NATIONAL FLIGHT PLAN

MEXICO's AEROSPACE INDUSTRY ROAD MAP 2015

MÉXICO

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1. Introduction

The sustained growth of the Mexican aerospace industry has been the result of coordinated actions by leaders of the triple helix—industry, academy and government. This triple helix has built a collective vision of the future of this sector, establishing multiple actions to promote and develop its competitiveness: "The best way to predict the future is to build it."

Based on this vision, a comprehensive plan was created and implemented called the National Flight Plan (NFP), which has been the basis for the development of the national strategy of the Mexican aerospace sector (ProAéreo). The NFP is a point of reflection and evaluation that will fine-tune the strategy defined in earlier versions, considering the evolution of the sector and the assessment of the outcomes for its tactical and operational execution.

This document presents the results of the projects and lines of action proposed since the third version of the NFP. It includes a prospective analysis on global trends in the aerospace and defense sectors, with special emphasis on the implications for Mexico. Finally, it identifies the regional strategies of the country's main aerospace clusters. The results gathered in this publication have been taken from the proposals in the first versions of the NFP. It shows how it has been possible to coordinate the different actors of the Mexican aerospace sector to trigger growth and increase added value.

It is important to note that the NFP is a dynamic document, being constantly updated, and it demands the ongoing participation of the actors involved in its implementation. This continuous updating process aims to identify new niches of opportunity and to detect emerging factors that may have an effect on the global and local aerospace sector, which in turn demands the adaptation of the road map to prevailing conditions in a fast-changing technological and economic environment.

2. The Aerospace and Defense Industry Worldwide

The global aerospace and defense (A+D) market was estimated at 1.244 billion dollars at the close of 2013. According to data from Deloitte,[1] this market has grown at an annual rate of 5% over the last three years.[2]

Profits from the defense sector are expected to remain low, mainly because of the disruptions in the Iraq and Afghanistan armed conflicts. This has translated into a smaller budget allocation for the purchase of military equipment. Despite adjustments and spending cuts in defense, the United States has remained the most lucrative country. It represents almost 70% of the A+D market value, while the civil segment barely contributes the remaining 30%.

Aerospace and defense companies are facing new challenges related to cost reductions in their programs and contracts, forcing them to adjust to budget cuts around the globe. However, the quest continues to build ever more efficient and lighter aircraft. These challenges create new pressures dictated by an industrial environment with high standards, in which innovation is a determining factor.

Now more than ever, aerospace and defense companies are experiencing a number of challenges: costs, the supply chain, the need to expand operations and the search for macroeconomic certainty, to name a few. Customers, meanwhile, seek constant improvements in innovation and price. In short, the A+D industry recognizes that innovation is a vital component, and must be achieved by any means, but not at any cost.

As it was stated in the document *A&D Insights: Executive Summary* prepared by PwC, "This convergence of pressures is leading to a change in program management that moves it well beyond its traditional heartland of scheduling, progress tracking, managing risk and pressurizing or sometimes penalizing suppliers. In the past, companies would respond to pressure by majoring on excellence in one of solutions leadership, operational excellence or customer intimacy. But today's environment means that excellence in one alone is not enough. Companies, and in turn their program managers, need to be top of their game in all three. And they need to be able to deliver innovation and affordability in tandem."

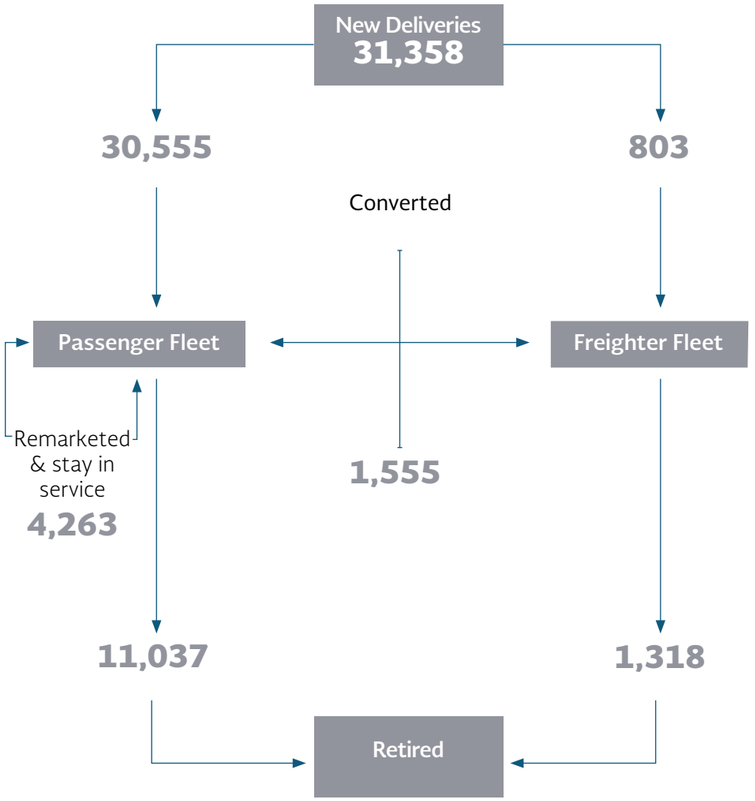
In the civil sector, the fleet of passenger and cargo aircraft—with more than 100 seats and 10 tons—is expected to reach 31,358 by 2033, which means a significant increase (more than double) considering the commercial aircraft currently in service. Single-aisle passenger aircraft represent the largest segment of the new deliveries with 22,071 over the next 20 years. The demand for Twin-aisle aircraft will require 7,726 new passenger aircraft and 530 freight aircraft. Due to the growth in traffic demand in Asia-Pacific, it is no surprise that 48% of the demand for very large passenger aircraft (VLA) will be within this region. It is equally important to note that over 38% of all new aircraft deliveries over 100 seats will be within North America and Europe. Much of this demand, especially in North America, is for new, more fuel efficient aircraft to replace older less eco-efficient types. By 2033, the world's airlines will take delivery of more than 31,350 new passenger and freighter aircraft worth 4.6 trillion dollars at current list prices.[3]

