MEXICO, ATTRACTING GLOBAL INVESTMENT FOR CLEAN ENERGY
Pedro Joaquín Coldwell, Mexico’s Minister of Energy

MÉXICO IN HANNOVER MESSE 2018
Ildefonso Guajardo Villarreal, Mexico’s Minister of Economy

WELCOME TO NIEDERSACHSEN!
Bernd Althusmann, Niedersachsen’s Minister of Economic Affairs, Employment, Transport and Digitalisation

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FROM THE CEO’S DESKTOP

FROM DEUTSCHE MESSE
Cuando la producción en masa puede cumplir con necesidades individuales. Incluso las de Karla
Eso es Ingenio para la vida.

Hasta ahora, los procesos de producción eran o rápidos o flexibles. Las máquinas inteligentes han cambiado eso. Para una empresa de cosméticos esto significa ser capaz de producir un rango completo de shampoos utilizando una sola línea de ensamblaje. Significa ser capaz de poner sus productos en los estantes en la mitad del tiempo. También significa ser capaz de reaccionar de manera eficiente a las demandas del cliente, incluso a las más particulares. Esto importa porque es una ventaja competitiva para el fabricante. Y básicamente vuelve real lo que importa al abrir muchas nuevas posibilidades para todos. Y eso es Ingenio para la vida.
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MÉXICO, LA MEZCLA ES NUESTRA FUERZA
We are going through interesting times, as the old proverb says. The world is facing a shift of paradigm most well known as Industry 4.0. This concept was coined at Hannover Messe, the largest and most important industrial fair in the world, which this year’s edition will be featuring Mexico as “Partner Country”. This is the first time such an honor has been bestowed on a Latin American nation.

Our participation therefore should be taken not just as a token of appreciation for what we have accomplished in this field—which it is— but also as a unique opportunity to promote our country’s strengths in innovation and technology. Mexico will showcase its best as part of its participation.

More than 120 leading companies, prestigious institutions, research centers and business leaders will be part of the Mexican delegation and will be present in seven halls of the fair. This will be one of the largest non-European groups that has participated in the long history of the fair. The delegation is being led by the President of Mexico, Enrique Peña Nieto, who will be accompanied by Ministers, governors of different Mexican states, CEOs, researchers and entrepreneurs, among others.

Our participation as partner country is an acknowledgement of Mexico’s role in the industrial arena. Today’s Mexico is a global manufacturing powerhouse and a great source of talent. From Mexico, global companies can export tariff-free to over 50 countries and this, in turn, has made the nation a true “advanced manufacture hub” and a top investment destination.

Mexico is positioned as the 9th most attractive investment destination in the world. It is the main exporter of mid- and high-tech manufactures among G20 countries (as a percentage of its GDP) it is the second-most-attractive global destination for i4.0 projects and is ranked 10th globally for the number of patents it has granted.

But our participation as partner country is much more than this. It is also an evidence of the close relationship between Germany and Mexico, and a very important step in consolidating our status as strategic partners.

Mexico and Germany have been close allies and business partners for a long time. German companies have a lasting and successful story in Mexico; some of them have even been key actors of the country’s modernization and development.

We at ProMéxico are excited about the prominent role our country will assume at Hannover Messe 2018, a platform that will enable Mexican companies to continue setting industrial and technological trends and, undoubtedly, climb more rungs on the global ranking.

So significant is Mexico’s participation in this year’s edition of Hannover Messe that we have dedicated this issue of Negocios ProMéxico to the companies and institutions, both private and public, that are pioneering technological and scientific innovation in the country.

Join us as we celebrate Mexico’s participation as partner country in the world’s most prestigious industrial fair.
Deutsche Messe AG turned 70 in 2017. The reason for the foundation of our company was the first Hannover Messe in 1947. In those years, the partners decided to organize an exports event in order to boost Germany’s industry and reactivate the country’s economy after the war. In these 70 years, Hannover Messe has grown along with Germany’s industrial sector, and has become the most important industrial event worldwide. A good example of this: the well-known concept of Industry 4.0 was coined in Hannover Messe 2011.

Today, Deutsche Messe is one of the most important trade fairs organizers focused on capital goods around the world, with a turnover of more than 300 million euro, nine subsidiaries, representation in over 110 countries, 134 events in different countries –75 of them in Germany–, and 4.1 million visitors and 42,022 exhibitors annually.

“Mexico exceeds expectations” is the motto of Hannover Messe 2018’s Partner Country. Because of its geographic strategic location—not only within its own continent but for the whole world—, the industrial vocation of its economy, and the various free trade agreements it has signed over the last decades, Mexico is the perfect ally for this 2018 edition. A delegation of 150 companies, research institutions, universities, chambers and associations will deploy an important presence, like never before. As the first Latin American and Spanish-speaking Partner Country, Mexico is now part of an elite, where only a few countries belong. Due to joint efforts during the last two years preparing this big happening together with the Mexican Ministry of Economy, ProMéxico and other strategic allies such as EMAAC, COMCE and CAMEXA, we are now sure that the Mexico’s presence in Hannover Messe 2018 will be a round success for exhibitors, visitors and all persons involved in this project.

As Mexico is now part of an elite, Deutsche Messe AG established a subsidiary in the country since September 2016. Our main goal is to organize industrial trade shows, such as the events in our international portfolio. We already started with the purchase of the biggest woodworking industry event: the Magna Expo Mueblera Industrial & Interiores, which became part of our International Woodworking Events headed by LIGNA. Our subsidiary Hannover Fairs México is in charge of increasing our portfolio in Mexico with industrial trade shows and also looking up for opportunities in operating and managing exhibition and convention venues in that country. But this is only just the beginning. We see Mexico as a huge opportunity mainly in organizing professional trade shows on many sectors where B2B events are needed and providing all trade show related services.

Offering business contacts is our business. These contacts will help any company, regardless if it is an SME or a huge transnational, with its internationalization and its revenue increase. We are the best platform for this purpose regarding all industrial processes.

¡Bienvenidos y gracias México!
Over the last three decades, Mexico has consolidated its reputation as a competitive world-class manufacturing platform. The development of strategic sectors, like the automotive and aerospace industries, the building of quality infrastructure, the signing of 12 free trade agreements with 46 countries and the ready availability of skilled human capital have established Mexico as the third-largest exporter of medium- and hi-tech manufactured goods among the G20 economies.

By Ildefonso Guajardo Villarreal*

But despite the level of maturity Mexico's manufacturing industry has achieved, there can be no denying reality: industry is rapidly changing, with classic production factors (land, work and capital) ceding importance to data – the “raw material” of Industry 4.0. In this new industrial scenario, assimilating digital technologies and the remote management of manufacturing processes are vital to growth and productivity.

Consequently, Mexico has made the transition to Industry 4.0 a priority. One international initiative the country actively participates in is the World Economic Forum’s Shaping the Future of Production, designed to help Mexico and other economies successfully incorporate the production methods of the future, while national efforts include a roadmap drawn up by government, industry and universities to foster the adoption of Industry 4.0 technologies, like the Internet of Things, big data and digital platforms. Innovation is also being promoted via a network of industrial innovation centers that span the entire country and to bring public policies into line, a Mexican Innovation Observatory has been set up.

This year, Mexico will make history as the first Latin American country to be invited as a guest of honor to Hannover Messe, the world’s most prestigious industrial fair, where the country will reassert its strengths as a pole of production, innovation and transformation, and position itself as a leading emerging economy in the adoption of state-of-the-art technologies.

Hannover will also be an opportunity for Mexico to share its success stories in advanced manufacturing with the rest of the world, exhibit the high-value-added products it manufactures and its cutting-edge 4.0 technologies and services. We wish Mexico the best of luck at Hannover Messe 2018!

*Mexico’s Minister of Economy.
ILDEFONSO GUJARDO VILLARREAL, MEXICO’S MINISTER OF ECONOMY.
BERND ALTHUSMANN: WELCOME TO NIEDERSACHSEN!

Mexico and Germany have long cultivated stable and healthy trading relations; our bilateral trade agreement has evolved dynamically, and more than 1,900 German companies are currently active in Mexico.

BY BERND ALTHUSMANN*

Thus, Germany is an important European partner for Mexico, and cooperation has been consolidated and strengthened by high-ranking political visits, and business delegations, from both countries at national and federal state level.

For Niedersachsen, Mexico is already the most important trade partner in Latin America: in 2016, trading between Niedersachsen and Mexico amounted to 1.2 billion €, and 900 million € of direct investment by Niedersachsen companies flowed into the Mexican economy. Our federal state has a strong interest in reinforcing and extending economic relations with Mexico, demonstrated among other ways by a business delegation from Niedersachsen and Bremen last year.

Since the global agreement between the EU and Mexico came into effect, the annual flow of goods between the partners has more than doubled. Now is the time to modernise this free trade agreement and make it more comprehensive – because digitalisation is making demands on it that could not have been foreseen 20 years ago. By extending and modernising this global agreement between the EU and Mexico we should make a clear and decisive stand for free trade and against protectionism. I am absolutely sure that this is the way to enhance and enrich our bilateral economic relations.

Through Deutsche Messe, Niedersachsen offers an exceptionally strong platform for cultivating and extending international business contacts. The trade fairs in Hannover are the world’s business showcases, renowned and respected for their international orientation, thematic diversity and efficiency.

Above all, Hannover Messe as the annual flagship industrial fair brings the world’s business community to Hannover. Hannover Messe is the hotspot for all aspects of Industry 4.0, the digitalisation of the entire industrial sector. This is where all the stakeholders in digitalisation showcase new solutions for industrial manufacturing and its networking with other sectors, suppliers and customers. Exhibitors and visitors alike find the key technologies and core areas of industry under one roof – from research and development, industrial automation and IT through supply chains, manufacturing technologies and services to energy and mobility technologies.

I am therefore especially pleased that Mexico will be our Partner Country at this year’s Hannover Messe. As Partner Country, Mexico will have exceptional opportunities to
Since the global agreement between the EU and Mexico came into effect, the annual flow of goods between the partners has more than doubled.

Now is the time to modernise this free trade agreement and make it more comprehensive.

*Niedersachsen’s Minister of Economic Affairs, Employment, Transport and Digitalization & Chairman of Deutsche Messe AG Supervisory Board.
PEDRO JOAQUÍN COLDWELL, MEXICO'S MINISTER OF ENERGY.
PEDRO JOAQUÍN COLDWELL: MEXICO CLIMBS GLOBAL RANKINGS FOR INVESTMENT IN CLEAN ENERGY PROJECTS

A priority of the recent energy reform is to increase the amount of clean energy generated in Mexico and facilitate the country’s transition to an economy less dependent on fossil fuels.

BY PEDRO JOAQUÍN COLDWELL*

The recent energy reform in Mexico has created solid, effective instruments that are encouraging greater participation in green projects by private actors. Perhaps the most important of these has been the auctioning of long-term electricity contracts, which has been a resounding success. As a result of the first three tenders, 65 new solar and wind power plants are expected to come on line, increasing the country’s installed capacity by some 7 GW. These plants will quadruple Mexico’s capacity to generate clean energy by 2020 compared to when the current administration took office in 2012, bringing us that bit closer to our goal of generating 35% of all our electricity from environmentally friendly sources by 2024.

The tenders have raised some 8.6 billion USD in investment, with more than half the states in the country benefiting in the form of at least one new power plant. It is a strategy that has brought clean energy prices in Mexico down so much they are now among the lowest in the world, at an average of 20.57 USD per MWh package, plus one Clean Energy Certificate.

Another instrument that has fostered the startup of new plants is the installation of transmission lines connecting zones with high renewable energy potential with major consumption centers.

Two tenders are currently underway for the building of infrastructure of this type. The first of these is an initiative by the Ministry of Energy to interconnect Baja California’s isolated system with the National Interconnected System and the second is a Federal Electricity Commission (CFE) project that aims to hook Oaxaca up with the country’s central region. Over the next 15 years, these two projects, one in northwest Mexico and the other in the Isthmus of Tehuantepec, are expected to add some 5 GW of solar–and wind–generated electricity to the national grid system.

Evidence to Mexico’s contribution to environmental sustainability and global efforts to combat climate change, is the country’s newly reformed electricity sector which complies with best international practices and is progressing in leaps and bounds under the guiding principles of free competition, transparency, and environmental and social responsibility.

*A Mexico’s Minister of Energy.
INTERVIEW WITH THE MEXICAN AMBASSADOR TO GERMANY

ROGELIO GRANGUILLHOME: MEXICO-GERMANY, A WINNING DUO

Granguillhome talks about the close economic ties between Mexico and Germany and the benefits Mexico expects to reap from participating in the Hannover industrial fair.

BY IVÁN IGLESIAS
Mexico is a safe, reliable partner committed to economic freedom and efficiency; one that is competitive enough to do business, not just with Germany, but with the rest of the world.

—How important are bilateral ties between Mexico and Germany?
Mexico and Germany see each other as partners and strategic trade and investment allies. The bilateral relationship is as strong and advantageous as it is because we share the same values: in both our countries, business is promoted within a framework of free trade, liberalization, economic stability and legal certainty. From an economic standpoint, we complement one another enormously: Germany is our leading European trade partner and Mexico is Germany's leading trade partner in Latin America.

—How important is the Hannover industrial fair?
It is the most important industrial fair in the world in terms of the number of companies and exhibitors that attend, and the number of business meetings that take place. One peculiarity is that it focuses specifically on Industry 4.0, a term that was coined at this very fair in reference to the Fourth Industrial Revolution, which basically entails the digitalization of industrial processes.

It is especially important to Mexico because it is the most prestigious industrial fair we have ever been invited to as a guest country and even more of an honor because we are the first Latin American country to receive such an invitation. Plus it will be a chance to showcase our industrial processes and demonstrate that we are a modern country invested in innovation and free trade.

—What, specifically, does Mexico hope to achieve?
In terms of trade, our federal and state governments all expect Hannover Messe to serve as a vehicle for attracting new investment in digitalization and industrial sectors already positioned in Mexico.

Our participation as a guest of honor is of strategic importance for two reasons: firstly, because we believe it will have a positive impact on Mexico's industrial policy, specifically, our 4.0 strategy, and secondly, because we are confident free-trade negotiations with the European Union will soon be concluded and that we will be able to discuss and promote new trade opportunities at the fair.

Hannover Messe will be the point of departure for a broader, stronger and more ambitious relationship, not just with Germany, but with the rest of Europe.

—What Mexican products will be in greatest demand in Germany in a future dominated by Industry 4.0 and where do trade opportunities for Mexico lie?
New technologies will have to be incorporated into all industrial processes to make them more efficient. In my view, the competitiveness of the products Mexico manufactures now and in the future will depend on the extent to which industrial processes are digitalized. We are up against a new, automated form of manufacturing performed by machines horizontally connected to the Internet across the entire industry.

—Will Hannover change Germany’s opinion of Mexico when it sees just how modern a country we are?
German industry in general is familiar with Mexico’s capacities and appreciative of its stable economic policies. In my view, the commendable work of the Ministry of Economy and ProMéxico promoting the country at Hannover Messe will serve to confirm that Mexico is a safe, reliable partner committed to economic freedom and efficiency; one that is competitive enough to do business, not just with Germany, but with the rest of the world.

Mexico will project itself at Hannover as a country with enormous industrial capacity and an equally large capacity to innovate. This is the image German industry will come away with.
AN INTERVIEW WITH ALEJANDRO DELGADO, PRESIDENT OF THE NATIONAL INSTITUTE OF THE ENTREPRENEUR

FIT FOR PARTNERSHIP

A discussion on the advantages of sharing business experiences and exposing Mexican companies to the advanced technology of countries like Germany.

BY IVÁN IGLESIAS
Internationalization is key to improving the productivity of Mexico’s small and mid-sized companies and giving them the boost they need, says the National Institute of the Entrepreneur (INADEM) president, Alejandro Delgado, who believes exposing these enterprises to the advanced technology, innovation processes and acceleration models of other nations will translate into “enormous added value.”

Among the actions INADEM is taking to promote this internationalization is *Fit for Partnership in Germany*, a program implemented by INADEM and Germany’s Ministry of the Economy and Energy (BMWi) that gives Mexican companies hands-on experience in German production processes. First implemented in Mexico in 2014, over 200 entrepreneurs have since learned about advanced technological innovation processes like those associated with Industry 4.0 through the program, which consists of three phases: 1) Technical training to improve the capacities of Mexican companies vis-à-vis German business practices and conducts; 2) Field trips to German companies, because it is important Mexican participants are familiar with both German technology and equipment; and 3) Intensive meetings where Mexican companies have the chance to forge strong business ties with their German counterparts.

Designed to foster management and cooperation competencies, cement business partnerships, create business networks and promote the sharing of experiences, *Fit for Partnership* has over 10,000 participants in 17 countries, with whom Mexican entrepreneurs can network.

According to Delgado, “when there’s a change in paradigm in industrialization processes (as occurs in advanced manufacturing), the first step is to familiarize companies with the production and manufacturing processes of the world’s most competitive countries, like Germany. When they are exposed to these new technological experiences, they invariably find in Industry 4.0 an aspirational model, reason why the *Fit for Partnership in Germany* experience is so vital.”

**DUAL EFFORTS**

Mexico has a parallel program under which German companies are invited to come and see Mexican technological processes for themselves. “As a result of this bilateral business rapprochement, in 2016 we introduced *Fit for Business with Mexico*, a program that encourages German companies to analyze opportunities for entering into strategic partnerships, investing and doing business in Mexico. In 2017, numerous German executives got an introduction to Mexican business culture under the program,” says Delgado.

INADEM plans continue fostering the convergence of technology and entrepreneurship with initiatives like these. “We currently have a presence in four sectors (manufacturing, automotive, food and services), but we need to venture deeper into ‘groundbreaking’ technologies: machine-learning, data science, artificial intelligence and blockchain. These strategic sectors are revolutionizing business, manufacturing and industrialization processes. We need to capitalize on our ties with countries like Germany to get our entrepreneurs involved in them,” says Delgado.

