working in parallel, which is always a delicate procedure. This was further complicated by the fact that we were working in a fully operational steel plant; it was not possible to suspend production just for this maintenance work.”

- Juan Gonzalez Canizales, Engineering Manager,
GMVykon

“Abakan Inc. intends to be the leader in cladding in Mexico and worldwide. We will also be commercializing new technologies that will be even bigger than CermaClad™, such as a very thin coating for metal sheets for shipbuilding, infrastructure, and small diameter pipes. Mexico has strong projections for the future. MetalSol and Abakan Inc. are working to build something that has never been done before in the steel industry.”

- José Maria Ribot Barroso, CEO,
MetalSol

“Environmental technology is a line of products that we have had in the company for quite a few years, but only recently has it drawn the attention of our customers. We also have water treatment plants and clean air plants. We recognize the great potential in water treatment facilities, as all industries work with water in some way and some parts of Mexico have serious water problems, either because of pollution levels in the natural water supplies or lack of provision.”

- Sebastian Albeck, Director,
Eisenmann



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