1 Deloitte. 2014 Global Aerospace and Defense Industry Outlook

2 Calculation by the Business Intelligence Unit (BIU) of ProMéxico with data from Deloitte.

3 Airbus Global Market Forecast "Future Journeys 2014-2033"

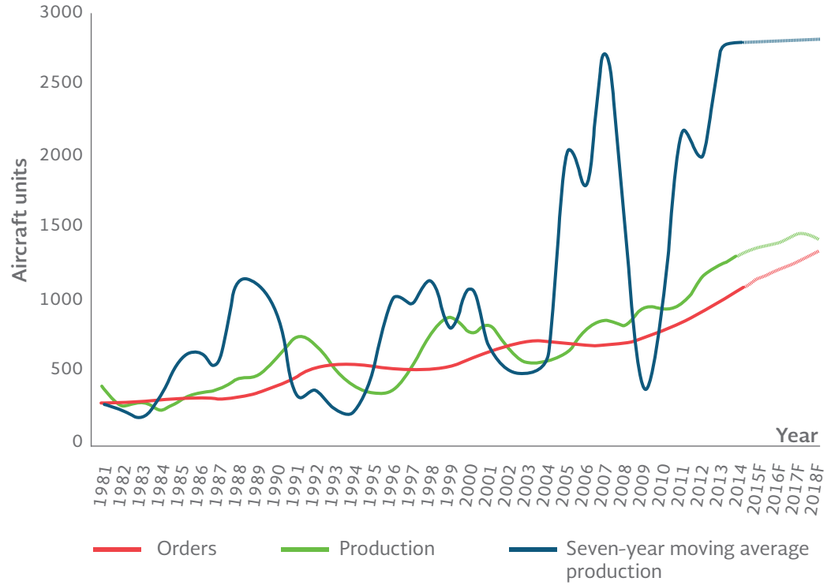
Graph 1. Fleets and Deliveries



In 2014, the level of aircraft production remained for the fourth consecutive year at more than one thousand units. The number of orders will continue to rise due to the constant improvement and renovation of fleets. The replacement of old planes for more efficient aircraft will be important to guarantee more competitive prices. Over the next decade, commercial aircraft annual production levels are anticipated to increase significantly by an estimated 20%. With such growth expected, there are two significant trends and challenges to consider; the entrance of new global competitors (COMAC, Bombardier, Embraer) to the existing duopoly (Boeing and Airbus) and the impact on the supply chain. The industry has been a duopoly since 1997. Going forward, it is expected that at least one additional competitor may successfully enter this market in the next 20 years.[4]

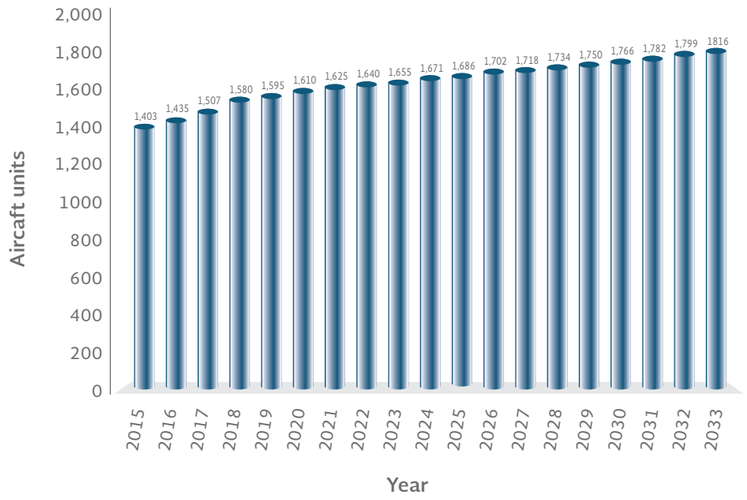
4 Deloitte. 2014 Global Aerospace Industry Outlook.

Graph 2. History and forecast for large commercial aircraft orders and production (1981 to 2018F)



Source: Global Aerospace and Defense Industry Outlook, Deloitte, 2014.

Graph 3. Aircraft Delivery Forecast (2015 to 2033)



Source: Global Aerospace and Defense Industry Outlook, Deloitte, 2013

Suppliers to original equipment manufacturers (OEMs) and/or assemblers face huge challenges to keep pace with production demand. Sizeable investment is expected in the development of skills and tools, and to increase manufacturing capacity.

Cost efficiency and innovation-related challenges will apply to new-generation aircraft, both commercial and military. The commercial aircraft market will focus on the development of wide-body planes with the A350 and the 787-9, and the development and design of the 777X. Meanwhile, in narrow-body aircraft the Bombardier C-Series and improved engines for the A320NEO and the C919, which are scheduled for assembly from the end of last year through early 2015.