Participating in the Hannover Messe industrial fair is a strategic move for INADEM, which has selected 15 companies to take part and aims to scale in sectors strategic to Mexico like the aerospace, media, electric and electronics industries. “The goal is to familiarize these companies with state-of-the-art technologies and for them to leave Hannover having identified business networks and potential partners. We’re exposing our entrepreneurs to a critical mass of Industry 4.0 leaders,” concludes Delgado.

“We want our entrepreneurs to make contact with companies they can potentially form partnerships with, increase their exports and even incorporate more technology into their production processes.”
There are some 2,000 German companies operating in Mexico, where they employ between 120,000 and 150,000 people directly. Ties between Germany and Mexico date back as far as 1803, when Alexander von Humboldt traveled to New Spain with the French explorer and botanist Aimé Bonpland, who collected and classified thousands of native plant species unknown in Europe during his time here.

Today, Mexico enjoys a strong trading relationship with Germany and close ties in the fields of science and technology, culture, the arts and other areas, thanks to initiatives like the Dual Year (2016-2017), intended to promote mutual understanding, cooperation and exchange, and events like Hannover Messe, the world’s largest industrial fair, where Mexico will be a guest of honor this year and expects to consolidate its image in Germany as a mid-to-highly developed industrial nation and showcase its advanced manufacturing potential.

Germany has been an important strategic partner to Mexico and has accompanied it on its journey to energy reform, which culminated in April 2016 during President Enrique Peña Nieto’s state visit to Germany with the signing of a strategic alliance for the promotion of technological exchange and investment in more efficient energies.

It was during this same visit that President Peña Nieto officially inaugurated Dual Year, whose program featured a seminar to promote investment in the German cities of Berlin, Hamburg, Cologne, Munich and Ludwigshafen and Mexico Day, held in 2017 in Weimar at Latin American Day, the annual conference of the Latin American Business Association (LAV) and the leading event for German-Latin American business relations.

Other Dual Year events included the 2016 Berlin Food Week (BFW), where authentic Mexican cuisine was in the spotlight. In this case, ProMéxico was instrumental in organizing Mexico’s participation as a partner country, in keeping with the federal government’s policy to promote the country’s culinary arts.

To mark the end of the Dual Year initiative, in 2017 Chancellor Merkel visited Mexico, where she attended the business forum “Germany and Mexico: Partners on the Path to Industry 4.0 and Dual Training 4.0”, organized by CAMEXA, the German embassy in Mexico, ProMéxico and the Mexican Business Council for Foreign Trade, Investment and Technology (COMCE). Chancellor Merkel and President Peña Nieto led the forum, which focused mainly on Industry 4.0 topics and dual education to promote the development of cutting-edge technologies and the training of the technicians needed to man Mexico’s industrial growth. It was at this event that it was announced Mexico would be a partner country at the 2018 Hannover industrial fair.

In 2016, Germany was ranked Mexico’s fifth-most-important trading partner and third-largest investor. Mexican exports to Germany consist mainly of light automobiles (1.7 billion USD), computers and computer parts, auto parts, telephone and telephone parts, fresh foods (mainly fruit and vegetables), processed foods (honey, salsas, jellies) and alcoholic beverages (beer, tequila and mescal), while imports from Germany are comprised mostly of machinery, automobiles, chemical and pharmaceutical products, and medical equipment.

The constant flow of investment and the strong presence of German companies in Mexico and vice-versa demonstrate just how solid relations between the two nations are.

According to the Ministry of Economy, Germany invested a total of 14.17 billion USD in Mexico between 1999 and 2016. More than 76% of this amount was funneled into the manufacturing sectors, including automotive, electronics, chemicals, and machinery.
industry, primarily the automotive sector, and has been a decisive factor in the country’s increased competitiveness in recent decades.

By the same token, German companies have a longstanding tradition of doing business in Mexico, where there are currently some 2,000 employing between 120,000 and 150,000 people. Just recently, Siemens celebrated its 100th anniversary in Mexico and Volkswagen (VW) opened its second-largest plant in Puebla over 50 years ago.

Many different Mexican industries have proven to be of interest to German companies. In recent years, the automotive and auto parts sectors have shown unprecedented growth, with VW and premium carmakers Audi, BMW and Daimler-Nissan investing in new production facilities, while companies like Prettl and Airbus Helicopter have set their sights on the aerospace industry. Siemens, Linde and, more recently, Harting, have all invested in the energy sector and Deutsche Erdöl-AG (DEA) won the first oil exploration tender of Round 2 for Area 2–Tampico Misañla. Likewise BASF and Lanxess have invested in the chemical sector, Bayer, Merck and Boehringer Ingelheim in the pharmaceutical industry and LH Cargo, DHL, K&N and Panalpina in transportation and logistics, to name just a few.

Mexico has over one billion euros tied up in Germany, making it the country’s leading Latin-American investor.

*Head of ProMéxico’s Unit for the Promotion of Global Business.*

Mexico has over one billion euros tied up in Germany, making it the country’s leading Latin-American investor.
THE ONLY WAY TO BOOST COMPETITIVENESS TO ANY TANGIBLE EXTENT IN TODAY’S KNOWLEDGE-BASED ECONOMY IS THROUGH TECHNOLOGICAL INNOVATION.

INTERVIEW WITH FRÉDERIC GARCÍA, PRESIDENT OF THE EXECUTIVE BOARD OF GLOBAL COMPANIES

TOWARDS A NEW INDUSTRIAL AND ECONOMIC ERA

Frédéric García spoke to Negocios ProMéixco about some key strategies to improve the business environment and enhance Mexico’s competitiveness.

—How will Industry 4.0 improve the business environment in Mexico?

Technological progress has upped the pace at which the world moves and ushered in the Fourth Industrial Revolution or Industry 4.0, which refers to the digitalization of systems in general, automation and the merging of technologies. Machines are now able to execute more tasks that previously could only be performed by humans. The proliferation of new technologies is permeating the development of the vast majority of industries and this trend will no doubt continue. The possibilities of technology are exponential and, as such, the implications for the human race are hard to anticipate.
What strategies are businesses implementing to improve their competitiveness in an Industry 4.0-driven world?

In an Industry 4.0 context, I think greater competitiveness is closely tied in with the ability to anticipate, adapt and innovate. The only way to boost competitiveness to any tangible extent in today’s knowledge-based economy is through technological innovation.

What challenges will the Fourth Industrial Revolution pose for Mexico?

In all likelihood, developed economies will be less affected by the Fourth Industrial Revolution than emerging ones like Mexico that have enjoyed the comparative advantage of cheap labor up until now. But before this advantage disappears altogether, Mexico needs to take measures to transform and adapt to a new reality. The Fourth Industrial Revolution and new technologies can potentially contribute to Mexico’s social and economic development, but if we don’t adapt to change fast or effectively enough, the advent of this new technological era could further accentuate social inequalities. This is why we need to ensure the less privileged classes and workers who stand to lose their jobs have the time and means to prepare and adapt. Otherwise, they’re going to be left by the wayside. It is vital all sectors of the economy work together so the Fourth Industrial Revolution translates into economic growth on all levels and so its benefits are reaped by the entire population.

As regards Vision Mexico 2030, what goals has the CEEG set in today’s increasingly hi-tech, interconnected world?

Free trade is the main building block of our Vision Mexico 2030 plan, which takes into consideration the progress the country has made to date, the current situation and the opportunities and challenges anticipated in the context of the Fourth Industrial Revolution and today’s complex international context.

In this document, we propose four goals that we believe will help make Mexico a more global, more efficient and more inclusive country by 2030:

- Position Mexico among the world’s top five exporters.
- Double the workforce’s productivity.
- Double per-capita GDP and distribute wealth more equitably.
- Improve social development opportunities by creating one million jobs a year.

The CEEG has experience working with the authorities and plans to use it to help achieve these goals.

What part does innovation play in these plans?

Innovation will be vital to solid economic growth in the Fourth Industrial Revolution and in achieving the goals we have outlined in Vision Mexico 2030, while new industrial technologies will play a key role in helping Mexico maintain and strengthen its leading position as a manufacturing and export power. The CEEG has set itself the goal of creating conditions under which Mexico can attract 5% of annual investment in innovation by global companies by 2030.

As we state in our Vision Mexico 2030 plan, we believe Mexico needs to make the leap from manufacturing to “mind-factoring”; i.e. from an economy based on manufacturing activities to one focused on the creative industries, which generate much more added value and opportunities. To achieve this, we need to channel our efforts into industries with high growth potential like aerospace, which averaged growth of 21% between 2010 and 2014.

How does education fit into Vision Mexico 2030 and the Fourth Industrial Revolution?

Education and training are a central component of Vision Mexico 2030 and essential to our success as the Fourth Industrial Revolution approaches.

This new technological era will bring with it a radical transformation of the labor market. The World Economic Forum estimates the world’s largest economies will lose some 7.1 million jobs over the next five years. On the upside, however, 2 million new ones that require different capacities and digital skills (mainly engineers, IT experts and mathematicians) will be created. The Forum recommends promoting the acquisition of complex, problem-solving skills, and fostering critical thought and creativity, which will imply adapting traditional training and educational methods to a new reality.

We’re talking about a sweeping revision of curriculums and teaching methods at all academic levels. Continuing to enforce 20th-century educational models is not sustainable in this new technological era because it would leave us at a disadvantage as a country. Study plans and programs should not only take into consideration the know-how and skills students need to acquire, but strategies for promoting their acquisition.

As we state in our Vision Mexico 2030 plan, we believe Mexico needs to make the leap from manufacturing to ‘mind-factoring.’
The CEEG is aware of the importance of improving the competencies of all Mexicans, both in the classroom and in the workplace, and is working to strengthen cooperation between universities and the labor market to ensure the skills being taught are relevant to today’s labor market.

–Which sectors of the economy will spearhead Industry 4.0?

Mexico has a very competitive manufacturing industry. In recent years, it has come to represent a substantial percentage of GDP and exports. In 1980, manufactured goods accounted for only 20% of all Mexico’s exports, whereas this figure stands at close to 90% today. There is a lot of potential to improve the productivity of workers in this sector. The automotive industry is a prime example of how innovation is increasing productivity and adding value to each unit produced. At plants around the country, cars are being assembled by robots and a machine operated by four people can perform the same tasks that used to require many hands. In other words, we are transitioning toward more strategic, better paid jobs that require more educated workers with a more sophisticated skill set.

Likewise, the service sector is the most dynamic in the country and the highest contributor to GDP, but if it is to spearhead Industry 4.0, we need a long-term national strategy based on innovation in the broadest sense of the word: basic innovation, technological innovation and R&D to capitalize on its transversal benefits on the domestic economy and its export potential.

To the extent that Mexico establishes itself as an innovation-based, service-oriented economy, it will be better equipped to make the most of opportunities on the global arena, create more and better jobs and added value, and boost its productivity and competitiveness.

–Which markets do you think will benefit most from the Fourth Industrial Revolution?

Mexico has established itself as one of the world’s leading exporters of manufactured goods, which can be attributed mainly to the large amounts of foreign direct investment the country has received in the last 15 years. For example, Mexico’s automotive, electrical and electronics industries export large volumes to the US market. This, in turn, has created huge business opportunities in the productive chains of the manufacturing industry—a trend that looks set to continue with the arrival of the Fourth Industrial Revolution.

As digitalization takes a firmer hold, markets that invest in technology, innovation and the development of competencies stand to better position themselves in the Fourth Industrial Revolution.

–What role should small and mid-sized companies be playing in Industry 4.0?

The Fourth Industrial Revolution poses serious challenges for small and mid-sized companies because to the extent our world becomes more digitalized and integrated in terms of trade, these companies will find themselves having to invest more in technology and training if they are to adapt and continue to compete in the global economy.

To address this, the CEEG has made the development of Mexican suppliers a priority and taken steps to incorporate small and mid-sized companies into global value chains. We are working on two initiatives, the first of which seeks to improve the capacity of small and mid-sized companies to supply the global companies affiliated to the CEEG by boosting the efficiency and productivity...
of existing suppliers, broadening the supplier base and providing foreign suppliers with incentives to set up operations in Mexico. The second consists of encouraging Mexican suppliers to adopt best international compliance practices.

—Can you name five things that are key to Mexico’s growth in this new technological era?

Some of the points we include in our Vision Mexico 2030 plan include:

- Rule of law: A concerted effort needs to be made to shore up the rule of law and create conditions propitious to long-term investment, social wellbeing and, by extension, growth in this new era. Making compliance a comparative advantage for the participation of the private sector would help strengthen the rule of law.

- Human capital: As mentioned previously, we need to improve the competencies of all Mexicans, especially in the areas of sciences and mathematics, because we will need more engineers, scientists and other professionals in innovation-intensive productive sectors.

- Infrastructure: The development of competitive infrastructure is essential to increasing Mexico’s competitiveness and attracting investment in this new technological era.

- Sustainable development: These days it is unthinkable to talk about economic growth without factoring in the sustainable development component.

—What are the risks if Mexico fails to fully assimilate Industry 4.0 technologies?

The Fourth Industrial Revolution is a unique opportunity for Mexico to tap into its full potential, considering that we are able to adapt to changing circumstances. To this end, leaders, politicians, the business community, academics and other decision-makers need to work together to ensure these changes are positive for the country. The time has come to take concrete measures to boost productivity and create more opportunities for all Mexicans.

“These days it is unthinkable to talk about economic growth without factoring in the sustainable development component.”

www.ceeg.mx
In the future, the socioeconomic progress of a country will be determined by its ability to innovate and adapt rapidly to new scenarios.

INNOVATING TO COMPETE

Today, success in business depends on how competitive a company is internationally, which, in turn, depends on its ability to constantly innovate.

BY THE AMERICAN CHAMBER OF COMMERCE OF MEXICO*

Innovation, one of the 12 pillars of competitiveness measured by the World Economic Forum in its Global Competitiveness Report, has taken on unprecedented importance. According to Margareta Drzeniek Hanouz, one of the economists who helped draw up the report, “in the future, the socioeconomic progress of a country will be determined by its ability to innovate and adapt rapidly to new scenarios. Scientific and technological research and development, creativity, new business ideas and the ability to implement new business models will be decisive in increasing a country’s success.”
The vast majority of companies in Mexico—and the rest of the world—are joining the so-called Fourth Industrial Revolution by:

1. Automating their processes.
2. Incorporating new technologies into their products and services.
3. Training their employees in new technical skills.
4. Regularly investing in innovation.

This year, the American Chamber of Commerce of Mexico (AmCham) has made it a priority to help position Mexico as an internationally competitive innovation hub by promoting an environment conducive to increased productivity and sustained, inclusive growth.

The following are some stories of successful innovation at companies affiliated to Amcham in Mexico.

THE INTERNET OF THINGS

The Internet of Things (IoT) is a network of everyday “things” and people connected to the Internet and each other; the technological bridge, if you will, to a new, smarter, more sustainable, more productive way of doing businesses.

Honeywell is an industrial software company that is very well positioned in IoT. Its cyber-industrial arm Honeywell Technology Solutions (HTS) develops technologies for smart, connected buildings, productivity, security and industrial solutions, sensors for electronic devices and electricity meters.

An example of the successful application of IoT in Mexico by HTS is its commercial service for the routine supervision of electricity towers and gas/oil infrastructure, which employs a combination of drones, artificial intelligence (AI) technologies, independent networks, sensors, application program interfaces (API), cloud services and graphic processing units (GPU). Using an agile software development methodology, in just eight weeks, HTS Mexico engineers were able to create a web-based platform for this aerial inspection service, whose interface collects data that can be accessed by clients, project managers and drone pilot supervisors from remote locations.

Another success story is Panduit, a company that develops and provides network and electric connectivity infrastructure solutions. “To the extent that daily business transactions and a company’s very survival come to depend on information technologies (IT), the planning and execution of innovative infrastructure for a connected world, capable of responding proactively at all times to the needs of the business, should be considered a key strategy,” says Panduit Latam Vice-president Kaleb Ávila.

But industrial processes that make use of IoT are not the exclusive domain of software companies or large multinationals, as Colchones Wendy goes to prove. In 2017, this Mexican mattress company won first place in Innovation Week magazine’s “Most Innovative Companies” competition.

The Colchones Wendy project began six years ago in response to increased demand for the company’s products and the need to upgrade its industrial equipment, which had been in operation for more than 40 years in some cases. Colchones Wendy has since incorporated microprocessors, industrial sensors, Wi-Fi modules and other systems into two of its production lines. These send data to a cloud and a software development platform, creating artificial-intelligence-based machine-to-machine learning that enables the system to detect unusual patterns. The plant supervisor is then notified by text message or e-mail, completing the cycle of interaction with the industrial process in question. “We have improved how we manage our asset performance. From our finished textile to our assembly and metalmechanical lines where the springs are made, it’s all smarter,” says CIO Fernando Velasco Loera.

By applying IoT, Colchones Wendy has managed to:

- Improve the functioning of its equipment and reduce maintenance times from up to 24 hours of reactive maintenance, during which time the equipment came to a complete standstill, to just two hours of preventive maintenance, with 30% fewer fault events.
- Improve the performance of its assembly line by 20%.
- Improve its effectiveness by 10% and increase productivity, with each piece of equipment producing more units a day.
- Increase the rate of “perfect delivery” shipments from 95% to 97.5%. In 2016, the company was acknowledged as “Best Supplier” in its category by one of Mexico’s largest retail chains.
- Reduce the rate of product rejection by quality assurance by almost 60% in the last 12 months, translating into savings of over 700,000 pesos.