Finally, there is the Brazilian Embraer with the launch of its successor to the G2 Jet, and COMAC's C919 and ARJ21 planes. These models will intensify competition with Boeing and Airbus. In December 2013, Airbus received more than 750 orders for the A320neo. Boeing had more than 560 orders for the 737MAX. During the next two years, Bombardier will be put to the test; airlines are expected to place orders for narrow-body planes, which would position the C-Series.

Concerning non-commercial aviation, there is a clear trend towards partnership between countries to manufacture combat aircraft. Switzerland is collaborating with Sweden on the development of the next generation Saab Gripen. Indonesia has joined South Korea's KFX combat aircraft program.

The sales forecast will be dominated by the Joint Strike Fighter Lockheed Martin F-35 program—which will run through 2019—involving the partnership of nine countries: the United States, the United Kingdom, Italy, the Netherlands, Turkey, Canada, Denmark, Norway, and Australia. Progress on the development of the F-35 Joint Strike Fighter will be very important, considering the concern of multinational partners for escalating costs, which have become a determining factor for Mexico's aerospace industry to be recognized as a strategic option.

According to *Aviation Week*, Lockheed Martin has confirmed orders for almost 340 Hercules C-130 from more than 15 countries. There are new competitors around the manufacturing of this aircraft, so timely delivery will be crucial for the company. The main competitors in this segment are the Embraer KC-390, the Chinese Shaanxi Y-9, the Russian/Indian Medium Transport Aircraft (MTA), and the A400M.

As far as helicopters, the seven countries behind the Eurocopter Typhoon are expected to grant the development contract for an AESA (*Active Electronically Scanned Array*) to Euroradar's consortium, Selex Galileo. Meanwhile, the United States has commissioned Bell for an upgrade to replace the use of AH-64E Apache helicopters.

In Europe, Great Britain and France spend about the same percentage of GDP on defense; together they represent half the military spending of the continent and their armed forces are very similar. Both nations cooperate in individual programs, such as Watchkeeper unmanned air vehicles (UAV) for surveillance, which have gained ground in cyber defense. They also share research objectives with the English Taranis and the French Neuron.

In summary, the international outlook will be extremely intense, with enormous activity in the development and construction of aircraft for commercial and military use. As mentioned, the most important challenges will be related to cost reduction as well as design and materials innovation. In this sense, the existence of a reliable supply chain will be of paramount importance, and a prime development opportunity for Mexico.

3. The Aerospace and Defense Sector in Mexico

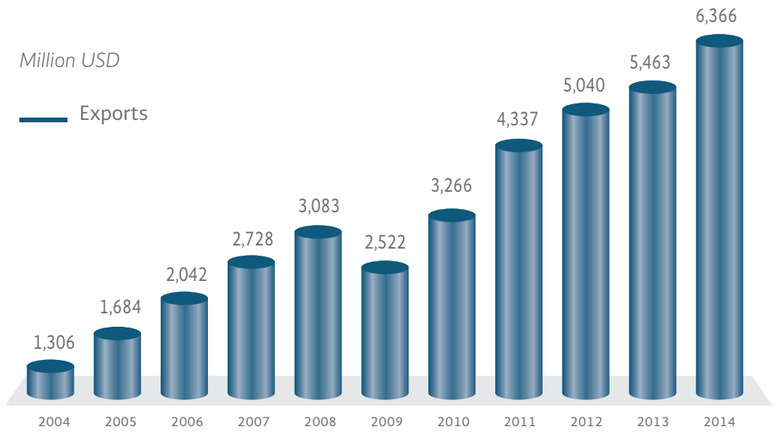
Mexico has become firmly established as one of the most important global players in the aerospace sector. It has reported a growth rate of 17.2% annually since 2004. Currently, there are 302 companies and support organizations[5] most of which have NADCAP and AS9100 certifications. They are mainly located in six states and employ more than 45,000 high-level professionals.[6]

Mexico has built its vocation as a manufacturing, engineering and development center with high strategic value. This is due to the degree of technological sophistication of its exports, existing engineering talent (Mexico has the largest number of graduates in the Americas) and the quality and competitiveness of its workforce. In addition to this, respect for industrial property in Mexico has become a crucial factor.

The accumulated foreign direct investment in aerospace in the last ten years is around 1.797 billion dollars.[7]

Mexican aerospace exports amounted to 6.366 billion dollars in 2014, representing an increase of 16.5 % over 2013 according to data from the Ministry of Economy (SE).[8]

Graph 4. Mexico aerospace exports



Source: Ministry of Economy, DGIPAT, with data from DGCE-Banxico.

In 2014, aerospace accounted for 0.66 % of manufacturing GDP, registering an increase of 88% in its participation compared to 2007.

According to estimates from the 2010-2020 Aerospace Industry Strategic Program, coordinated by the Ministry of Economy (SE), the industry is expected to report exports of 12.267 billion dollars in 2021, with a 14% average annual growth rate.[9]

5 Information obtained in coordination with the presidents of the aerospace clusters, ProMéxico and the state Ministries of Trade (SEDECOS)

6 Ministry of Economy (SE) DGIPAT, 2014

7 Ibid.

8 Ibid.

9 ProAéreo, SE.

Major international companies like Bombardier, Safran Group, GE, Honeywell, and Eurocopter have found in Mexico the conditions to develop design and engineering centers, laboratories and production lines capable of evolving quickly to handle more complex assignments in the race for next generation engines and airframe components. This has been possible due to the wealth and availability of specialized human capital. Mexico is the most important talent pool in America, with more than 100,000 graduates per year from engineering and technology courses,[10] which is a great opportunity for the aerospace sector and the development of other medium and high-technology industries. In addition to new graduates, Mexico has highly qualified personnel with decades of experience in the automotive, electronics, medical devices and advanced manufacturing-related industries.

The overall quality of infrastructure has also played a major role in creating favorable conditions for the industry with the availability of laboratories, certification units and the presence of Mexican civil aviation authorities. This facilitated the signing of the BASA (Bilateral Aviation Safety Agreement) with the United States Federal Aviation Administration. The agreement involves the recognition by the United States government of aeronautical certification systems and products made in Mexico. This allows components to be designed and manufactured in the country and encourages the development and strengthening of national procurement for the parts manufacturing industry.

Moreover, Mexico is still the most competitive country in the hemisphere in aerospace manufacturing costs.[11] The country's legal framework protects industrial property and ensures the proper use of the goods produced and exported from the country.

The new Mexican export control system was found to be so efficient and safe by the international community that in 2012 the country entered the Wassenaar Arrangement and the Nuclear Suppliers Group, and then in 2013 the Australia Group. Mexico is already part of three of the four main export control regimes, and is in the process of applying for the remaining. Considering the Wassenaar Arrangement alone, this adhesion implies access to an estimated additional 11.3 billion dollars in exports.

Mexico's admission in the regimes ratifies the international community's trust in the country as a reliable destination for the integration of sensitive technologies. It also shows the country's commitment to remain a safe destination for the production of goods and services, including both restricted technologies and dual-use goods and services.

It is worth noting that Mexico is the sixth largest supplier to the US aerospace industry. Furthermore, geographical proximity to the United States, the world's largest aerospace market, and convergence with the two main manufacturing corridors in North America are competitive factors for the country. In addition, the commitment of industry, academia and government to establish and implement a national strategy has enabled the creation of highly competitive poles that function within a certified ecosystem and at world class level, presenting Mexico as an attractive destination in innovation and operating efficiency.

10 Statistical Yearbook 2011-2012, National Association of Mexican Universities and Higher Education Institutions (Asociación Nacional de Universidades e Instituciones de Educación Superior en México, ANUIES).

11 KPMG Competitive Alternatives 2014

4. National Strategy

In the execution of any strategic plan, it is important to remember that the focus should be on meeting the objectives, which will be critical to establish concrete actions aimed at giving a boost to the sector. Within this context, an innovation-based road map must be built through team work. In line with this principle, the major players in the aerospace community in Mexico convened to define the path of the industry, academia and government to establish it as the country's flagship industry, attracting more productive investment, promoting technology and knowledge transfer, and affecting the creation of better jobs, opportunities and strategic partnerships.

This updated version of the National Flight Plan (NFP) shows the progress and alignment requirements under development, without losing sight of the original focus or goals. It also includes the strategic milestones that have guided the efforts made thus far and considers those that are still to be made.

Below are the key trends that are shaping and will undoubtedly mark the national and international course of the aerospace sector; major advances made based on the strategy, along with the capacities developed so far.

4.1. Global Trends

The analysis of global market trends in the aerospace and defense sector reveals strategic information to determine which market niches will be the most important. In addition, they serve to evaluate the scenarios which are more advantageous for Mexico. Below are the main trends that have shaped the development of the aerospace sector from a social, technological, economic, environmental and political-legal perspective.

Graph 5. Trends and Drivers

		2014	2015	2016	2017	2018	2019	2020	2021	2022
Social				Drain of professionals						
		Demographic bonus in Mexico								
						Confidence in Mexico as partner in the use of technology and engineering				
		Passenger experience influences aircraft design								
Technological	Airframe & Systems	Use of nano composites in military and civil aviation								
		Conversion of hydraulic and pneumatic systems into electrical systems								
		Riblets					Riblets Hybrid wing body			
		Wireless optical connections for in flight training						Wing with cross reinforcement bar		
		Spiroid wingtip				Cruise-efficient short takeoff and landing				
		Piloting through advanced electric command								
		More electrical architecture (MEA)					Unmanned air combat vehicles replace military fleets around the world			
			Variable curve with new control surfaces							
			Energy-collecting devices							
			Natural laminar flow							
			Hybrid control for laminar flow							
	Engines	Engine replacement						Advanced 3rd generation core		
			New engine core concepts					Active stability handling		
		Command turbojet				Open rotor/fan with no ducts				
		Direct advanced transmission					Variable cycle			
		Contraprop fan					Customizable/active flow control			
	Alternative Fuels	Fuel biomass or biojet					Liquefied petroleum gas			
		Synthethic paraffinic kerosene					Liquid methane			
		Biodiesel					Compressed natural gal			
		Furans						Ethanol		
		Transesterification fuels						Liquid hydrogen		
		Biodiesel								
		Butanol								
	Air Traffic Management	Data link communication								
		Required arrival time								
		Performance-based navigation								
		Automatic dependent surveillance transmission - OUT								
		System-wide information management								
		GNSS (global navigation satellite system) landing system								
		Automatic dependent surveillance transmission								
Economic		National investment in new material development (nano composites)								
							Integration by economic blocks (NASFTA and LATAM)			
		OEMs recognize Mexican aerospace manufacturing				Domination of regional airlines				
		Integral Aeronautic Services Hub (MRO)								
		KPO development in emerging economies								
		Use of off-the-shelf components for defense applications								
		Higher protectionism in developed economies								
Environmental		Alternative fuel research								
					100% green manufacturing, assembly and materials					
		Quieter engine research								
		Lighter composite research				Reduction of aircraft's carbon footprint				
		Environmental standards and taxes on emissions in EU								
Political and Legal		Global acceptance of taxes on CO2 emissions								
		Arrival of more defense companies after export control agreements								
		More competitive legal framework (Reforms)								

Engines

The trend in the coming years will focus primarily on commercial engine supply. For single-aisle aircraft, the CFM Leap-1 and Pratt & Whitney PW1000G engines will be chosen by the OEMs to use mainly in A320NEO, 737 MAX, the COMAC 919 and Bombardier's Series-C models. The Trent XWB in A350 planes will receive the majority of wide-body orders and deliveries.