“Innovation, creation and the sharing of know-how are the foundations of progress, growth and formal employment.”
INVESTMENT IN R&D
Increasing productive investment is the joint task of private initiative and government. “A representative R&D investment figure would be 1% of GDP. Ideally, 50% would be put up by the public sector and the other 50% by the private sector,” says Jana L. Nieto Karam, president of the AmCham Innovation Committee.

More than 70% of the 1,450 companies affiliated to AmCham Mexico have expressed an interest in investing in technological R&D.

As Honeywell underscores in its business strategy, research centers not only provide software and engineering solutions, but encourage synergies between experts, facilitate the exploitation of economies of scale and connect clients and businesses in high-growth regions. The company’s research and design centers in Mexico City, Tijuana, Ciudad Juárez and Chihuahua employ over 220 engineers specialized in software, hardware and embedded systems. Some of its more innovative practices include:

- Product reengineering to improve product design and performance or to optimize production processes, based on an analysis of user experience and employing Six Sigma tools.
- Setting up of test labs equipped to perform over 64 tests for the internal certification of products, helping reduce product development times to between six and eight weeks.
- Localization of products to adapt them to the country’s technological requirements.
- Likewise, Panduit reinvests between 6% and 8% of its net annual profits in advanced research. Its efforts are focused mainly on:
  2. Distribution channels. The development of strategies to turn distributors into the allies and technological partners of integrators and final users.
  3. Final users. The physical infrastructure and data center projects developed by Panduit in Mexico boast the highest standards in Latin America and have become a quality reference for the region.

ORGANIZATION AND HUMAN RESOURCES
Cross-disciplinary cooperation mechanisms and strong value chains are central to successful innovation, but nothing is more important than the human factor. Firstly, the needs of the labor and graduate markets need to be better matched and secondly, horizontal organizational structures implemented to foster better communications.

HTS researchers have worked with their peers at the National Polytechnic Institute’s Computer Research Center (CIC IPN) on data science projects and, as of January 2018, with a multidisciplinary team of university students on the implementation of an innovation cell that will run concept tests on ideas generated internally by Honeywell’s business units in Latin America.

Likewise, IoT was successfully implemented at Colchones Wendy with the input of students from the Jalisco Technological University (UTJ). “We implemented an initiative called ‘Make your own Device’ with students from UTJ. The idea was that instead of buying sensors to collect data for analysis purposes, we would custom design our own,” says Velasco Loera.
At Colchones Wendy, the IT department is more than a machine room that supports the plant’s operations; it is a strategic partner in the decision-making process.

Finally, innovating is also about motivating employees so they give their best. Over and beyond competitive wages, companies that offer perks attractive to new generations, such as professional development opportunities, flexible hours and/or training alternatives are the ones that are going to attract talent.

Edenred, a global leader in prepaid corporate services, has made some innovative efforts in this area. “Human resources are no longer resources; they are key people in the life of organizations and require that a series of changes be made to traditional working structures to foster a sense of belonging, commitment and greater productivity.” In accordance with its corporate philosophy, Edenred has introduced:

1. Flexible working hours that allow employees to manage their own time.
2. Rewards Café for the design of flexible work plans that meet the personal needs of employees.
3. Open-plan work areas that break down hierarchical barriers, in turn promoting collaboration, more horizontal relationships and on-the-spot decision-making.

Organizational innovation requires striking a balance between the needs of employees and the benefits for the company. “The challenge is to increase employee income without compromising the company’s budget and at the same time improve their quality of life,” says Edenred México Marketing and New Business Development Director Alfredo Bernacchi, adding that “at the end of the day, the company also stands to gain because its employees are more motivated, more satisfied with their jobs and more committed to the organization in the long term.”

COLLABORATION AND NETWORKING
Private companies need to collaborate with one another, share best practices and create synergies that add value to their business models.

To promote exchanges like these, AmCham has come up with a concept it has dubbed “Innovation Cafés”, whereby members of its Innovation Committee visit companies to learn about their progress in this area.

In 2017, several companies shared some of their best practices during these visits. For example, 3M revealed its breakthroughs in intellectual property and gave committee members a tour of its innovation center, Edenred presented its organizational and human resources innovations, and Honeywell shared its innovations in energy efficiency and logistics chains.

Top of AmCham’s 2018-2024 agenda is to position Mexico internationally as a competitive innovation hub. The chamber’s Innovation, IT, Intellectual Property and other specialized committees foster the sharing of best practices and collaboration between the private sector and government to facilitate the drawing up of public policy proposals and the building of bridges between the various actors involved.

“The American Chamber of Commerce of Mexico represents private-sector interests in Mexico and the United States. Its 1,450-plus affiliates account for approximately 21% of Mexico’s GDP and employ 2.5 million people directly and another 6 million indirectly.

*The American Chamber of Commerce of Mexico represents private-sector interests in Mexico and the United States. Its 1,450-plus affiliates account for approximately 21% of Mexico’s GDP and employ 2.5 million people directly and another 6 million indirectly.

“Investment, the development of manufacturing facilities, the forging of strategic alliances, collaboration, advanced research and development in conjunction with other industry leaders are key to innovation.”

KALEB ÁVILA, VICE-PRESIDENT OF PANDUIT LATAM
WHAT ROLE WILL MEXICO BE PLAYING AT HANNOVER MESSE?

BY LORENZO BERHO*

Members of the Mexico-Germany Business Committee of the Mexican Business Council for Foreign Trade, Investment and Technology (COMCE) could not be more aware of the importance of Industry 4.0, whose technologies will be the focus of Hannover Messe, the world’s largest industrial fair to which Mexico has been invited as a guest country this year. This is an invaluable opportunity for Mexico, given that the fair will take place in Germany, one of the most influential pioneers of the Fourth Industrial Revolution.

In Mexico, more and more multinationals and homegrown enterprises are incorporating the latest i4.0 technologies into their products, processes and business models. Infrastructure, premises and especially human talent are rapidly evolving to respond to the increased collaboration and interconnectivity this convergence of the physical and virtual worlds demands.

WHY MEXICO?
Mexico is an emerging industrial platform in North America, one of the world’s most dynamic regions whose importance has outgrown the agreement that originated it. And according to World Bank figures, it will continue to flourish, accounting as it does for 28% of global GDP and 19% of global industrial GDP.

There can be no denying NAFTA has transformed Mexico. Thanks to foreign direct investment of over 156 billion USD in the last six years alone and exponential growth in exports, Mexico now boasts installed production, labor and infrastructure capacity, and universities and research centers that exceed the scope of regional agreements.

MEXICO, A WORLD-CLASS MANUFACTURING HUB
Deemed a world-class manufacturing hub, approximately 80% of Latin America’s high-tech exports are produced in Mexico, which has an extensive network of free trade agreements.

Mexico is the world’s fourth-largest exporter of automobiles – the 21 carmakers operating here have 28 plants in different parts of the country –, the sixth-largest auto parts exporter and the seventh-most-important exporter of manufactured goods. It is also a burgeoning aerospace hub, with 312 facilities in 19 states. These are all industries where cutting-edge production technology and experience go hand-in-hand, which explains why Mexican labor has become so specialized. Multinationals with a presence in the country are quick to acknowledge the capacity of Mexico’s human talent to learn new skills and adapt, especially in areas like engineering.
MEXICO AND HANNOVER MESSE
Mexico is an important link in the North-American industrial chain, but it is also an emerging i4.0 destination and actor that is leading the Fourth Industrial Revolution in Latin America. Active at international forums on i4.0, like Hannover Messe, Mexico has a strong presence and wide experience in the automotive and aerospace industries—whose dynamism is key to Industry 4.0—and boasts a strategic geographical location.

MEXICAN-GERMAN RELATIONS
Germany is Mexico’s number one trading partner in the European Union and its fifth worldwide, while German investment in Mexico has steadily increased to the point where there are now more than 1,800 German companies operating in Mexico and that employ some 120,000 people.

Trade and investment ties between Germany and Mexico have gone from strength to strength over the years and have branched off into other areas of cooperation, like the Dual Education program that offers Mexican companies the chance to learn about Industry 4.0 and digitalization in Germany. One of the goals of the program is to groom a competitive workforce to ensure the continued employability of young Mexicans in industry.

In today’s rapidly changing world, the ability to assimilate new technology, build new infrastructure and train human capital are all essential to a country’s competitiveness, reason why Mexico is the ideal destination for i4.0-related investment.

*President of the COMCE
Mexico-Germany Business Committee.

The Dual Education program offers Mexican companies the chance to learn about Industry 4.0 and digitalization in Germany.
WHY HANNOVER MESSE FOR MEXICO’S SMALL AND MID-SIZED MANUFACTURERS?

A view on the opportunities that 4.0 Revolution brings for small and mid-sized companies and how technological change is boosting employment for new lines of work.

BY LUIS ROSSANO*

I’m an advocate of the Fourth Industrial Revolution. As president of a group of small and mid-sized manufacturing companies operating in the automotive and medical devices sectors, we couldn’t be happier: i4.0 has democratized these industries, giving us access to user-friendly technology, from CNC milling machines with IoT to 3D printers and apps for project follow-up, without which stories like that of RPC —our newest addition to the group— would be inconceivable. Just four years since it began operating, RPC is designing and producing molds and injecting everything from plastic automobile safety parts to pacemakers. Turnkey projects like

ACCORDING TO THE MCKINSEY GLOBAL INSTITUTE, FOR EVERY JOB LOST TO TECHNOLOGY, ANOTHER 2.4 ARE CREATED.
In Mexico (and most other parts of the world), small and mid-sized companies create 70% of jobs and contribute to 48% of the GDP.

these used to be reserved for mega-enterprises, but there is one resource that is even more valuable than technology and that is people.

According to the McKinsey Global Institute, for every job lost to technology, another 2.4 are created. In other words, we’ve never been closer to solving the employment problem, yet it is highly likely none of these new jobs will go to the people who have been pushed out of the labor market due to a lack of digital skills or automation. At the G20/B20, the OECD reported that “60% of the workforce in the European Union said they felt they had insufficient IT knowledge to apply for a new job, rising to over 80% in the case of less educated people.” Likewise, according to the US Chamber of Commerce, in the United States “88% of the factory jobs lost in recent years can be attributed to (...) technological change, robotics and automation”, not to Mexico or NAFTA.

At the 2016 Global Risk Forum (WEF), attention was drawn to the fact that “of the 29 global risks and 13 global trends identified (...) the strongest connections are between the growing income gap, unemployment or underemployment and deep-rooted social instability.” “On a global scale, we calculate that the actual performance of automated technologies could affect 50% of the world economy, which translates into 1.2 billion jobs and 14.6 billion USD in salaries” (MGI FGF 2016). According to Schwab, (WEF), “the winners will be those with the capacity to fully participate in innovation-driven ecosystems (...) as opposed to those that have only unskilled labor or ordinary capital to offer.”

In Mexico (and most other parts of the world), small and mid-sized companies create 70% of jobs and contribute to 48% of the GDP (Forbes), yet we are the ones exposed to the greatest risks. At the G20/B20 and annual IMF meeting (2017), where I represented Mexico, I heard the CEOs of technological giants (Google, Bosch, among others) constantly complain about how hard it was for them to find the right human resources for the job. So what should small and mid-sized companies be doing?

No one is going to give small and mid-sized companies a break. The risk of crashing and dying is just as great as the chance to seize a golden opportunity. What are you going to do?

Technology is progressing in leaps and bounds, democratizing industry as it goes. In such a context, we may fear losing the business of our largest client or worry about the future of our jobs, but what if, by a stroke of luck, we suddenly had access to everything we needed; the big buyers, the big companies, new technologies. What would happen if the greatest minds, architects and artifices of global digitalization were at our disposal, if those who coined the term i4.0 were there to guide us? What if you were their guest of honor?

Hannover Messe coined the concept of i4.0, and Germany made it a country strategy. This year, Mexico is the Partner Country of the world’s largest industrial fair, a participant in the perfect conclave at the perfect moment in time. Hannover Messe is synonymous with business and the Mexican Business Council for Foreign Trade (COMCE) is convinced this is the golden opportunity every small and mid-sized company that depends on its people and lives with the threat of obsolescence hanging over it has been waiting for. See you at Hannover!

*Vice-president of the COMCE
Mexico-Germany Business Committee
MEXICO IS STRIVING FOR MORE COMPETITIVENESS AND IS WORKING TIRELESS TO FIND SOLUTIONS THROUGH INDUSTRY 4.0, IOT AND CONNECTIVITY.
THE X MARKS THE SPOT

The X will have a prominent place on the fairground at Hannover Messe this year. It is an essential part of the design of the seven Mexican pavilions that are spread over the different areas of Hannover Messe and CeMAT. Mexico will showcase its main strengths in over 3,500 m², with the participation of more than 160 companies, institutions and allies.

BY ANNA SCHÖBER*

MEXICO’S PRESENCE AS PARTNER COUNTRY 2018

Through several interactive and technological experiences, the National Pavilion will give plenty of information about the country itself, its states, its economy, industries, clusters, tendencies, competitiveness among others. Besides that, an all-day conference program at the Pavilion’s Auditorium is prepared with high-level panel discussions about dual education, industry 4.0, value chains, energy, research and the national start-up scene, as well as several state presentations.

Besides the National Pavilion, Mexico will have a presence in halls 2, 5, 6, 13, 17, and 21, where numerous research and technology centers, organisms and companies display Mexico’s achievements and developments, positioning the country as an important player among the most innovative industries.

Mexico is striving for more competitiveness and is working tirelessly to find solutions through Industry 4.0, IoT and connectivity. This is becoming increasingly important for its advanced manufacturing industry. Although automation and digitalization play an omnipresent role in this process, another of our main objectives is to show Mexico’s well-prepared, committed and innovative talent.

Although automation and digitalization play an omnipresent role in this process, another of our main objectives is to show Mexico’s well-prepared, committed and innovative talent.

Hannover Messe 2018 is a great moment to present Mexico’s most modern face for industry and business, a country where the future reveals itself every single day.

Welcome to the different spots of the Mexican participation at Hannover Messe.

Welcome to Mexico, where the X marks a very special spot on the map of the most relevant global new economies.

*Head of Project “Mexico Partner Country 2018 - Hannover Messe” at ProMéxico.
PRESENCE OF MEXICO IN HANNOVER

With the participation of strategic allies—such as Siemens, Cemex, and Canacero, among others, as well as the governments of several Mexican states and government institutions—the National Pavilion showcases a modern and innovative Mexico. The country is highlighted as a hot spot for innovation, research and development and as one of the most attractive investment destinations globally.

**National Pavilion**
*Hall 27 booth H30*
Inside the National Pavilion, different interactive experiences will show visitors Mexico’s main strengths in terms of industrial innovation.

**Logistics**
*Hall 21 booth C19*
Mexico has four Special Economic Zones offering favorable customs regime and regulatory framework, as well as first-class infrastructure for industrial investment. In addition, Mexico aims to incorporate and test the latest’s technologies in logistics 4.0 for storage, conveying, packaging, cranes and lifting equipment in its Special Economic Zones.

**Digital Factory**
*Hall 6 booth B18*
There are at least 29 competitive clusters developing and implementing smart factory technologies in Mexico.

**Energy**
*Hall 3 booth D10*
Mexico is actively promoting the use of renewable energy sources, thus ranking 8th in the Renewable Energies Investment Index. There are several industrial parks in the country running almost entirely on wind and solar power.

**Industrial Supply**
*Hall 5 booth E30*
From SMEs to large multinational Tier 1 companies, the supply chain in Mexico is well-organized for industries such as aerospace, electronics, medical devices and automotive. There are at least 25 highly competitive clusters of industrial supplies in Mexico.

**Young Tech Enterprises**
*Hall 17 booth B77*
There at least 29 competitive clusters developing projects aimed at fostering manufacturing processes automation in Mexico. In relation to these developments, Mexico will be showcasing its startups and technology entrepreneurs that embody the country’s spirit of innovation.

**Research & Technology**
*Hall 2 booth C59*
Mexico has an intricate system of networks that link the research and testing capacities of different laboratories to advance specialized projects in computer science, advanced materials, nanotechnology, optics and photonics, among others. There are 98 research and development centers focused on industrial innovation and advanced manufacturing in Mexico.
“The eyes of the entire industrial world will now be turned to Mexico. This partnership is a win-win for everyone and will do much to grow and improve economic relations.”

DR. JOCHEN KÖKLER, CHAIRMAN OF THE MANAGING BOARD, DEUTSCHE MESSE

**SIZE AND POPULATION**

- **123.9 million** people
  - The world’s largest Spanish-Speaking country
- **1.96 million** km²
  - 14th largest country in the world

**FOREIGN TRADE**

- **14th**
  - Largest exporter globally³
  - 409,494 million USD

- **1 billion** customers worldwide⁴

- **80%** of Mexican exports

**ECONOMIC OUTLOOK**

- **Gross domestic product (GDP)¹**: 1.142 trillion USD (9,249 USD per capita)
  - **15th** largest economy in the world
  - **2nd** largest economy in Latin America

**Main industries as a share of GDP²:**

- **18.2%**
  - Real estate services and civil construction

- **17.4%**
  - Retail

- **15.8%**
  - Manufacturing

- **6.4%**
  - Logistics, post office and storage

**FREE TRADE AGREEMENTS**

- **Mexico has access to over 1 billion customers worldwide⁴**
- **FTAs with 46 countries representing nearly 60% of the world’s GDP⁵**

**Capital City: Mexico City**

- **21 million** people
  - Including the metropolitan region

- The country’s economic, political and cultural heart

**Sources:** ¹ Banco de México, 2017. ² INEGI, 2017. ³ OECD, 2016.
FOREIGN TRADE

MAIN PARTNERS AS A SHARE OF EXPORTS

88.0% América
6.0% Europe
5.5% Asia

MAIN PRODUCTS AS A SHARE OF EXPORTS

10.2% Light vehicles
6.6% Auto parts and accessories
6.0% Trucks
5.7% Computers and parts
4.8% Telephones and equipment
4.3% Medical and surgical instruments
3.2% TVs
2.7% Electric conductors

KEY MANUFACTURING INDUSTRIES

In 2017, Mexico received 29,695 million USD in Foreign Direct Investment (FDI) and almost 45% of FDI in Mexico goes to the advanced manufacturing industry.5,6

AEROSPACE
111.1 million USD in investment
7,579 million USD on exports
43,000 jobs
7th supplier of aerospace parts to the United States

AUTOMOTIVE
6,972 million USD in investment
126,671 million USD on exports
985,000 jobs
4th largest exporter of light vehicles in the world

ELECTRONICS
1,249 million USD in investment
78,011 million USD on exports
418,630 jobs
8th largest producer of electronics in the world

MEDICAL DEVICES
157.4 million USD in investment
9,394 million USD on exports
26,521 jobs

DID YOU KNOW MEXICO...