This trend aims to maximize profits for airlines since these types of aircraft and engines have the latest fuel-saving technology.

In Mexico, companies like GE and Honeywell are conducting research and design of new turbines, including the GenX turbine, which saves almost 15% in fuel and has a 30% reduced carbon footprint. These design tests were performed in Querétaro at the GEIQ. The R&D of the next generation LEAP-X turbine is also carried out at this center.

Alternative Fuels

The search for better results and ever-rising fuel prices has generated key trends in improving the performance of engines and aircraft.

In terms of fuels, many alternatives, such as biofuels, synthetic fuels and aromatic compounds, are both viable option and environment-friendly. Unfortunately, their development and marketing is still not so profitable, therefore investment in fuel efficiency research and development will be a priority in the near future.

Mexico has not lagged behind in this area. As of July 1, 2012, the International Standard ASTM D7566 for the use of biofuels blended with conventional aviation turbine fuel came into force. This standard implies that commercial airlines must have the capacity to fly with biofuels.

The Mexican airline Interjet was the first on the continent to run commercial flights with biofuel, putting the Mexican aviation industry on the front line. The fuel it used was a mixture of 27% biofuel and 73% conventional fuel, as established in the aforementioned international standard. Interjet plans to do regular commercial flights with biofuel, although considering the limited availability of certified stock in Mexico it may have to wait until supply is more constant.

Aeroméxico made the first transoceanic flight in a wide-body plane using biofuel; the first of its kind in the world. Moreover, institutions such as ASA (the Mexican Airport Services) and CONACYT (the National Council of Science and Technology), have pushed the development of a sustainable aviation biofuel plant in the state of Chiapas.

The generation of aviation biofuel is still in its early stages, and current production costs remain higher than for conventional fuel. However, oil prices are also rising, so biofuel is expected to be a competitive option compared to conventional fuel in a short period of time.

Dual and Restricted Use Technologies

The development of restricted and dual-use technologies is highly lucrative. It has become a strategic sector for regions with a strong aerospace sector. The sector faces budgetary constraints and a concentration of resources in specific programs, so it needs a more efficient supply chain.

In the case of Mexico, since its entry into the main export control systems such as the Wassenaar Arrangement, the Nuclear Suppliers Group and the Australia Group, it has captured investment projects which are increasingly more profitable and strategic, with greater potential for the promotion of industrial competitiveness through technical and financial compensation.

In this context, some of the projects that are beginning to take shape include combat planes, unmanned vehicles, latest generation materials and knowledge process outsourcing (KPO) services for the aerospace and defense sector, including software design and other industrial processes.

New Materials: Quieter, Lighter and Cleaner Aircraft

The continued efforts to create lighter, stronger and quieter aircraft have furthered the research and development of new materials for civil aviation and defense. The new materials, such as nanocompounds, are classified as dual-use since they have both civil and military applications. Efforts have been made to improve energy efficiency and range. Materials are also sought which are lighter, quieter and invisible to air detection systems. The new materials are needed to perfect their use, control noise, optimize strength and minimize wear. Both military and civil aviation sectors around the world have expanded into the manufacture of aircraft with lower emissions, which has affected the use of materials and alternative fuels.

Among the current trends is the notable return of aluminum.[12] Metal suppliers affirm that an improved aluminum-lithium alloy could fully replace the use of traditional aluminum. The lower density of the new alloys reduces weight by 3 to 6%. New designs can take advantage of its strength and corrosion resistance. An example of these is AirWare alloys, used by Airbus in the A350 and Bombardier in its Series-C.

Mexico has research centers and laboratories specialized in new materials and nanocompounds, including the Mexican Materials Research Corporation (Corporación Mexicana de Investigación en Materiales, COMIMSA), the Advanced Materials Research Center (Centro de Investigación en Materiales Avanzados, CIMAV) and the Materials Research Institute (Instituto de Investigaciones en Materiales, IIM) of the National Autonomous University of Mexico (Universidad Nacional Autónoma de México, UNAM), among others. This opens opportunities to develop new materials, and latest generation composite materials, which has facilitated their integration into international innovation networks in the field. Helicópteros y Vehículos Aéreos Nacionales (HELIVAN), for example, is developing graphene,17 a carbon fiber that is two hundred times stronger than steel and is used in the defense aerospace industry.

Unmanned Air Vehicles

Unmanned air vehicles (UAV) have experienced meteoric growth in the last decade. They are crucial for the transformation of international defense systems. In addition, the budgetary reality facing governments requires most effective and less risky (in terms of human losses) solutions to win military confrontations or perform paramilitary activities.

In this context, the effectiveness of UAVs in military operations has been widely proven. The new generation of Unmanned Combat Aerial Vehicles or UCAVs will have full autonomy and tactical combat capacities that gradually replace or complement the military fleets of world powers.