...is the 9th most attractive destination for FDI with two-thirds going to manufacturing?

...is the 10th country with the most patents granted worldwide?

...is 3rd largest nation per number of airports?

ADVANCED MANUFACTURING IN MEXICO

Consists of technologies like:
- The IoT
- Digitalized and automated processes
- Collaborative robots
- Virtual and augmented reality
- Collaborative and simulation software
- Big data analysis

These technologies allow for hyper-flexible manufacturing that can rapidly adapt to market changes and the needs of each individual process, from design to marketing.

Foreign investment has made a major contribution to the creation of jobs and the maturation of manufacturing-oriented sectors in Mexico like the automotive, aerospace and electronics industries, all of which offer real opportunities to incorporate the i4.0 technologies that will make the country more competitive.

Mexico has IT clusters with over 1,300 players and some 500,000 professionals working in i4.0-related areas like computer sciences, mechanical engineering and mechatronics, automation, physics, mathematical statistics and data analysis*

Mexico ranks 3rd in the Digital Transformation Index.
There are also plans afoot to create two hyper-flexible manufacturing clusters in 2019 and 2021.

*According to data provided by the National Association of Universities and Higher Education Institutions.
MEXICO’S TOP 35 COMPETITIVENESS CLUSTERS IN INDUSTRIAL INNOVATION AND ADVANCED MANUFACTURING

All these clusters are made up of triple-helix actors (government, academic institutions and companies) that form collaborative synergies in one of the four areas listed below:

- R&D and the transfer of technology
- Digital factories
- Industrial supply
- Integration of automation, movement and control

- Driven by trade and foreign investment, strategic sectors like the IT, automotive and aerospace industries are present in all these poles.
- Approximately 90% began operating in the 21st century, making them a fairly recent phenomenon.
- In total, these clusters have 116 actors and each one employs around 26,000 people.
THE NEW INDUSTRIAL ECOSYSTEM

Mexico’s broad-based capacities will greatly facilitate the transition to the i4.0 ecosystem.

This can be partially attributed to transfers of technology, which have paved the way for highly digitalized factories, and high levels of foreign investment.

Mexican companies also have access to an extensive support network on all levels. It has 98 research centers for innovation and advanced manufacturing.

Rapid and constant innovation has resulted in the creation of 34 clusters implementing industry 4.0 technologies and IoT solutions.

Mexico is an attractive destination for ITC investment and is the second largest recipient of investment in projects related to strategic i4.0 sectors.
Five examples of how valuable Mexico is to world leaders in industrial innovation

Mexico is the main exporter of mid and high tech, among G20 countries (as a % of its GDP).

By 2025, Mexico will be one of the top 5 leading countries in digital solutions and big data management.

The country has over 30 automotive engineering and design centers, 24 assembly plants and 345 Tier 1 auto parts suppliers.

Mexico has over 223,000 graduates annually from Science, Technology, Engineering and Math careers.

There are windows of opportunity for the incorporation of 3D printing technology in industrial prototyping, mainly in the manufacture of molds and plastics in the chemical industry.
IVÁN PELAYO, EXECUTIVE VP OF DIGITAL FACTORY, PROCESS INDUSTRIES AND DRIVES AT SIEMENS MEXICO.
INTERVIEW WITH IVÁN PELAYO LÓPEZ, EXECUTIVE VP OF DIGITAL FACTORY, PROCESS INDUSTRIES AND DRIVES AT SIEMENS MEXICO

4.0 FOR ONE AND ALL

The Fourth Industrial Revolution is upon us and according to Iván Pelayo López, manufacturers will have to incorporate digital systems to up their efficiency and stay one step ahead. Siemens’ mission is to bring 4.0 technology to Mexican companies large and small, with a view to creating “a totally connected industry that can be controlled by machines, where the manufactured product itself contains information on all the processes that have been applied to it.”

BY ROXANA VILLALOBOS

—Is all digitalization synonymous with Industry 4.0?

Digitalization is just one aspect. If we’re referring exclusively to digitalization, we’re talking about all those online events that allow us to analyze data. But when we talk about the digitalization of industrial processes, then we’re referring to Industry 4.0. For example, Siemens has its own industrial cloud [MindSphere] that uses applications to collect data on production processes, thereby enabling us to make industry-specific decisions and come up with a package of digitalized solutions.

—To which industrial sectors can MindSphere be applied?

Siemens has a presence in all industrial sectors. Our MindSphere solution collects data in real time and stores it in this huge cloud. An analysis of this data reveals critical aspects of the client’s industrial process, which is extremely valuable because it facilitates decision making and helps optimize production processes, making for more efficient, more flexible operations overall.

—What are the main technological challenges facing Mexico’s industrial sector?

First, we need to be clear what Industry 4.0 means. Small and mid-sized companies account for 99% of industrial activity in Mexico and contribute almost 38% of manufacturing GDP. So the manufacturing industry is very important in Mexico, reason why we need to ensure all companies, no matter what their size is, fully grasp the concept. Obviously, this requires investment, but all investment in these new technologies will help improve efficiency. In other words, it’s investment that will produce substantial returns in the mid-term.

Another challenge is designing public policies that offer tax incentives so companies can access this type of technology. And making sure all employees are properly trained is another.

—What Industry 4.0 solutions does Siemens offer?

We are the only company that offers large-scale solutions through our Digital Factory Division. For example, our design and manufacturing software enables our clients to design virtual...
products and test them without having to invest in manufacturing physical ones. We can then use this design information to build a prototype using our manufacturing software. It’s solutions like these that help Siemens’ clients improve their production times, efficiency and flexibility and, by extension, product quality.

—What percentage of Mexico’s industry would you say is digitalized?
We recently conducted an internal study that revealed 59% of Mexican companies are considering going digital. I think companies should overcome their fears and take the first step. It’s important to ask yourself: “Am I convinced of the benefits of digitalization? What is my critical process? What is causing me the most headaches on my production line? Where do I want to start?” Knowledge of where the industry stands and the possibilities of Industry 4.0 are essential.

—Does Mexico have what it takes to compete in the Fourth Industrial Revolution?
Mexico has made enormous headway in terms of Industry 4.0. What we need now is to reach more organizations. Mexico is the 15th-largest economy
in the world, but with tools like these, we could easily compete with countries like China and Germany. But to do so, we need to get all industry on board. The technology and connectivity are there; we just need more companies, especially small and mid-sized ones, to adopt it.

—Who should we be looking to for lessons in Industry 4.0?
I wouldn’t say there’s one specific role model. We can borrow good practices from anywhere, no matter what their source is. The German model is pretty good, for example, but we need to determine which solutions are applicable and which ones aren’t. There could well be another company out there doing exceptional things we can learn from, so I think we should keep an open mind. In this respect, the Hannover Messe industrial and technology fair is a valuable opportunity. This year, Mexico has been invited as a guest country and we will be able to showcase what we’re doing in the area of 4.0 and bring back new ideas that we can apply at our companies.

—What will Siemens be taking to Hannover Messe this year?
We’ve actively participated in this trade fair since its first edition (1947). This year, we will be taking at least 100 Mexican companies to Hannover, where we’ll be discussing topics like digitalization, solutions and The Internet of Things, ratifying our MindSphere concept and strategically promoting our 4.0 approach.

—In 2017, Siemens launched an initiative in conjunction with the Ministry of Economy called “Mexico 4.0”. Can you tell us more about it?
The idea is to design strategies so Mexico is fully prepared for the Fourth Industrial Revolution. Task forces will be set up, where different companies will discuss topics related to 4.0 digitalization and how we can introduce this technology to small and mid-sized enterprises. Big industry is already familiar with the concept, but we need to permeate industry on all levels. It’s important small and mid-sized companies adopt it because larger companies depend on them as suppliers. At these task forces, we will be talking about education and what is needed in terms of automation and big data, for example. Each task force will then be asked to draw up a list of actions and will be responsible for following up on these.

—What are Siemens’ expansion plans in the area of Industry 4.0?
Digitalization is at the core of our global strategy. In Mexico, we expect demand for our digitalization solution to grow at least 30% a year. The hard part will be reaching more and more clients and convincing more and more companies that 4.0 is where we need to be focusing our efforts, because the solutions are there; we just have to get industries of all sizes implementing them.

“How to connect with each other should be our main concern. (...) That is precisely what Industry 4.0 is all about: making companies more efficient and more productive, improving their quality standards and reducing costs and emissions, because these are things that will always be welcomed by clients the world over, no matter what their line of business is.”

www.siemens.com/mx
SIEMENS BETS ON 100% MEXICAN INNOVATION

In Mexico, Siemens continues to invest in projects that are essential to growing a strong manufacturing and energy sector. For over 120 years, Siemens has been driving innovation with groundbreaking ideas, new concepts and convincing business models have been the guarantors of our success. Our innovations move beyond mere ideas to become convincing products that conquer markets and set benchmarks. They have made our company big and strong, and enable us to build a successful future.

BY GISELE FIGUEROA*

Our inventors like to think outside the box. And they go even further by constantly changing their perspective. As highly motivated engineers and designers, they know which technologies have what it takes to succeed.

Meet Fabian. He was born in Guadalajara, Mexico, and went to the University of Guadalajara where he studied electrical and mechanical engineering and earned a masters degree in Technical Projects. In 2011, he joined Siemens as a Mechanical Designer in the R&D department. For the last 3 years, he has been responsible for the development of new products in the Product Lifecycle Management division. He has the opportunity to lead several multidisciplinary teams on different projects. He said that this most recent project, without any doubt, has been the most challenging of his career as a Project Leader, because of the accelerated timeline and anticipated results.

Fabian and his team at the plant in Guadalajara are responsible for developing and designing new motors. Their most recent challenge was to create the largest NEMA frame size with performance in line with what you would expect from Siemens at a very competitive price point. The resulting NEMA FS 500 is the largest and most powerful product fully designed and produced completely in Mexico intended for global distribution.

The motor was designed to meet global efficiency requirements of today and the future. When asked about the development process, Fabian mentioned quality gates like the 1st prototype proof of concept, design freeze, certifications, supplier definitions, production planning and strategy for building required parts that had never been produced before. Starting with a fully digitalized 3D rendering of the motor created using both TeamCenter and Simcalc, he used 3-D printed molds for new parts. He credits the speed of development to the use of this rapid prototyping. The process reduced the development timeline by 7-8 months. The design specifications required a power range of four-hundred HP to seven-hundred HP, but our engineers achieved 800 HP.

The NEMA FS 500 motor will be used to run pumps, compressors, conveyors and fans in oil and gas, water and waste water, timber and pulp processing, and in food and beverage industries.
The motor will be used to run pumps, compressors, conveyors and fans in oil and gas, water and waste water, timber and pulp processing, and in food and beverage industries. Some of the first motors will be delivered into a mid-stream oil and gas pumping station.

There will be an on product data-matrix code which is similar to a QR code for the first time on a NEMA motor. Today, scanning this code will provide the part number and serial number, but tomorrow, it will provide direct access to schematics and supporting materials. It opens the door to the digital world allowing future access to industrial communications and analytics.

Another key feature is the flexible terminal box. It is field modifiable, which allows the terminal box to be moved into multiple positions. This simplifies installation, reduces the number of variants that the OEM must stock and is a major asset in the field.

ABOUT SIEMENS IN GUADALAJARA
“La Tijera” Factory is located in Guadalajara, Jalisco, Mexico and has an approximate annual output of 600 tons of product, mainly NEMA motors FS 48-449 of 0.25 - 400 horsepower (HP). The NEMA FS 500 is the newest motor produced on site. In terms of processes and people, the factory has achieved ISO 9001; ISO 14001 and OHSAS 18001 certifications and it currently employees 720 proud Siemens employees.

THE PEOPLE BEHIND THE INNOVATION
Research and development is no easy task. That’s why it requires the smartest minds around. We have one common goal: the future. We’re always looking for new ways to make a real difference in Mexico and on the planet.

*Communications and Government Affairs, Siemens México & Centroamérica
WWW.SIEMENS.COM/MX
INTERVIEW WITH FERNANDO GONZÁLEZ OLIVIERI, CEO OF CEMEX

INNOVATION AND DEVELOPMENT, A TRANSFORMING FORCE

“OUR CEMENT AND CONCRETE TECHNOLOGY CENTER (CTCC) HAS A TEAM OF EXPERTS WORKING ON INNOVATIVE, SUSTAINABLE CONSTRUCTION SOLUTIONS THAT MEET THE PRESENT AND ANTICIPATE THE FUTURE NEEDS OF OUR CLIENTS, AND THAT PUSH THE INDUSTRY’S TECHNOLOGICAL BOUNDARIES.”
Cement is one of the key products in the great construction industry. Fernando González Olivieri, talks about how innovations and development are two crucial conditions to achieve the growth of the Mexican industry and boost its competitiveness worldwide.

BY IVÁN IGLESIAS

—How does Cemex manage to stay ahead in terms of R&D and quality standards?

Cemex is very clear about its goal of helping its clients succeed in their line of business by providing them with quality products, innovative solutions and excellent services.

We invest time building strong relationships with our clients and are receptive to their needs. This is why we are able to offer them quality building supplies and innovative solutions that meet their specific construction requirements.

Central to these efforts is our R&D area, the Cemex Research Group, whose head offices are located in Switzerland. In Mexico, our Cement and Concrete Technology Center (CTCC) has a team of experts working on innovative, sustainable construction solutions that meet the present and anticipate the future needs of our clients, and that push the industry’s technological boundaries.

Our most recent initiative in our constant drive to innovate is Cemex Go, the first client-oriented integrated digital platform designed to boost users’ productivity, help them make better decisions and give them greater control over their businesses.

Likewise, Cemex Ventures is focused on developing sustainable solutions that address the main challenges and exploit areas of opportunity in the construction ecosystem in collaboration with startups, entrepreneurs, universities and other related actors. This open innovation platform is spearheading the revolution in the construction industry and molding the value ecosystem of tomorrow.

These efforts illustrate our commitment to remaining at the forefront of the industry and better serving our clients, no matter where they are in the world.
—What advantages does Mexico offer Cemex as regards R&D?

Mexico’s public and private sectors are both rich sources of innovation and R&D. In our specific case, it is the CTCC that develops lines of research to create new products and solutions, some of which incorporate nanotechnology breakthroughs. The center also analyzes raw materials, new technologies and their potential applications to concrete and other products.

The CTCC is a prime example of the advantages Mexico has to offer in R&D. The figures speak for themselves—the center has implemented over 50 research projects to date and developed over 30 special concretes.

—What challenges does the Fourth Industrial Revolution pose for the Mexican cement industry? In your view, how will Industry 4.0 affect growth prospects for Mexican industry in general and the construction industry in particular?

Digital technologies are the main force that is going to transform industry and our company. We believe these will have an especially strong impact on the way we serve markets and clients, which is going to be a challenge.

But at Cemex we view challenges as opportunities and this change in paradigm has enabled us to improve our clients’ experience via our CEMEX Go platform and participate in the transformation of the industry, not just in Mexico, but worldwide.

—How much progress has Cemex made implementing Industry 4.0 solutions?

We are trailblazing with Cemex Go, the industry’s first integrated e-commerce platform. It is a multi-device solution that offers clients an optimum experience, allowing them to place orders, track them in real time, manage invoices and pay for most Cemex products, including sacks of cement and cement in bulk, concrete, additives and multi-products. Cemex Go provides the detailed, real-time information clients need to make transactions in less time, giving them more control over their businesses. Cemex Go is a testament to our commitment to the client and our constant drive to innovate and improve. The only platform of its kind in the industry, Cemex Go offers a user experience that exceeds any other in the past. It currently operates in Mexico and the United States, where we serve some 5,000 clients. Its global implementation should be completed by the end of this year.

Cemex Go is a multi-device solution that offers clients an optimum experience, allowing them to place orders, track them in real time, manage invoices and pay for most Cemex products.
Likewise, Cemex Ventures is an open innovation platform that attracts novel concepts to Cemex and is our vehicle for gaining better insight into industry trends and monitoring possible disruptive events. Cemex Ventures was very active during its first year of operations, when we made an in-depth analysis of the construction ecosystem, and identified its pain points and potential areas of opportunity.

Based on the opportunities we identified, we held two idea challenges—one internally at Cemex and an external one among the entrepreneur community. These resulted in the analysis of over 2,000 startups, investment in three of them and the incubation of three concepts. This is just the tip of the iceberg as far as Cemex’s leadership in the construction industry and the implementation of cutting-edge digital technologies go.

—Why is it important for a company like Cemex to invest in R&D?
R&D plays a key role in the development of business models, services and innovative technologies. It enables us to harness Cemex’s assets and use know-how to differentiate our products and services in a wide range of markets, each with their own specific challenges.

We place great emphasis on the creation of tangible value for our clients, on helping make their businesses more profitable, but more importantly, as an industry leader Cemex has undertaken the mission of accelerating the sector’s technological evolution, while promoting sustainability and social responsibility.

—What do you expect to achieve at the 2018 edition of Hannover Messe?
Participating in one of the world’s most prestigious and longest-running technological and industrial fairs is both an honor and a responsibility. By the same token, it is a privilege to represent the state of Nuevo León and Mexico, to show the world the innovative facet of this land of tradition. As we say at Cemex, participating in Hannover Messe will enable us to build a better future.
BANCOMEXT: DEVELOPMENT OF THE METAL-MECHANICAL INDUSTRY IN MEXICO

The strategic geographical location and openness to foreign trade, skilled workforce, demographic bonus and a large population have ensured Mexico as an ideal platform for production and export for the metal-mechanical industry from Europe, Asia and United States due to the fact that metal products manufacture is directly linked to the course of automotive and aerospace development.

The automotive industry generates more than 600 thousand direct jobs and for every job that is created in an assembly plant, six to seven jobs are generated in the auto parts industry.

The automotive sector represents one of the most important development engines of growth for the country. As of the end of 2017, automotive production grew 9% more than the previous year, which translates in a total of 3,773,569 manufactured vehicles. Moreover, automotive exports grew in 12.1% or 3 million units compared to the total recorded at the end of 2016, which means a historical record number. This is an outstanding increase.

The Mexican Association of the Automotive Industry estimates that the country could reach a production of 5 million vehicles by 2020 and about 100 billion dollars of auto parts. These figures show how Mexico will continue being a relevant producer and exporter of vehicles and auto parts.

On the other hand, aerospace industry represents a great opportunity for growth and profitable development today. It is estimated that by the year 2032 the total aircraft fleet will be composed by more than 36 thousand aircraft of which two-thirds will be low-cost passenger ones. The development strategy for the aerospace sector in the country is based on the generation of new technologies and the promotion of clusters in which companies, research centers and government offices converge; especially, since international companies have found in Mexico the necessary talent to foster high value projects related to new generations of turbines.

The Banco Nacional de Comercio Exterior was founded in 1937 with the purpose of contributing to the development and generation of employment in Mexico, promoting capital formation and productivity through financing foreign trade and foreign exchange generation. For all the aforementioned, Bancomext has considered the metal-mechanical industry as a strategic sector and have therefore developed a special program to continue its support and promotion.
PROMTEL: PROMOTING INNOVATION IN MEXICO’S TELECOMMUNICATIONS SECTOR

Public policies tend to focus on attracting investment, promoting innovation and the development and use of new technologies. These initiatives combined have lent industry more economic clout, benefitting the population at large and encouraging citizens to participate actively in social, cultural and educational spheres. In the telecommunications sector, projects such as these have enabled countries to close the digital gap by granting more people access to information technologies, which, in turn, has helped drive development.

Mexico’s newly reformed telecommunications sector has gone to great lengths to make broadband services of a higher standard available to a larger percentage of the population at a lower cost. It was for this reason that Promtel, a decentralized agency of the Communications and Transportation Department (SCT), was created. The agency’s main task is to promote investment in telecommunications, specifically the installation of a shared wholesale network that will operate on a 700MHz band and that will offer its capacity to both new and existing operators. Deemed the most important telecommunications project undertaken by Mexico to date, the network will reach at least 92.2% of the population with a 4G or faster signal, while its installation and operation will bring in an estimated 7 billion USD in investment.

Promtel is also responsible for promoting the development of telecommunications infrastructure and investment in such projects. To this end, the Institute for the Administration and Appraisal of National Assets (INDAABIN) has put public buildings of up to 190m² at the disposal of telecommunications operators and infrastructure developers. These properties may be leased via the ARES¹ digital platform, in compliance with the federal government’s property policy.

The aforementioned efforts are intended to give more Mexicans access to broad-band communications and telecommunications services by expanding and optimizing telecommunications infrastructure. That said, the sector also needs to focus on attracting investment and bringing in new players, as this will force operators to offer more competitive prices and improve the standard of their services.

One of the most important telecommunications project is a shared network that will reach at least 92.2% of the population with a 4G or faster signal.

¹ SISTEMAS.INDAABIN.GOB.MX/ARES
AGUASCALIENTES: COMPETITIVE, DIVERSIFIED AND PROSPEROUS

Part of the large economic, trade and industrial corridor that traverses the central region of Mexico, Aguascalientes is not only a driver of the domestic economy, but raises the bar for the rest of the country as regards quality of life, innovation and job creation.

According to the World Bank’s Doing Business study, it tops the list of the states with the best business climate in Mexico.

Its strategic geographical location and excellent highway, air and rail connections (two of the main rail companies operating in Mexico converge here) attract large numbers of tourists and business travelers. This is a progressive state that puts highly competitive human talent and technological infrastructure at the disposal of its investors.

Aguascalientes boasts solid public finances, legal safeguards to protect investors and social peace. According to the World Bank’s Doing Business study, it tops the list of the states with the best business climate in Mexico and has been awarded high credit ratings by business intelligence corporations like Standard & Poor’s and Fitch Ratings, establishing it as a major destination for both Mexican and foreign capital.

Likewise, its economic growth is above the national average and estimates for 2018 continue to put it ahead of the rest of the country.

The promotion of strategic sectors like the automotive, aerospace, pharmaceutical, electronics, agro-industrial, IT and logistical services industries have helped consolidate growth, the benefits of which have trickled down to the state’s population at large.

This is Aguascalientes, a competitive, diversified and prosperous state; the best place in Mexico to do business and watch your investment grow; a state with a wealth of tourism and cultural attractions that has opened its doors in a bid to seize the growth and development opportunities offered by today’s globalized economy.
COAHUILA: FLEXING ITS 4.0 MUSCLE

Coahuila’s Economy and Tourism Minister, Jaime Guerra Pérez, talks enthusiastically about the competitive advantages the state has to offer in industry and human capital.

Coahuila has many competitive advantages, not least its strategic geographic location. A gateway to the north of Mexico, it has excellent road, airport and railway infrastructure. Coahuila produces more refined silver than anywhere else in the world and has a highly integrated manufacturing industry. “Coahuila’s industrial sector accounts for 52.39% of the state’s total GDP,” says Economy and Tourism Secretary Jaime Guerra Pérez.

Over the decades, Coahuila has built up a solid industry, which has evolved in line with global trends, spurred on by the arrival of world-class competitors. “More importantly, our human capital has evolved on a par,” says Secretary Guerra. Coahuila’s workforce has 10.5 years of education on average, higher than the national average of 9.7, positioning it among the top five Mexican states in this category.

The state’s incursion into Industry 4.0 has mainly been via carmakers and the setting up of Tier 1 and Tier 2 companies. “We also have steel companies like AHMSA and DEACERO, which have already adopted 4.0 tools, and companies like LALA, which leads the Latin-American dairy market in the agro-industrial sector.” According to Secretary Guerra, it’s a process in which both the private and public sectors should ideally participate. “Companies communicate their needs to us and we provide them with the means to make a successful transition. Coahuila also has leading technology companies, so there is demand for engineers and technicians in new areas of specialization,” he says.

COAHUILA AT HANNOVER

Coahuila has done an excellent job promoting itself internationally and has posted record-high investment figures. In this respect, Hannover Messe is important because “it is a world-class platform where we can showcase our competitive advantages and get more exposure.”

When asked which 4.0 muscle Coahuila will be flexing at Hannover, Secretary Guerra immediately replies “our specialized human resources. One of the reasons companies in Coahuila have already made the transition to Industry 4.0 is because they were meeting their production targets two years ahead of schedule, which meant they had to add production lines and automate their processes. The state government’s strategy of promoting innovation, infrastructure and new sources of renewable energy has created the perfect conditions to attract pioneering i4.0 companies.”

Today the state is an undisputed leader in the manufacture of automobiles and auto parts, the production of refined silver, steel and coal, tank cars, electricity generation and farming.
COLIMA: A PORT OF CALL FOR INDUSTRY 4.0

Economic Development Minister for Colima talks about the state’s potential to integrate advanced 4.0 technologies.

“Colima needs to make the transition to Industry 4.0 with a ‘manufacturing’ as opposed to a manufacturing mentality. This is what we aspire to.”

Colima’s Development Minister, Carlos Domínguez Ahedo, is convinced there are many windows of opportunity in Colima for industrial development. The state is eager to embrace Industry 4.0 and several sectors are reporting unprecedented growth, pointing the way to the future. “Colima has substantial deposits of iron, which it mines, processes and distributes to the rest of the country. It is an important industry and the logistics aspect is crucial. We should see growth in this area in Manzanillo as a result of trade with Asia and the United States. The port will measure up to the best in the world and 4.0 technologies will be used to ensure seamless ground operations and processes.”

COMPETITIVE ADVANTAGES
According to Secretary Domínguez, Colima’s energy sector has some innovative plans in the pipeline. “The port of Manzanillo is fast becoming an energy cluster that is aiming to generate a lot more electricity than the entire state consumes.”

One initiative deserving of special mention is the Eco Wave project to generate electricity using wave technology. “The ebb and flow of the tide activates buoys at sea that generate electricity by means of hydraulic compression. The installed capacity of this project will be 4.8 MW,” says Domínguez, who believes Colima’s Industry 4.0 strengths lie in information technologies and the creation of knowledge. The state also has the potential to differentiate itself as a creative force in the areas of science and technology.

FLAUNTING ITS ASSETS
“The main obstacle,” says Secretary Domínguez, “will be familiarizing other countries with Colima’s competitive advantages, which is why it is so important to attend major international fairs. We have to seize every opportunity for exposure if we want to improve our business and investment opportunities.”

Hannover Messe is an invaluable opportunity for Colima to flaunt its assets. “We will be exhibiting Colima’s agroindustry and products, which have already attracted the attention of Asian and European markets.” As concerns i4.0, Colima will be seeking to position itself as a logistics hub in Mexico. “We want to showcase the enormous logistics and connectivity potential the new industrial corridor between Manzanillo and Texas has unleashed,” concludes Domínguez.
Durango is acutely aware of the complexity and scope of this technological, economic and cultural revolution that is creating a highly connected, interdependent society unfettered by distance, creed or language; a revolution that is redefining the way we produce and consume, and disrupting industry the world over.

The Durango state government is working closely with local universities, NGOs and business organizations to build a new local economy aligned with the growth path of the developed world. Likewise, we are making a concerted effort to improve our capacity to adapt and respond to unprecedented technological breakthroughs, so we can reap the benefits of a revolution that looks set to change the way we live, work and relate each other.

At the core of Durango’s 4.0 strategy is a systemic economic development policy geared toward the creation of a comprehensive innovation-driven ecosystem. All the state’s academic, public and private sectors and civil society are actively participating in the greatest social and economic transformation Durango has ever seen. In the short term, we aim to become one of the Mexican states best prepared for the Fourth Industrial Revolution, especially in terms of skilled labor.
ESTADO DE MÉXICO: INVESTMENT DRIVEN BY TECHNOLOGICAL INNOVATION

Technological R&D is of great importance to innovation, and to the advanced manufacturing processes Mexico’s future depends on as well.

“We are overseeing the implementation of advanced manufacturing processes transversally in strategic sectors. Our primary concern is to create business opportunities for our companies, both in Mexico and abroad.”

The Mexico’s larger research centers seem to concur there is no escaping the Fourth Industrial Revolution and that the sooner we jump on the bandwagon the better, especially when it comes to incorporating new technological developments into complex industrial processes. Dmitri Fujii Olechko, CEO of the Mexiquense Science and Technology Board (COMECYT), talks about the importance of advanced manufacturing to Mexico’s transformation. “The manufacturing industry represents 18% of Mexico’s GDP. This is significant because it’s here that the hi-tech processes of today’s smart factories come into play. If we break manufacturing GDP down by sector, the most recent INEGI data (2016) shows that the food industry accounts for 22% of this figure, and the automotive and chemical industries 20% and 9%, respectively. In other words, over half of this GDP is tied in with technology and advanced manufacturing processes.”

MAJOR CHALLENGES

To promote innovation in advanced manufacturing, organizations like COMECYT are focusing on technological R&D. “In the near future, innovation will have to be redirected toward niches where we can contribute and transfer technological know-how to academic institutions, exporters and human capital; niches where we can capitalize on these new, more complex production processes that depend heavily on business and industrial intelligence,” says Fujii.

In developed nations, investment in R&D averages 3% of GDP. “We’ve set ourselves the goal of 1%, because right now Mexico barely spends 0.45% on R&D. Furthermore, in developed nations 80% of investment in R&D is put up by private companies and the remaining 20% by the government, but in Mexico’s case, it’s the other way around. We need to strengthen ties between these different bodies to ensure innovation is focused on systems Industry 4.0 requires,” adds Fujii.

With Industry 4.0 hot on our heels, Fuji views this type of cooperation as a priority. “Our academic and research centers, companies and state-of-the-art industries, all have enormous potential, reason why it is so important Mexico participate in international trade fairs. For example, we have been invited to Hannover Messe 2018 and this is an excellent opportunity to showcase Mexico’s advanced manufacturing potential. This is the first time a Latin American country has been a guest of honor at a world fair of this magnitude and we need to make the most of it.”

WWW.COMECYT.EDOMEX.GOB.MX
From the Hand of the United Nations Organization for Education, Science and Culture, the Government of the State of Guanajuato declared 2017 as the Year of Innovation. Great actions were taken to promote innovation, industry 4.0, scientific and technological development of our State, based mainly on the strengthening of four large sectors or specialization area, where the greatest advances in response to innovation promotion are located: automotive and auto parts; food and sustainable industry; leather, footwear, textiles, fashion and design; cosmetics; pharmaceuticals and health services.

The final result of this important year was the integration of Guanajuato’s innovation agenda. The Innovation Agenda of our State seeks to be the instrument to strengthen national public policy, focused on contributing to the state and regional economic development to bring Mexico to its full potential, through a shared vision of the triple helix: the government, the academy and the industry. This agenda is key to strengthening the 2040 Plan in Guanajuato, the instrument in which the different sectors of society agree on the objectives, strategies and projects for the development of the entity with a long-term vision.

The fundamental issues for the strategic analysis from which Guanajuato’s objectives and strategies will be built by 2040 are based on four dimensions of development: social and human; public administration and rule of law; economy; and territory and environment.

That is why Guanajuato seeks to make Hannover Messe, the space that allows to spread the strengths, and great actions that are implemented in terms of its industry 4.0, energy and environmental technologies, human capital, and high-tech manufacturing. This will undoubtedly position Mexico and Guanajuato as a competitive and reliable partner at an industrial, technological and innovation level.

**GUANAJUATO: INNOVATE TO GROW**

Great actions to promote innovation, industry 4.0, scientific and technological development of the state.
HIDALGO: MEXICO’S NEW ECONOMIC HUB

Hidalgo will be participating in this year’s edition of the Hannover trade fair with a view to showcasing its industrial and export potential and capitalizing on business opportunities. The goal is to increase exports by supplying or entering into strategic partnerships with companies seeking to tap into markets in Mexico, Latin America and North America.

One of the fastest-growing industrial hubs in the country, Hidalgo is strategically located just 89 km from Mexico City, one of the largest markets in Latin America with over 23 million consumers.

In line with the policies implemented by Governor Omar Fayad, all investments are closely monitored, a strategy that has illustrated it is possible to turn a state once ranked among the five least attractive into one that has generated private investment valued at over 1.6 billion USD and that is expected to create some 35,000 jobs in the near future.

In addition to qualified human talent and political and social stability, Hidalgo is taking steps to simplify regulations governing the setting up and operation of businesses, according to the National Observatory for Regulatory Improvement, the state is rated seventh nationwide in terms of ease of setting up a business.

Hidalgo encourages its micro and small companies to join value chains by offering them assistance and is currently in the process of creating the first sustainable electric mobility cluster, not just in Mexico, but in Latin America.

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Hidalgo is taking steps to simplify regulations governing the setting up and operation of businesses, and encourages its micro and small companies to join value chains.
JALISCO: A MAGNET FOR LARGE INVESTMENTS

Several advantages are turning the state of Jalisco, in western Mexico, into one of the most attractive places for the development of companies.

Its strategic location, skilled labor, large percentage of young working people, well-prepared population, the presence of important high-tech firms and the automotive industry, among other industrial branches, allow Jalisco to be one of the most attractive poles for national and foreign investment in the Mexican Republic. It has one of the most important and dynamic economies in the country and Latin America, supported by 21 export sectors.

Part of its success is due to the strategic location of the industrial park Colinas de Lagos, in the city of Lagos de Moreno, located in what is called “the heart of the automotive corridor” because it is installed a few kilometers away from the main cities that are headquarters of important factories.

The state government supports special training programs through incentives aimed at training labor force for the automotive industry, through technological institutes and universities as well as through collaboration with companies of this sector.

Companies which are about to get installed in the State of Jalisco receive all governmental support in order to facilitate the first steps and the installation process not only by means of incentive programs but also by after care to ensure successful growth.

Jalisco has more than 40 years of experience in the high technology industry, you can enjoy high quality of life, pleasant weather all year long and support from the state government at all times for industrial expansion plans.

Among some of the international companies established in the state are:
- Continental, with a manufacturing and research center (Research and Development Center, the biggest one outside Germany).
- Freescale has an Electronic Design Center, specialized in solutions for the automotive industry.
- Bosch, with a Center for Design and Innovation.
- Hella, a manufacturing center and an Automotive Design Center
- Honda, with its manufacturing plant in this region.

This just to mention some of the companies established in the state, related to the automotive sector.

Its main economic activities are: mining, manufacturing industry, services, agriculture, and tourism.