The market for military use UAVs in the United States is forecast to grow at a compound annual rate of 12%, reaching 18.7 billion dollars in 2018. The United States market for this type of UAV will generate 86.5 billion dollars in revenue between 2013 and 2018.[13]

In Mexico, some companies have focused on the manufacture and development of unmanned vehicles. An analysis of the trend towards UAVs shows that Mexico has the specialized manufacturing capacity, research and development talent, and dual use international technology agreements needed to become one of the key suppliers for this market.

12 Aviation Week ,2013

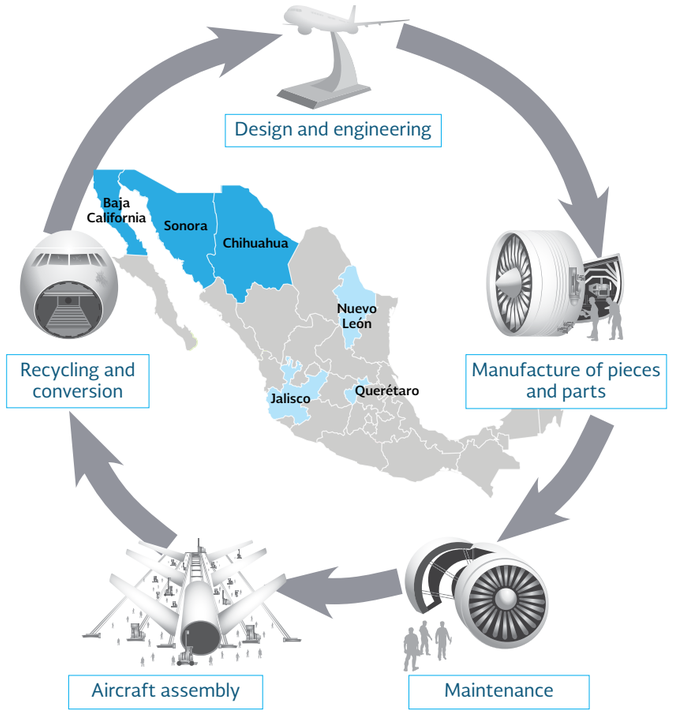
13 Market Research Media, www.marketresearchmedia.com

4.2. Strategy: Progress and Main Lines

The development of the aerospace sector's strategy—its tactical and operative implementation in terms of tasks, milestones, projects and relevant activities—has positioned Mexico as one of the main emerging players in the international arena. Despite the obvious results of the implementation of the NFP, a strategy with nothing to improve is conformist. Therefore, the outstanding tasks must be assessed, along with the challenges of a competitive strategy.

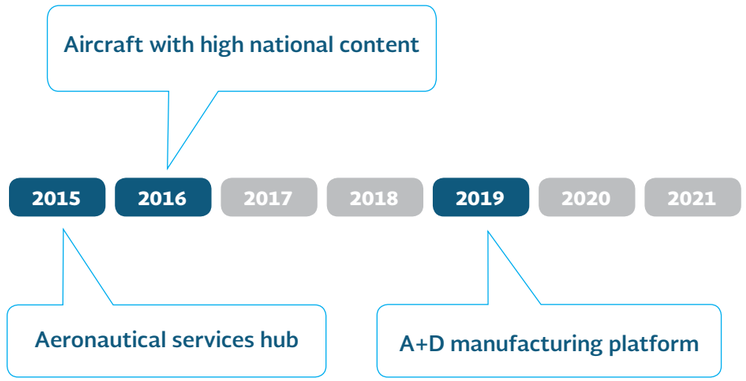
The general objective holds: the development of a national ecosystem of high added value and its competitive integration into international aerospace and defense networks. During 2015, the national strategy will also maintain its focus: turn Mexico into a destination that serves the full cycle of an aircraft, while regional strategies align with the national strategy based on the productive vocations of the main clusters.

Graph 6. Full Cycle of an Aircraft in Mexico



Since its first version, the NFP has been integrated by three strategic milestones, which have focused on high-value projects and the lines of action of the triple helix. This framework, in line with regional strategies, has enabled the launch of ambitious initiatives, which have had an effect on the development of the Mexican aerospace sector. The following graph summarizes the strategic milestones planned for the Mexican aerospace industry.

Graph 7. Strategic Milestones



Below are the strategic projects based on the trend analysis done on each version of the NFP over the last four years. Each strategic project includes its progress and specific strategy.

4.2.1. Quality Global Infrastructure

The National Quality System is based on the country's accreditation, certification, standards, metrology, and testing capabilities. The national strategy, therefore, covers different actions designed to strengthen those capabilities.

The implementation of best practices, process control and talent are the bases for Mexico's aerospace industry to have the necessary links to generate high-quality companies and a sectoral value chain with high added value.

Thus, the country has developed a quality global infrastructure, in terms of test laboratories and certification units according to the needs and requirements of the world aerospace industry, covering companies with AS9100 certifications, NADCAP processes and people. Quality and safety systems are pillars of the Mexican aerospace system, whose products and services meet the highest requirements of the international market.

4.2.1.1. The Bilateral Aviation Safety Agreement (BASA)

The signing of the Bilateral Aviation Safety Agreement (BASA) in 2007 and its ratification in 2009 is a mutual recognition of aviation certification systems between the General Directorate of Civil Aviation (Dirección General de Aeronáutica Civil, DGAC) and the FAA. This way, the DGAC can certify parts, components, aviation systems and even a full aircraft that is manufactured and/or assembled in Mexico and exported to the United States, or other markets, according to the relevant standards and regulations. At present, the Implementation Procedures for Airworthiness (IPA) are in force. The signing of the chapter on Maintenance Implementation Procedures, which includes maintenance, repair and operations (MRO) of aircraft and their parts, is still in progress.