JALISCO IS ONE OF THE MOST ATTRACTIVE POLES FOR NATIONAL AND FOREIGN INVESTMENT IN MEXICO. IT HAS ONE OF THE MOST IMPORTANT AND DYNAMIC ECONOMIES IN LATIN AMERICA.
OAXACA: A STATE WITH ATTRACTION INDUSTRIAL INVESTMENT OPPORTUNITIES

Oaxaca offers investors a wealth of advanced manufacturing opportunities. State Economy Minister, Juan Pablo Guzmán Cobián, outlines some of the most promising areas.

Oaxaca produced over 2.1 billion pesos from the extraction of gold and silver in 2017.

The inclusion of the port of Salina Cruz, Oaxaca, in the Special Economic Zones (December 2017) strategy has opened up a wealth of advanced manufacturing opportunities for the state. To create conditions conducive to productivity, there are plans to build the necessary communications, transportation and technological infrastructure, in tandem with organized, sustainable urban development.

The announcement has put Oaxaca in the sightline of Mexican and foreign investors. According to Oaxaca’s Economy Minister, Juan Pablo Guzmán Cobián, “there are significant business and investment opportunities to be had. For example, Oaxaca has enormous potential in the area of renewable energies and is the county’s largest producer of wind-generated electricity. We currently have a potential of 33,200 MW, positioning us as number one.” Likewise, a new co-generation plant in Tuxtepec, in the basin of the Papaloapan River, recently came on line. “We have a plant that generates 50 MW. It’s the most modern co-generation plant in the country and the one that will generate the most electricity.”

Oaxaca also has a well-established mining industry. “We currently produce more than 44 million tons of gold and silver. American and Canadian mining companies have a strong presence in the state, with the former generating annual revenues of some 600 million pesos from gold, silver, copper, lead and zinc production, and the latter over 2.1 billion pesos (2017) from the extraction of gold and silver.”

In Guzmán’s opinion, prospects for the industry couldn’t be better. Oaxaca produces more than 31 million tons of crystalline graphite, a mineral used widely in mobile and automotive technologies, and has the largest iron reserves in Latin America. On average, mining activities bring in 5.8 billion pesos a year for the state and create some 9,000 jobs.

Specific lines of actions are also being taken to attract investment in other industries like food and tourism. “Our goal is to draw more industry and to accomplish this we are participating in major fairs like Hannover. It’s rewarding for us to know we’re contributing to the country’s industrial development. Our main objective in Germany is to attract investment in renewable energies and showcase our state’s industrial strengths and environmental technologies,” concludes Guzmán.
PUEBLA: MAIN DESTINATION OF GERMAN INVESTMENT

Founded 487 years ago, Puebla quickly became a major trading hub and a logistical solution to commerce in New Spain, due to its strategic location between Mexico City and Veracruz, the country’s largest port. Three-hundred years later, in 1831, it became home to the first mechanized textile factory in Latin America, giving rise to an industry that continues to fuel the state’s economy and that currently employs over 63,000 people.

Following Volkswagen’s decision to open a plant here in 1965 –one of the largest in North America and Volkswagen’s second-largest outside Europe–, Puebla positioned itself as a major automobile manufacturer.

In 2012, Audi selected Puebla as the site for its premium automobile plant, based on the state’s 50-plus years’ experience in the industry. The first plant of its kind in Mexico and the most modern on the American continent, the Audi facility began operations in 2016, contributing to the 619,000 vehicles a year Puebla currently produces, the majority of which are destined for export.

Puebla has a domestic market of some 40 million consumers within a radius of 200 km and accounts for 38% of Mexico’s GDP. Aside from its strategic geographical location, it has excellent highway and rail connections to the country’s major sea ports, and a young population equipped to take on the challenges of the Fourth Industrial Revolution.

All these factors combined have established Puebla as the country’s main destination of German investment in Mexico. Indubitably, this year’s Hannover industrial fair will be an invaluable opportunity to strengthen trade ties between Germany and Puebla to their mutual benefit.
QUERÉTARO: SUCCESSFUL BUSINESS STORIES

It is impossible to think of México without thinking about Querétaro. Located strategically in the center of the country, the State of Querétaro has an overall extension of 11,688 km² and a population of over 2 million inhabitants.

Querétaro has an extraordinary mixture of traditions, culture, vitality, and growth; allowing it to have an unparalleled quality of life. When compared to other states, Querétaro is not one of the largest in terms of territory, yet it has one of the most dynamic economies. In 2017, it represented the third economy with the highest growth in the country. The State has received various awards from international firms such as Standard and Poor’s, which granted Querétaro the recognition of being the first state in Mexico to obtain an investment grade qualification. KPMG also selected Querétaro as the first choice for companies to invest in the country. In the last 5 years, the average growth of the Gross Domestic Product has been of 5.1%, well above the national average, which ranges around 2.9%.

Throughout its 18 municipalities, Querétaro has an extraordinary mixture of traditions, culture, vitality, and growth; allowing it to have an unparalleled quality of life. This is confirmed by the daily arrival of 67 people that come to live to the State.

Thanks to more than 126 academic institutions, 50 research and development centers, and 102 training centers in Querétaro, students graduate highly skilled, with the opportunity of working in more than 1,500 companies in the State. Both national and foreign companies operate in a safe and reliable business environment in a beautiful state with three UNESCO world heritage sites.

We invite you to explore Querétaro at Hannover Messe 2018, where you will witness the most successful business stories that have been forged through the Triple Helix Model with the summed efforts of the Industry, Government, and Academia. You will want to be part of this prosperous Mexican State: Querétaro is the way.
QUINTANA ROO: MUCH MORE THAN TOURISM

Economic Development Secretary Rosa Elena Lozano and Bernardo Cueto, Projects Director at the Development and Financing Institute, foresee a future full of Industry 4.0 business opportunities for Quintana Roo.

Last year, Quintana Roo received 16,911,163 visitors and reported 8.8 billion USD in tourism revenues, 207.9 million more than in 2016, according to the state’s 2017 Annual Tourism Report.

Clearly, tourism is booming in Quintana Roo, but the state is taking steps to attract more capital to other sectors in an effort to diversify its economy. According to Bernardo Cueto, Projects Director at the Quintana Roo Development and Financing Institute, “We need to expand investment to other productive sectors and transform these by introducing digital and information technologies.” Likewise, Economic Development (SEDE) Secretary Rosa Elena Lozano believes “Industry is the answer to a necessary diversification that will help activate the state’s economy and counter our dependency on tourism.”

Consequently, Cueto foresees a much more industrialized future for Quintana Roo, whose “connectivity will facilitate the development of advanced industries, opening up 4.0 manufacturing opportunities. The long-term goal is for the state to offer more facilities, promote creativity and train more specialized human capital so we can develop advanced manufacturing projects. Mexico is one of the world’s largest manufacturers and exporters, and its reconversion to Industry 4.0 will shore up its leading position in industry and foreign trade. As one of the country’s larger international hubs, Quintana Roo has decided to take up technological arms in the revolution that is Industry 4.0.”

As regards Industry 4.0-related growth prospects in Quintana Roo, “We want to become a state that purposely seeks out digital manufacturing opportunities and that has its own labs for the design of cutting-edge technological tools. For example, there are manufacturing opportunities in the aerospace industry and in the energy sector we are smoothing the way for the installation of factories to manufacture components like wind turbines, structures and complex systems,” says Cueto.

But to achieve its goal, Quintana Roo needs to promote its plans for the future at international forums that will help it build a new industrial business network. Hannover Messe is one such event. Rosa Elena Lozano talks enthusiastically about Mexico’s participation in the fair, which she is convinced will help “attract substantial 4.0-related investment. And Quintana Roo, whose industrial sector is still relatively young, could well find itself looped into a circuit of opportunity in an industrialization process focused primarily on cutting-edge technologies.”

The smart, automated production processes associated with Industry 4.0 have a promising future in Quintana Roo.
SAN LUIS POTOSÍ: 23 INDUSTRIAL AREAS TO INVEST

San Luis Potosí’s geographical position, in the center of Mexico, offers resources, industrial atmosphere and competitive advantages for investors. In a 500 km radius, San Luis Potosí has access to 74.1 million consumers and 78.1% of the national GDP.

The State has 58 municipalities with an estimated population of 2,814,616 inhabitants (2017), an Economically Active Population (EAP) of 1,223,663, population between 15 to 29 years is 736,890; the State also has 622 higher education institutions. San Luis Potosí’s economic growth in the last three years (average 2015, 2016 and 2017) was 4.3%, higher than the country’s 2.9%. For the period 1999-2017 (T.III) the total direct investment was 12,091.6 million dollars.

A modern highway and rail network makes San Luis Potosí a communications hub in the country since it has access to the main ports, located in the Gulf of Mexico and the Pacific Ocean, as well as the border cities with the USA, for which a high percentage of foreign trade is carried out. The International Airport of San Luis Potosí operated by OMA, after its expansion and remodeling (2018), would have the capacity to receive 1.2 million passengers per year.

The business opportunities for national and international companies are developed in 23 industrial areas, public and private, offering opportunities for investment and economic development. We have a modern logistics platform, one of the most advanced in the country. The State connectivity and development is strengthened with two free trade zones; as well as three clusters: automotive, logistics and medical.

The State Government supports existing companies to expand and new companies to establish through different incentives.
TLAXCALA: GREAT OPPORTUNITIES TO INVEST

Tlaxcala boasts mature chemical, textile and automotive industries and has reported steady growth in investment over the last seven years, particularly in the automotive industry, where more than 50% of the country’s 45 major suppliers have set up shop in this same period, due to the state’s highly competitive property prices and strategic geographical location, just an hour and a half from Mexico City, three and half hours from the port of Veracruz and very close to the region’s two main car manufacturers, Volkswagen and Audi.

In the 2016-2017 period, the American Chamber Mexico rated Tlaxcala as the second-most-attractive and one of the safest states to invest in. In terms of human resources, close relations with OEMs and the presence of German companies like Bayer, EuWe Eugen Wexler, Kathrein and Grammer has resulted in the growth of the dual education program, under which students from Tlaxcala have the opportunity to train in Germany. Pooling the talent of both nations like this produces highly qualified human capital with in-depth knowledge of hi-tech processes, their implementation and development in Mexico.

Tlaxcala has also taken concrete measures to support the R&D areas of the companies that have come here by setting up public research centers like the Applied Chemistry Research Center (CIQA), the Mexican Corporation for Materials Research (COMIMSA) and the Electrochemical Research and Technological Development Center (CIDETEQ). Likewise, the Central Zone Automotive Cluster has boosted the competitiveness of the industry by concentrating the region’s main actors in one place. For all these reasons and more, Tlaxcala is one of the best options for anyone interested in investing in Mexico today and who has their sights set on the future.

Tlaxcala has presence of German companies like Bayer, EuWe Eugen Wexler, Kathrein and Grammer.

TLAXCALA IS ONE OF THE TOP 10 STATES WITH THE LARGEST PRODUCTION OF TEXTILES AND CLOTHING IN MEXICO.
ZACATECAS: GREAT CONNECTIVITY AND LOGISTICS

Zacatecas is a state with much to offer. The capital city is one of the most beautiful colonial cities in Mexico. Thanks to its history and architecture, the UNESCO declared it a World Heritage Site.

Countless historical cultural buildings can be found along the city’s European-style urban layout along narrow streets, alleys and squares.

Its main economic activities are: mining, manufacturing industry, services, agriculture, and tourism. The state is known for its large deposits of silver and other minerals, such as gold, copper, and zinc.

The State Ministry of Economy of Zacatecas, is focused on having an intense promotion for our State, seeking Foreign Direct Investments in strategic economic sectors, such as Automotive, Aerospace, Renewable Energies, Information Technologies, Advanced Manufacture, R&D, among others with competitive advantages to offer for new companies, such as a privileged geographical location within Mexico, great connectivity and logistics, modern infrastructure and a stable and growing labor force, as well as a soft-landing program to help establish your company successfully in Zacatecas, as well as other incentives.
VESTA: FOSTER INDUSTRY 4.0 PRODUCTION

Vesta is a real estate owner, developer and asset administrator of industrial buildings and distribution centers in Mexico. We are present in 13 states where the main industries within our walls are aerospace, auto parts, automotive, electrical-electronical and medical devices. Our modern industrial parks total a gross leasable area of 2.28 million square meters.

Vesta has been an active participant in Mexico’s success for 20 years, contributing to the creation of a solid industrial system in the region of North America, building and leasing state-of-the-art buildings and parks to host the most dynamic industries. Focused on the most technologically advanced sectors, markets and clients, the organization has built a world-class portfolio of tenants and high quality properties that foster Industry 4.0 production.

We are convinced Mexico is a crucial, efficient platform of global manufacturer’s facilities that continues to be the optimal location for export to the US. To contribute to the well-being of the communities where we operate, and according to our commitment with sustainable development, we have invested $3,600 million USD in social and environmental initiatives since 2013.

The strategic location, infrastructure, and eco-efficiency of our inventory and built-to-suit properties, have become a critical component of our clients’ successful supply chains. Industry 4.0 is growing in Vesta’s parks across Mexico.

Our company, driven by innovation and passion, is evolving into an exponential organization, beyond a real estate team, devoted to give solutions to the needs of the best-in-class companies in the world. Vesta, innovating Mexico’s industrial platform.

www.vesta.com.mx

“...The strategic location, infrastructure, and eco-efficiency of our inventory and built-to-suit properties, have become a critical component of our clients’ successful supply chains. Industry 4.0 is growing in Vesta’s parks across Mexico.”
CAMEXA: SUPPORTING BILATERAL TRADE

The Mexican-German Chamber of Commerce and Industry (CAMEXA) is a non-profit business association whose purpose is to promote trade, investment and the transfer of technology between Mexico and Germany.

Founded in 1929, it belongs to Germany’s network of international chambers that has 130 offices in 90 countries. More than 800 companies are affiliated to CAMEXA, which is the main organization providing contacts and information on bilateral business between Mexico and Germany. The Chamber’s activities include:

• The organization of Industry 4.0 training courses, seminars and workshops within the framework of CAMEXA Plus.
• The creation of Learning Networks to facilitate the sharing of experiences and best practices in the implementation of modern energy saving systems.
• The promotion of the use of solar thermal energy in industrial processes under the auspices of the German government’s Solar Payback project.
• The dissemination of the Mexican Dual Training Model and assistance for public- and private-sector organizations interested in implementing it.

CAMEXA’s offices are located in Mexico City. The Chamber also has four regional representatives: one in Querétaro for the Bajio region, one in Puebla for the states of Puebla and Tlaxcala, another in Monterrey that serves the states of Nuevo León and Coahuila, and a fourth in Guadalajara for the Jalisco region.

MORE INFO
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www.mexiko.ahk.de
NEW GENERATION OF INDUSTRIAL PARKS IN MEXICO

Industrial parks emerged in Mexico in the Sixties with the introduction of the maquiladora program. The concept has come a long way since then. Once limited to the lease of industrial facilities, these are now world-class property developments offering added-value services.

BY DR. CLAUDIA I. ÁVILA CONNELLY*

Today, industrial parks are deemed strategic infrastructure because they attract foreign direct investment by facilitating the arrival of new companies. But far from isolated operations, their competitiveness depends on external factors, such as location, connectivity, availability of talent, basic services and suppliers, and production costs. Other conditions that have contributed to the development of industrial parks in Mexico include social stability, ease of complying with procedures and obtaining permits and the country’s inherent advantages, not least its strategic geographical location and network of free trade agreements that takes in 46 countries.

Like the rest of the world, industrial parks must keep up with the times. Aside from world-class physical infrastructure and legal and operating certainty, one of the main challenges facing developers today is to provide innovative services for the companies that occupy these facilities using, for instance, the Internet of Things for tasks like plant maintenance, asset management and to ensure the security of property and people. Another is to guarantee a constant flow of information and feedback between suppliers, manufacturers, researchers and entrepreneurs, thereby enabling these companies to make better-informed decisions.

Under this new model, organizations all over the world are interconnected via safe, smart, systematic trade, information and financial networks. The availability of technological infrastructure and talented human capital with an innovative mindset and the capacity to generate knowledge and produce work of the highest standard have since crept into the list of conditions set forth by global companies.

This is where the government has a crucial role to play in boosting the country’s competitiveness by means of public policies that foster the acquisition of skills and the training of human capital, the creation of knowledge, and the materialization of innovative ideas into concrete projects that improve the quality of life of the population at large. It is also the reason Mexico’s participation in the 2018 Hannover Messe is so important, because it is here that we will have a chance to learn about the main trends in Manufacturing 4.0.

As the leading business organization representing industrial developers, the Mexican Association of Industrial Parks (AMPIP) has drawn up a strategy for a “new generation of smart, sustainable industrial parks” to promote best practices in infrastructure, safety, sustainability, innovation, technology and productive chains as part of the added-value services offered by the country’s industrial parks. The time has come for Mexico’s industrial developers to take action. The future is already here.

AMPIP represents 2,145 companies that employ 2 million people at 249 industrial parks in 27 states throughout the country.

*CEO of AMPIP.
AMERICAN INDUSTRIES: INDUSTRY 4.0-APPROPRIATE INFRASTRUCTURE

The Industry 4.0 concept is a broad one that encompasses the digitalization of traditional factory processes and their integration with other systems that share the same supply chain.

“**We have witnessed how Mexico has adapted to technological changes in its production chains by training its human capital, which translates into high added value.**”

Advanced manufacturing, as it is also referred to, fosters the digitalization of the entire value chain, efficient collaboration between organizations, the Internet of Things, technology suppliers and the final consumer.

It is an industrial model that requires companies of every shape and size to make structural changes, including finding partners to provide solutions that can improve the productivity of the industry in question.

Founded in Chihuahua 42 years ago, American Industries provides such solutions. “We’ve helped over 200 companies in two lines of business: real estate for industrial parks and administrative services. We support strategic sectors like the aerospace and automotive industries by attracting international companies to the country’s world-class industrial parks.