The continuity and full implementation of BASA is in line with the strategy for Mexico to provide products and services to address the entire life cycle of an aircraft. It will also allow companies to certify manufactured and/or repaired products, as well as maintenance services performed in Mexico.

4.2.1.2. Development of Laboratories and Certification Programs

Mexico has a large network of research centers nationwide, which support industrial sectors, among the most important of which is aerospace. The network of laboratories and centers consists of the Industrial Engineering and Development Center (Centro de Ingeniería y Desarrollo Industrial, CIDESI), the Center for Research and Technical Development in Electrochemistry (Centro de Investigación y Desarrollo Tecnológico en Electroquímica, S.C., CIDETEQ), the National Metrology Center (Centro Nacional de Metrología, CENAM), the Advanced Technology Center (Centro de Tecnología Avanzada, CIATEQ), the Center of Research and Advanced Studies of the National Polytechnic Institute (Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional, Cinvestav), the Advanced Materials Research Center (Centro de Investigación en Materiales Avanzados, CIMAV), among others. All have coverage that includes the country's main aerospace clusters.

In addition to this network of research centers and laboratories, the primary objective is to expand technology and testing spaces that provide technical services, infrastructure and parts and equipment technology, as well as for the technical and administrative support to complete product certifications and supplier development.

Aerospace clusters have also formed organizations that function as an important mechanism of coordination between industry and higher education and research institutions. Such is the case of the Querétaro Aerospace Research and Innovation Network (RIIAQ), which aims to contribute to the development and strengthening of research, technology development and innovation capacities, or the aerocluster in Monterrey, which seeks to become a center of excellence in innovation, engineering and supply of parts and components in North America. One of its main goals is to promote innovation and technology transfer between industry and academia in the state.

Other specific initiatives and programs have been implemented to strengthen the network of laboratories and certification programs that focus on the sector, such as the Mexico-European Union Competitiveness and Innovation Program (PROCEI).

The PROCEI, managed by ProMéxico, has developed different projects aimed at reinforcing Mexico's aerospace sector, including the development of studies, certification programs, supplier identification, consulting and infrastructure, which has helped the SMB industry to strengthen its capacities and raise competitiveness. Below are some of the main projects of PROCEI.

4.2.1.2.1. Strengthening Technical Support to Enhance the Competitiveness of SMBs in Mexico's Aerospace Sector Supply Chain

This project is managed by the CIATEQ (Advanced Technology Center) and has two lines of action:

1. Creation and Equipping of an Aeronautical Testing Laboratory.

The initial concept of this laboratory considered an initial phase with a single aircraft. However, at the federal government's initiative, the infrastructure will be complemented with an aeronautical materials center. This laboratory will be primarily focused on the aerospace sector and work strictly with 18 OEMs, members of the Querétaro cluster and the SMBs of the industry established in central Mexico. It was designed following exhaustive research among similar laboratories and centers in Europe, Asia, and North America. Its implementation considers the adaptation of models and tests according to the medium- and long-term needs of the industry in Mexico, thus responding to the demand for specialized capabilities which complement those of the three centers that are part of this initiative (CIATEQ, CIDESI, CIDETEQ).

Following up on the above, low cycle and high-temperature fatigue testing equipment was acquired, aimed at the needs of tractor companies of the aerospace sector, as well as standards and databases. In addition, there is a proposal to acquire equipment to analyze materials produced by certain SMBs for their insertion into the aeronautics supply chain (and other sectors).

2. Diagnosis and AS9100 Certification of Companies and Research Centers.

Its initial phase involved a diagnosis of 51 metalworking SMBs from seven central states, in order to identify the feasibility of this group of companies obtaining AS9100 certification. Of the 51 SMBs, twenty were selected to continue the second phase of mentoring and a third phase of AS9100 certification for them to join the aerospace sector supply chain.

The companies were selected for the project by the recommendation of OEM and Tier 1 companies, who are working closely with them to strengthen the national supply chain. The initiative will also certify the CIATEQ and the CIDETEQ, further developing production in the region.

4.2.1.2.2. Center for Training and Certification in Design and Engineering Software (Centro de Capacitación y Certificación en Software de Diseño e Ingeniería, CATIA)

The National Chamber of the Electronics, Telecommunications and Information Technologies Industry (Cámara Nacional de la Industria Electrónica, de Telecomunicaciones y Tecnologías de la Información, CANIETI), through the PROCEI, will consolidate the Center for Training and Certification in Design and Engineering Software (CATIA), which is in Baja's Innovation and Technology Center or BIT Center, in Tijuana. The chamber has participated actively in the generation of supply for the high-technology manufacturing sector, especially electronics and aerospace, which has enabled it to detect areas of opportunity.

The Baja California Aerospace Cluster considers that one of the strategies to strengthen the sector is to have robust ITC services to meet its design and engineering requirements. That is why CANIETI, with support from PROCEI, put together a training and certification center to offer clinics on CATIA and SolidWorks design and engineering software, providing services with high-technology content targeted to the aerospace sector.

The first clinics were held in January 2014. Three instructors were also selected who trained and certified thirty engineers in their modules of interest.