We have more than 10 parks, 110 warehouses and 15 million square feet of premises. Also, our shelter model makes it easier for companies to start up advanced manufacturing operations, because we take care of things like human resources, legal issues, regulatory compliance, accounting and other aspects, so they can import and export with ease and join the global supply chain,” says Leoncio Salaburu, American Industries Director for the Northeast.

According to Saraburu, American Industries is helping strengthen Mexican industry because it is attracting foreign investment by companies engaged in manufacturing processes with high technological content. “We have witnessed how Mexico has adapted to technological changes in its production chains by training its human capital, which translates into high added value.”

Growth prospects for industry in general and advanced manufacturing in particular should remain stable provided all links in the production chain are effective and committed. “In the short to medium terms,” says Salaburu, “we need to consolidate, and in the longer term, Mexico needs to start creating intellectual property. Likewise, we need to support our young people, because they are the seedbeds of new knowledge.”

“Hannover Messe 2018 is an opportunity for Mexico’s private sector and the government to showcase the progress we have made in terms of technology and infrastructure, and the added value trained human capital represents,” concludes Salaburu.

www.americanindustriesgroup.com
AVM ABOGADOS: MORE EFFICIENT INDUSTRY 4.0 REGULATIONS

As Mexican industry makes the move to advanced manufacturing, productivity and foreign investment need to increase accordingly. Manuel Valdés of AVM Abogados insists legal aspects need to keep pace with the Fourth Industrial Revolution.

From a legal standpoint, the Fourth Industrial Revolution has forced Mexico to address major regulatory issues, something which is being handled effectively, according to Manuel Valdés of the Arizpe, Valdés & Marcos (AVM Abogados) law firm. “First,” he says, “workers in Mexico are being replaced by artificial intelligences. In this regard, the task on our hands is to regulate employee training so we have a better qualified workforce. Second, the transition to Industry 4.0 means Mexico needs flexible foreign trade legislation that allows us to adapt better to this new way of doing business via e-commerce. Third, new environmental legislation will tend to offer more incentives to companies that migrate to 4.0 technologies. And fourth, new laws and regulations need to be drawn up to protect intellectual property developed in an Industry 4.0 context.”

On the customs end, advanced manufacturing requires “open regulations that improve the efficiency of procedures for the importation of goods and services. Industry 4.0 technologies will help streamline these procedures, making it faster to import and export,” says Valdés.

HANNOVER MESSE, A WINDOW OF OPPORTUNITY

An important aspect of this arduous regulatory task is to provide foreign companies with the legal certainty they need to bring their advanced manufacturing operations to Mexico, which is where international forums like Hannover Messe come in. “Participating in this fair will give us a chance to reassure the world that Mexico is a safe country to do business in,” Hannover is also a good opportunity for AVM Abogados to “familiarize ourselves with new trends so we can offer companies legal services in Mexico in line with their business needs.”

Manuel Valdés is optimistic about the results Hannover Messe 2018 will yield for AVM. “This event is a window of opportunity to adopt new models that will facilitate Mexico’s full-blown migration to Industry 4.0. Given the circumstances, we need to lay the groundwork by drawing up effective 4.0 regulations.”

“Industry 4.0-specific regulations will be a means to provide companies with legal certainty and reassure them their investments are safe.”
VILLACERO: THE STEEL INDUSTRY’S 4.0 PRIORITIES

Mexico’s steel industry has resolved to implement more technological solutions and interact more with its partners, clients, Mexican and foreign suppliers as part of its development agenda.

“In the Mexican steel industry of the future will be very active in key sectors of the economy, like the automotive industry, construction and infrastructure projects.”

In a bid to optimize its performance, the strategy of the Mexican steel industry has been to employ advanced IT solutions, specifically Manufacturing 4.0 technologies. That said, these technologies have yet to gain wide acceptance, reason why it is so crucial to keep up the momentum. Like all other nations, Mexico has Industry 4.0 obstacles to overcome. For example, as regards the steel industry, logistics, storage and financing processes for the supply of raw materials need to be streamlined, and the use of blockchain technologies promoted.

In line with the industry’s strategy, Grupo Villacero has set itself the goal of incorporating the latest IT solutions, using SAP as its central system. Process integration and the efficient use of operating and financial data are also a priority for the company.

PROGRESS AND CHALLENGES

Villacero has been able to optimize its internal processes with the aid of management systems and is now seeking to forge closer relationships with its suppliers and clients with a view to integrating their processes, which is an important step in the implementation of 4.0 solutions.

As for challenges, it would be fair to say the steel industry is somewhat traditional and getting companies to take 4.0 solutions seriously may turn out to be easier said than done. In such a scenario, foreign influence will be essential, as will forming the right partnerships at the right moment in time.

THE MEXICO OF THE FUTURE

Economic and political forces will determine how quickly 4.0 technologies are embraced. Needless to say, protectionist policies will do nothing to further their cause and unless the ground rules for free trade are agreed upon and enforced, the implementation of new production systems will be delayed.

For Mexican steel companies in general and Villacero in particular, the Hanover industrial fair is an opportunity to learn about i4.0 technological breakthroughs. At Hannover, Villacero hopes to make contact with hi-tech companies that are interested in the Mexican steel industry and that are looking for a business partner to assist them with logistics, storage, financing and manufacturing aspects. The company will be taking a proactive stance at the fair, confirming that it is committed to making a steely contribution to Mexico’s industrial development.

www.villacero.com
WMP: MEXICO ADVISORS

WMP Mexico Advisors is the partner of small and medium-sized enterprises in Mexico.

Thomas Wagner and Anabel Muñoz founded Wagner Muñoz & Partners in 2007 as a tax consultancy and external public accounting company. Due to the high demand of additional consulting services Wagner Muñoz & Partners evolved into WMP Mexico Advisors in 2012. WMP Mexico Advisors is a corporate alliance which includes nowadays the 3 different individual companies namely WMP Tax & Accounting, WMP Consulting Services and WMP Legal.

Our goal is to provide assistance to international companies for all occurring fiscal, financial and administrative issues during the initial period as well as in the management of their foreign subsidiaries in Mexico. WMP Mexico Advisors offer services in the areas of Start-up management, tax advisory, legal advisory, accounting, controlling, pay roll and project management.

All services are delivered directly by WMP Mexico Advisors by a guaranteed German-Spanish- and English speaking contact person. Our subsidiary company Acensblue also offers services in the area of recruitment. At the moment we provide our services to around 180 small and medium-sized companies from different industrial sectors and countries.

We are serving our clients Mexico-wide from our offices in Querétaro, Mexico City and Puebla as well as from our international representative offices in Stuttgart (Germany) and Greenville, S.C. (USA).

Our team consists of more than 100 Mexican and international certificated accountants, tax consultants, lawyers, key account managers and Mexico experts. Through our longterm activity in Mexico, we developed an exclusive network of contacts and relationships in the local economy and politics.

Let us help you to secure the long-term success of your company in Mexico!

WWW.WMP.MX
SPECIAL EDITION

ECOSTRUXURE: A WINDOW ON 4.0

Miguel Valenzuela, Vice-president of the Schneider Electric Business Unit, tells us more about EcoStruxure, a 4.0 platform designed to improve sustainability and efficiency.

“Adopting Industry 4.0 will make our manufacturing processes more productive, efficient, competitive and smarter.”

Schneider Electric develops connected technologies and solutions to help companies manage their energy processes in a safe, reliable, efficient and sustainable manner.

Miguel Valenzuela, Vice-president of the company’s Business Unit, goes into more depth about its Industry 4.0 strategies. “We want our clients to receive the benefits of 4.0 innovations, so they can be more productive and sustainable. These are benefits they can enjoy with the base they already have installed, regardless of the manufacturer.”

ECOSTRUXURE, AN IOT PLATFORM

“Our EcoStruxure architecture delivers on the promises made by the Internet of Things (IoT): connectivity that converts data into operating and energy efficiency at all levels of an organization,” says Schneider Electric CEO Jean-Pascal Tricoire of the company’s 4.0 platform, which marries energy management, automation and software.

It is breakthrough technology that has opened up the digital world to users in key end markets, allowing them to compete more effectively in a 4.0 economy. According to Valenzuela, “EcoStruxure uses information on a company’s assets to obtain data and analyze it, so decisions can be made more quickly in the interests of productivity and sustainability.” The platform was launched in 2017, but Schneider Electric has been working on it for a decade. Today, it accounts for 45% of the company’s global revenues. EcoStruxure operates on three levels: connected products, oversight and the gathering of data for analysis, while users stand to benefit from maximized energy efficiency and sustainability, optimized asset availability and performance.

EcoStruxure will be promoted at Hannover Messe and Valenzuela believes the timing couldn’t be better for Mexico. “As a country, it’s a chance to demonstrate what we’re doing and how active we are in 4.0 industrial solutions, and that government and companies are collaborating. I believe the benefits of participating in Hannover will be in two ways: ‘What can I bring back to Mexico and what do I have to offer the rest of the world’. Our goal is to show those attending the fair that Schneider Mexico has 4.0 solutions and global capacities,” he concludes.

WWW.SCHNEIDER-ELECTRIC.COM.MX

ECOSTRUXURE ARCHITECTURE DELIVERS ON THE PROMISES MADE BY THE INTERNET OF THINGS (IOT): CONNECTIVITY THAT CONVERTS DATA INTO OPERATING AND ENERGY EFFICIENCY AT ALL LEVELS OF AN ORGANIZATION.
CONACYT: PROMOTING KNOWLEDGE AND INNOVATION

The National Council of Science and Technology (CONACYT) is the agency of the Mexican State in charge of defining science and technology policies, stimulating the participation and involvement of the private sector in research activities, generating appropriate conditions for scientific development, and strengthening highly qualified human capital. Along with twenty-seven Public Research Centers, it promotes knowledge and innovation, enabling the country to respond to priority demands, provide solutions to urgent problems and contribute to generate better living conditions for all the Mexicans.

One of the objectives of the Public Research Centers of CONACYT is to promote complex innovation in Mexico. Innovation performed by the Centers is best appreciated through its mission to coordinate with the public, private and social sectors. We estimate that every year, the Centers sign approximately two thousand five hundred contracts and agreements for knowledge transfer and technological, social, economic and environmental innovation.

An important number of these contracts and agreements are related to highly specialized and innovating consulting services in areas such as metrology, environment, microbiology, as well as physical and chemical probes of material structure. Regarding intellectual property rights for the protection of technological developments, the Centers file, on average, one hundred and thirty applications a year, which result in utility models, industrial designs and patents.

Given the importance of the Hannover Fair, the CONACYT will show how the Centers have made technological development a priority, to be at the vanguard of research in decisive fields such as artificial intelligence, information technologies, and the food industry. The objective of our scientific and technological system is to insert Mexico into dynamic worldwide movements that advance at a breath-taking rate and are acquiring a leading role in the generation of knowledge at a global scale.

“We provide our services to around 180 small and medium-sized companies from different industrial sectors and countries.”

“CONACYT has made technological development a priority, to be at the vanguard of research in decisive fields such as artificial intelligence, information technologies, and the food industry.”

www.conacyt.gob.mx
CINVESTAV: HANNOVER MESSE 2018

The Center for Research and Advanced Studies (CINVESTAV) is a national leader in scientific research, technology development and generation of high level scientific human resources in Mexico.

CINVESTAV has recently started working with Applied Sciences, a private company of technology commercialization.

CINVESTAV has currently ten units in Mexico that develop strategic projects for each region. Its total academic plant consists of 650 scientists, who work in the 28 academic departments, sections and research units of the institution. The Center's educational offer is made up of 64 graduate programs that are grouped into four major areas of knowledge: Exact and Natural Sciences, Biological and Health Sciences, Technology and Engineering Sciences and Social Sciences and Humanities. An average of 3800 students are registered per year.

In the areas of electronics, telecommunications, plant biotechnology, aquaculture and artificial skin culture, CINVESTAV has boosted the development of high-tech industry in Mexico. Many of these developments have been transferred to companies located in the USA. To improve the process of international commercialization of its technological products, CINVESTAV has recently started working with Applied Sciences, a private company of technology commercialization.

In Hannover Messe 2018, we are searching for partners that help us position our scientific and technological developments in nanotechnology, agrobiotechnology, biomedical technologies, pharmaceutical sciences, vaccines for veterinary use, molecular biology, instrumental analysis, regenerative medicine, diagnosis, automation, high performance computing, new material development, and robotics on the global markets, and establish new productive businesses.

www.cinvestav.mx
WHICH COUNTRY IS THE 10th WITH THE MOST PATENTS GRANTED WORLDWIDE?

MÉXICO

THE X MARKS THE SPOT
PARADIGM SHIFT IN THE MEXICAN ELECTRICITY MARKET

BY EDUARDO MERAZ ATECA

PHOTO COURTESY OF CENACE

EDUARDO MERAZ ATECA, GENERAL DIRECTOR, MEXICO’S NATIONAL CENTER OF ENERGY CONTROL (CENACE).
With the aim of ensuring a steady execution of the new architecture envisaged for the Mexican energy sector, the Energy Reform put forward by the current federal administration and passed in late 2013, brought about an institutional arrangement comprised of new governmental agencies. The National Center of Energy Control (CENACE), which was created on August 28, 2014, is Mexico’s agency responsible for proposing the expansion and operational control of its bulk electricity grids, the implementation of its wholesale electricity market, and the non-discriminatory access to those grids granted to market players.

Shifting away from a predominantly monopolistic structure in place before the Energy Reform, the electricity industry in Mexico has grown in a few years into a competitive Wholesale Electricity Market (WEM). The expertise and support that CENACE provides is key to this rapid transformation and ultimately, to the long-term goal of achieving a highly competitive electricity market which is not only reliable, transparent and cost-effective, but also financially and environmentally sustainable.

One of the most important mechanisms of the development of the WEM refers to the electricity auctions for both the medium and long terms. In compliance with Mexico’s WEM rules and scheduling, published on September 8, 2015; so far, four electricity auctions have been held, with remarkably successful outcomes.

For the long-term, three auctions have taken place. These three auctions were run in March 2016, September 2016 and November 2017, reaching average prices of 47.7 usd/MWh, 33.47 usd/MWh, and 20.57 usd/MWh, respectively. The prices reached in the third long-term auction were among the lowest worldwide, particularly for wind-based technologies. It is also important to mention that the call for the fourth long-term auction was published on March 15, 2018.

For the medium-term, Mexico’s first auction was held on February 2018, reaching a shadow price of approximately 39,846 usd/MW-year.

The Financial Transmission Rights Auction, to be carried out this year, is expected to follow positive trends; such as achieving competitive coverage for marginal price differences.

As proof of the tangible benefits of Mexico’s electricity market liberalization, I want to convey that up until February 2018, a total of 39 Market Participants were in operation and other 150 have shown interest in participating in the future.

I believe that among the factors underlying the rapid and successful implementation of Mexico’s WEM, are the lessons learned from other markets, for which international cooperation plays a fundamental role. As a late-comer to the list of countries having undertaken reforms in the electricity sector, Mexico greatly benefited from the experiences observed abroad, given that we were able to gather enough knowledge to assess the best possible actions to help us leapfrog the learning curve involved in such a task.

In this sense, I am pleased to acknowledge our fruitful collaboration with Germany to deliver more effectively our vast renewable energy resources to the electricity market. From a systems perspective, there is much complexity in expanding the use of variable renewable energy into the grid while still ensuring the reliability and quality of the electricity supply. Cognizant of this major challenge, the German government through its GIZ development agency has benefited CENACE considerably, providing knowledge exchange programs and technical missions since 2017 which have refined our capacities to plan, simulate and ultimately incorporate growing amounts of renewable energy to develop a cleaner, more resilient and reliable electricity market.

At CENACE, we look forward to maintaining and expanding this partnership with the German government on a long-term basis. I trust that Mexico’s first-time participation in Hannover Messe 2018 represents a fantastic spotlight to disseminate its remarkable achievements in the field of energy transition but also, to help us liaise with other German stakeholders willing to explore mutually beneficial opportunities between our countries.

*General Director, Mexico’s National Center of Energy Control (CENACE).*
We humans are innately creative and have been inventing products to improve our quality of life since time immemorial. This creativity is an essential cog in the engine of economic development and requires regular servicing. The Industrial Property System (IPS) is an international mechanism that has proven effective at protecting innovations and promoting a culture of legality.

As a means of managing this system within the framework of NAFTA, the Mexican Institute of Industrial Property (IMPI) was created by decree on December 10, 1993 and has since played an important role in Mexico’s modernization, both legal and institutional.

IMPI works closely with companies, educational and research centers and Mexican and foreign entrepreneurs to raise awareness of the importance of protecting intangibles. It has also fostered the creation of infrastructure to make the system more user-friendly and provide greater legal certainty, in the process establishing itself as a benchmark for countries looking to adopt public policies that support the development of globalized entrepreneurial organizations.

The last 25 years have been productive ones for IMPI, which has created online platforms for the completion of patent and trademark applications from start to finish, while fostering inter-institutional cooperation with national and international bodies, promoting the protection of IP rights and the Industrial Property System, and interacting with users via social media, institutional websites and other such channels.
The impact of the system can be seen in the enhanced quality of new technological products and services. In Mexico’s case, this can be attributed to the sagaciousness with which it has adapted the international IP agreements and treaties it has entered into, such as the Paris Convention, which applies to industrial property in the broadest sense, including patents, trademarks, industrial designs, utility models, appellations of origin and the repression of unfair competition; free-trade agreements; the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which contains general provisions governing copy and related rights; the Patent Cooperation Treaty (PCT); the Protocol Relating to the Madrid Agreement Concerning the International Registration of Marks and Patent Prosecution Highway (PPH) programs for the accelerated examination of patent applications. All these instruments make Mexico an attractive investment alternative and have contributed to the country’s economic development.

Mexico has one of the largest IP offices in Latin America in terms of the number of applications it receives for the registration of inventions and distinctive signs. According to the World Intellectual Property Organization (WIPO), Mexico ranks 10th worldwide in terms of registered trademarks, 15th in brand applications, 5th in trademark registrations in force, 13th in patent applications, 11th in patents granted and 16th in patents in force.

A country’s creativity is directly proportional to its ability to protect innovation and adapt to novel ways of transferring know-how, employing the new technologies born of globalization. Marketing strategies that make intensive and extensive use of the Industrial Property System are therefore crucial to competing effectively on international markets.

*CEO of the Mexican Industrial Property Institute

According to the World Intellectual Property Organization, Mexico ranks 10th worldwide in terms of registered trademarks.
CENTRAL AMERICA’S NEW EXPORT PORTFOLIO

More than 82% of Central America’s global trade transactions are made within the framework of preferential arrangements like free trade agreements (FTAs) or partial scope agreements (AAP). It is instruments like these—which may be regional or bilateral—that have helped Central America increase its presence on international markets. Such is the case of the Association Agreement between Central America and the European Union (AA EU-CA), a strategic agreement that is much more ambitious than an FTA.

BY MELVIN REDONDO*

Indubitably, the AA EU-CA is a bridge between both regions, opening up and facilitating trading opportunities of mutual benefit. One of its goals is to open up markets for goods, services, public tenders and investment. Notwithstanding, it takes on even greater relevance when we consider that the European Union (EU) has a consumer market of 511 million people1 and that it represents 21.6% of GWP (in constant prices). The European Union is currently Central America’s second-most-important extra-regional trading partner and the destination of 22.6% of its exports.

HIGHER VOLUMES OF EXPORTS WITH MORE ADDED VALUE

In the third quarter of 2017, trade between Central America and the EU was valued at 8.18 billion USD and if we look back over the last decade, it becomes clear that the region’s exports have transformed in terms of both quantity and quality. In 2007, Central American exports to the EU totaled 2.93 billion USD, but by 2016 they had risen to 4.25 billion USD. A breakdown by country reveals that Costa Rica has benefited most from trade with the EU, exporting over 2.07 billion USD—equivalent to 49% of the region’s total exports—, followed by Honduras with 964.6 million USD. (See Fig. 1a, 1b, 1c)

As regards composition, the region’s exports are made up primarily of commodities like coffee, bananas, shrimp, melon, pineapple and palm oils, but there is increasing demand

1 WWW.STATISTA.COM/STATISTICS/253372/TOTAL-POPULATION-OF-THE-EUROPEAN-UNION-EU/
for added-value products. This is illustrated by exports of medical, surgical, odontology and veterinary instruments to the EU, which increased 50.3% in 2017. (See Fig. 2)

**A GRADUAL TRANSITION**

These figures point to greater economic dynamism and suggest that Central America is gradually transitioning from its traditional role as an exporter of mainly commodities to more technologically sophisticated goods. Understanding this transformation leads us to reflect on trade opportunities that the region can continue to capitalize on and those that have yet to mature. For example, by 2016 exports of intermediate and capital goods combined were greater than exports of consumer goods. This is a watershed because it shows that Central America is moving in the direction of exports with greater added value.

One of the main challenges will be to export more uniformly to all 28 EU member countries, but because the EU is a customs union, it is difficult to say with precision which countries Central America’s exports actually end up in. Nonetheless, we found that their main receptors are Benelux, followed by Germany and the United Kingdom, although we also found that exports to other EU countries by regions like...
Asia and South America, for example, surpass those of Central America in terms of volume.

While FTAs can help boost trade and consolidate international economic relations, measures need to be taken to ensure the region’s human capital keeps pace with the transition. Central America has chosen the right road by making the leap to more sophisticated, added-value exports and has demonstrated its capacity for innovation in its manufacturing processes, but that is not to say the path ahead is free of obstacles. Of the ten most popular products the region exports to the EU, only three are not subject to exogenous factors like the weather and the rest remain vulnerable to price volatility caused by fluctuating demand. For the region to cross the threshold and position itself strategically worldwide, it needs to work on automating its production processes and improve the quality standards of its goods and services. The region’s new portfolio of exports will necessarily be a diversified one that is sturdy enough to weather the squalls of the global economy.

*Secretary-General of the Secretariat of Central American Economic Integration (SIECA).
The Complete Guide to the Mexican Way of Life

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November | December 2017
GERARDO MONTEL KLINT
A GLOCAL PHOTOGRAPHER

FROM THE SERIE AMONÍACO UNTITLED 01.
His first contact with the world of symbols, dreams and the unconscious was at the age of nine when he was given a book on Hieronymus Bosch. A graduate of the Escuela Activa de Fotografía, today his photographs grace museum collections in Japan, China, Denmark, the United States, Brazil, Hungary and other countries, but Gerardo Montiel Klint couldn’t feel more Mexican and has no desire to test the waters elsewhere.

BY IVÁN IGLESIAS

A master of his craft, Gerardo Montiel Klint’s photographs explore themes like shadow, the arcane as a metaphor of the unconscious, love, attachment, nostalgia and death, intense introspection and more mundane afflictions like suffering and violence; everyday situations that invite both collective reflection and an examination of our individual egos. The stage he sets is one we are not always inclined to walk, even in the most optimistic of scenarios.

His photographs are not “fortuitous”, but structured ideas and concepts like scenes out of a film or novel. “What I do is stage a psychological narrative. Basically, I do montages. I don’t go out on the street to take photographs. I put everything in front of the camera so it happens for the camera. It’s a narrative in the sense an action is taking place, be it the beginning, climax or end of a story, and a psychological one because I’ve always been interested in communicating with the spectator’s unconscious,” says Montiel Klint in interview.

It’s darkness that draws Montiel Klint, not the light. In many of his works, semi-dark frames announce an entire concept. “In photography you’re always told you have to work with the light, but little is said of shadow. I’m interested in working with shadow because it has no volume and because, metaphorically, it is the unconscious, what is hidden, what cannot be seen, what is below the surface.”

Some of his works have Dantesque qualities, like the one of a naked, headless woman in a sexually provocative pose. It is a scene at once violent and disturbing, yet it forces us to reflect on how we relate to the various types of violence inflicted on others on a personal level.

“It’s a matter of self-knowledge. Death, despair, failure, illness, everything we view as negative is actually an attachment to life. When faced with the possibility of tragedy, we cling to life and reinvent ourselves as individuals. Loss is always painful, but we emerge from it transformed. Every crisis holds the seed of a transmutation. For me, the drama is always there; it’s simply a matter of how you see it. In reality, death is not the end, but the starting point, the beginning of something.”

“Made in Mexico”

Montiel Klint’s themes are universal, seeped in infinite possibility, but at the same time firmly rooted in the distinctive local settings of his native Mexico. “I don’t mean this in the nationalist sense of going out and photographing nothing but prickly pear trees and maguey plants, but I do believe that when you come into contact with new ways of thinking and learn from them, at that point you’re engaging in something universal that is still local. You’re universal because you’re in touch with the periphery and its countless possibilities, but you’re still yourself in a specific place, like Mexico. This is basic for me, at least in my work,” says the artist, adding that he feels privileged to live in Mexico, a land that is central to his work and that he views as a melting pot, a life force, an identity.
“I do believe that when you come into contact with new ways of thinking and learn from them, at that point you’re engaging in something universal that is still local.”

And although he has European ancestry, Montiel Klint sees himself as Mexican through and through. “My mother’s family came to Mexico in the 19th century from Austria, France and Germany. My grandfather on my mother’s side came here from Germany because he’d read about Mexico. He found it exotic and lived out the rest of his life here. I feel I belong here. I was born in Mexico, although I received doses of European education during my childhood. I have the European influence on my mother’s side and the Mexican one on my father’s, who was from Tlaxcala. Like many others in this country, I’m of mixed blood, a fusion of many cultures that we gradually make our own, although personally I’ve never felt the urge to test the waters elsewhere. I feel and I know I’m in the right place.”

Death is a predominant theme in the work of this photographer, who has a penchant for bones and relates to Mexican artists like Posada and Siqueiros. He has participated in a foundation, terra firma, doubt, despair and passion all rolled into one.
artist-in-residence programs the world over and adapted to the realities of every country he has visited without sacrificing his unique outlook on life.

Montiel Klint’s photographs can be seen in museums in Asia, the United States and Europe. His goal is to continue working on his photographic series, some of which can take years to complete. “My most immediate goal is the one I’m achieving right now. I make a living doing what I love without having to make concessions. I’m convinced happiness can’t be found in material possessions, but in the act of creating, in the search for who we are, our transformation and emotional independence. The idea is that, professionally, I can carry on doing what I love honestly. I want to continue chasing these aesthetic experiences that change you.” You might say life for Montiel Klint is a never-ending journey inward toward a chiaroscuro that holds the key to what it is that makes us unique as human beings.

“I use dramatic lighting because initially I was influenced by Renaissance paintings and early Flemish artists, but I also identify a lot with the photographs of Gabriel Figueroa (the light in the eyes of his subjects, partially plunged in half-light...), which are wonderfully dramatic.”
EDGAR BORK
ON A MISSION TO PRESERVE THE AUTHENTIC FLAVORS OF MEXICO

Every day a food truck from which unmistakably Mexican smells waft cruises the streets of Berlin, Germany.

BY ADRIÁN KURI

“Germans love carnitas and corn tortillas that literally explode in your mouth when you combine them with a good salsa.”
At noon in Berlin, Germany, you can see a blue food truck decorated with two classic Day of the Dead skulls parked street side. “Eddielicious. Fresh tacos and more”. Inside, something is definitely cooking.

The truck belongs to Edgar “Eddie” Bork, a Mexican chef who came to Germany 30 years ago and who has made it his mission to bring Germans a taste of authentic Mexican food. “It was a combination of things: on the one hand, I missed the flavors of Mexico and wanted to find my roots and on the other, I wanted to show people how varied Mexican street food is. I started out with tostadas and then moved on to tacos and quesadillas, with all that the infinite world of the taco and its variations imply. I’ve also served up dishes you don’t often find outside Mexico, like chiles en nogada, pozole and chiles rellenos,” says Eddie.

Eddielicious has won over Berliners’ palates with its unmistakably Mexican flavors. Quesadillas and braised pork tacos (carnitas) are especially popular. “Germans love carnitas and corn tortillas that literally explode in your mouth when you combine them with a good salsa. They also love chilaquiles... and they’re willing to try new things,” says Bork, who claims he is able to find most of the basic ingredients he uses in Germany. “I use dehydrated chilies in most of my recipes. In Berlin you can find fresh varieties of chili peppers like habanero, as well as coriander, parsley and garlic. There’s even a tortilla plant. It’s different with more elaborate dishes like chiles poblanos, because it’s hard to find them fresh.”

Clearly the secret to Eddie Bork’s success has been his talent for fusing German ingredients and culinary techniques with authentic Mexican recipes, which speaks to his innate creativity.

“It was a combination of things: on the one hand, I missed the flavors of Mexico and wanted to find my roots and on the other, I wanted to show people how varied Mexican street food is.”
VEN A COMER

RAÚL OLIVER
AN AMBASSADOR OF AUTHENTIC MEXICAN CUISINE

PHOTO COURTESY OF RAÚL OLIVER
Germany and Mexico have grown closer, maybe not in kilometers, but definitely in tastes and culture. Many Germans are now hooked on real Mexican food, thanks to culinary ambassadors like Raúl Oliver, a Mexican chef who has been living in Berlin since 2006. As the saying goes, the proof of the pudding is in the eating!

BY ÁNGELA GUTIÉRREZ

As soon as Raúl Oliver graduated from the Ambrosia catering school in Mexico City, he set off for Europe. His first stop was Spain, where he embarked on the mission of showing Spaniards how varied Mexican cuisine is. “It’s always been important for me to familiarize people with our culinary culture and get them talking about it,” says Oliver.

In 2006, he made the move from Spain to Germany, specifically, Berlin, where he continued to expound the virtues of Mexican food, first in the restaurants of five-star hotels, then at Chaparro, his own restaurant, and then to his students. “I had a bicycle accident in Berlin and after that I had to give cooking workshops at companies and for foodies.”

Oliver views Germany as a cosmopolitan country and Germans as adventurous when it comes to sampling dishes they might not always be familiar with. “When I started living here, I was surprised at the number of pseudo-Mexican restaurants. Most were Tex-Mex and none were owned by Mexicans. The German palate has since evolved. People understand now that Tex-Mex is not authentic Mexican food and it’s all because Germans are consumers who like to know where their food comes from, what’s in it and why.”

BUFFET FOR 2,000
Practical, flavorsome and traditional. These are the three adjectives that best sum up Mexican food and that Oliver will be drumming into the German cooks helping him make the special fusion buffet dinner Mexico will be throwing to mark the opening of Hannover Messe 2018. “We’re going to be providing authentic recipes and supervising their making. The challenge will be to treat 2,000 guests to food that does Mexico proud. We’re going to bring a taste of the real Mexico to Germany.”

“People understand now that Tex-Mex is not authentic Mexican food and it’s all because Germans are consumers who like to know where their food comes from, what’s in it and why.”

WHERE?
CHAPARRO IM KANTINI
(BIKINI HAUS)
BUDAPESTER STR. 38-50
10787 BERLIN

CHAPARRO – COCINA MEXICANA
WIENER STR. 14-A
10999 BERLIN

WWW.RAULOLIVER.COM
**ROASTED SUCKLING PIG CARNITAS, PICKLED VEGETABLES IN EPAZOTE-FLAVORED VINEGAR AND ROASTED CHILI SALSA**

My philosophy is to reinterpret traditional Mexican recipes using European products and/or techniques. In the case of this recipe for traditional carnitas from Michoacán, all the ingredients can be found locally, except for the dried chilies and annatto, which come from Mexico, while the pickled vegetables allude to the way Germans cook and preserve their pickles, but with a distinctly Mexican twist.

By Raúl Oliver

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### Suckling Pig

**INGREDIENTS**

- 4 LEGS OF SUCKING PIG
- 3 CLOVES OF GARLIC
- 1 ORANGE (ZEST)
- 3 BAY LEAVES
- 40 G LARD
- COARSE SALT TO TASTE

**INSTRUCTIONS**

1. PUT THE LEGS OF PORK IN VACUUM BAGS WITH THE REST OF THE INGREDIENTS AND COOK FOR 65°C FOR SEVEN HOURS. TAKE THE PORK OUT OF THE BAGS AND SAVE THE JUICES TO MAKE THE SALSA.
2. ON A PLAQUE, SPREAD OUT THE SKIN AND THEN THE SHREDDED PORK MEAT. REFRIGERATE FOR 24 HOURS USING A WEIGHT TO COMPACT THE MEAT.

### Vegetables in epazote-flavored vinegar

**INGREDIENTS**

- 1 CARROT, SLICED
- 1 YELLOW BEETROOT, IN QUARTERS
- 3 CAMBRAY ONIONS, IN PIECES
- 50 G BABY PICKLES
- 125 ML VINEGAR
- 250 ML WATER
- 15 G SUGAR
- 10 G SALT
- 3 G CORIANDER SEEDS
- 1 SPRIG OF EPAZOTE
- 1 LARGE BAY LEAF
- 1 PINCH OF CUMIN
- 10 BLACK PEPPERCORNS
- 1 MORITA CHILI PEPPER (OPTIONAL)

**INSTRUCTIONS**

1. STERILIZE SEVERAL GLASS JARS BY BOILING THEM IN WATER FOR 10 MINUTES. PLACE THEM ON A CLOTH TO DRY.
2. WASH THE PICKLES. MIX THE WATER AND THE VINEGAR WITH THE SALT AND SUGAR AND STIR UNTIL FULLY DISSOLVED. PUT THE PICKLES, WHOLE OR IN PIECES, IN THE JARS, ADD THE REST OF THE INGREDIENTS AND THEN POUR IN THE LIQUID. SEAL THE JARS HERMETICALLY AND PLACE THEM IN A SLOW COOKER. COVER THE JARS WITH WATER TO THE HALFWAY MARK AND COOK FOR TWO HOURS ON HIGH.
3. TAKE OUT THE JARS AND LET THEM COOL.
4. ALLOW THE JARS TO REST IN A DARK AND COOL PLACE FOR A WEEK BEFORE CONSUMING.

### Roasted Chili Salsa

**INGREDIENTS**

- 4 GUAJILLO CHILI PEPPERS, ROASTED
- 1 ANCHO CHILI PEPPER, ROASTED
- 1/2 ONION, ROASTED
- 1 CLOVE OF GARLIC, ROASTED
- 2 ALLSPICE SEEDS
- 1 CLOVE
- 10 G ANNATTO
- 1 SPRIG OF OREGANO
- 50 ML WHITE VINEGAR
- SALT TO TASTE

**INSTRUCTIONS**

SOAK THE ROASTED CHILIES IN WATER. ROAST THE REST OF THE INGREDIENTS IN A PAN AND THEN BLEND WITH THE VINEGAR AND COOKING JUICES FROM THE PORK. PASS THROUGH A FINE SIEVE, SAUTÉ THE SALSA AND SEASON TO TASTE.

### Presentation

SEAL THE PORK PORTIONS IN A VERY HOT PAN. PLACE THE PORTIONS ON A BED OF SALSA AND ACCOMPANY WITH A SERVING OF PICKLED VEGETABLES, DECORATE WITH INDIAN CRESS AND FLEUR DE SEL.
## Oficinas en México

### Coordinación Regional Noroeste

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### Coordinación Regional Centro Occidente

<table>
<thead>
<tr>
<th>Estado</th>
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<th>Email</th>
</tr>
</thead>
<tbody>
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### Coordinación Regional Centro

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### Coordinación Regional Suroeste

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