4.2.1.2.3. Project to Enhance the Advanced Manufacturing Capacities of SMBs in Chihuahua

Through this joint project with Economic Development of the state of Chihuahua (Desarrollo Económico del Estado de Chihuahua, DESEC) and with the aim of increasing the degree of integration of the state's metalworking sector, improving the quality of the products transformed by SMBs and achieving their integration into international markets (especially in the aerospace sector), two lines of action were established:

1. To innovate, develop, and enhance the design of products and their parts.

2. To certify the parts in question for the aerospace industry.

For the first, a FabLab (flexible manufacturing laboratory) will be installed in the Innovation Technology Transfer Park (PIT3) of the Monterrey Institute of Technology and Higher Education (Instituto Tecnológico de Estudios Superiores de Monterrey, ITESM), campus Chihuahua. The FabLab is based on the Massachusetts Institute of Technology (MIT) global laboratory network model. It consists of an experimentation and production area that enables the generation of prototypes and acts as a link between metalworking SMBs and the automotive and aerospace industries, through advanced manufacturing processes and products. It will be the first of its kind in Mexico and the third in Latin America. The laboratory will enable SMBs to carry out innovation, design and development activities for new products.

The second line of action concerns the evaluation and certification of parts according to NADCAP standards and will be performed through the Advanced Materials Research Center (CIMAV), which will give accreditation in thirteen different material tests, allowing pieces to receive NADCAP certification and subsequently penetrate the aviation market.

The project is in the phase of human capital training and the first phase of the FabLab is being pre-installed. As far as obtaining NADCAP certification, the CIMAV has begun to do all the necessary adjustments to equipment, processes and human resources to meet the established requirements and standards in order to obtain the distinction, which will help the aerospace sector take another step towards its development and consolidation.

4.2.1.2 DGAC Offices

As a result of the efforts of the General Directorate of Civil Aviation (DGAC) to address the growing demand for aerospace related services in Mexico, a regional office was opened in Querétaro—others are planned around the country. The priority of the first decentralized DGAC office is the certification of airplane parts manufactured in Mexico, as part of the bilateral aviation safety agreement (BASA) between Mexico and the United States.

4.2.2 Turbine Development in Mexico

Mexico has successfully developed engine-related activities that range from design, engineering and manufacture of parts, units and systems to its maintenance and repair operations (MRO). Major international players have found the talent they need to drive high-value projects related to new generation turbines in Mexico.

Engine design and manufacturing activities in Mexico are performed by large international consortiums of the engine industry. Companies like Honeywell, GE and Snecma, along with supply chains, cover the vast majority of processes and capacities required to develop engines (from conceptualization and design to manufacture and repair).

Considering the big companies in Mexico and their suppliers, there are manufacturing and repair capacities for (large, medium and small) engines, including new generation engines. The main companies performing these activities in Mexico are:

- General Electric (Querétaro), focused on new, large engines and their repair.
- Honeywell (Chihuahua), for new, medium and small engines and their repair.
- SNECMA/SAFRAN (Querétaro), for new, medium engines and their repair.
- Churchill (Sonora), focused on the manufacture of blades for Rolls Royce and their application in new products.
- ITP (Querétaro) for the manufacture and repair of low pressure turbines.

Regarding the design of parts, components and/or turbines in Mexico, the main companies are Honeywell (with centers in Chihuahua and Baja California); GE and ITP in Querétaro, which will probably be joined by SNECMA in the near future.

It is important to mention that Sonora also has a clear vocation for engines and is establishing a cluster aimed at this segment. Companies like Trac Tools de México, UTAS, ESCO and Wallbar Engine Components, are developing their capacities. Several of them have attracted the attention of leading companies like Rolls Royce, which since 2012 established a purchasing office in Guaymas, Sonora.

Mexico has the necessary capacities to design and manufacture complete engines. However, turbine development can be boosted with the following actions:

1. Developing the education capacities of advanced mechanical engineering, with emphasis on 3D modeling (UNIGRAPHICS and CATIA 5).
2. Specialization of certified laboratories for strength, life, metallographic testing, among others.
3. Offsets program for engine manufacturing and maintenance in Mexico.

Among the success cases related to turbines in Mexico are:

Mexicali Research & Technology Center

Honeywell's Mexicali Research and Technology Center (MRTC) is an engineering and technology center comprising a design center, system integration laboratory, testing annex and business support team.

The MRTC is an important system integration laboratory and the first of the Mexican aerospace industry. It allows full-scale simulation of aircraft systems, providing the possibility of testing intraoperability, control, and technical maturity.

The installation tests a wide range of subsystems and electrical/mechanical components of products for next generation aircraft in the air transport market. Its testing annex supports a wide range of activities and manufacturing processes of electronic and/or mechanical components and instrumentation testing functions.

Honeywell Aerospace Chihuahua

Honeywell's Aerospace Chihuahua Manufacturing Operation consists of highly complex machining manufacturing facilities. The facility hosts a Warehouse, Labs, Quality Control Operations as well as Engineering. HCMO (Honeywell Chihuahua Manufacturing Operation) is one of the most advanced machining operations in the Aerospace industry. It features a state of the art Blade Manufacturing cell as well as numerous highly advanced Aerospace machining cells. The site manufactures a number of parts for Aerospace Engine and APUs including Engine assembly ducts, gears and shafts, blades, impellers, nozzles, disks, stators, seals, nozzle segments, etc.

General Electric

GEIQ is the largest Global Engineering Center for GE Aviation and the second for GE Energy. The center achieved a significant expansion in 2011, hiring more than 240 engineers and designers and enabling the center to ramp up sales to 80 million dollars for the year. Some of the areas of specialization include Mechanical, Electric, Controls and Software Engineering.

At Aviation GEIQ engineers participate in the design of the new generation of aircraft engines, including the successful GEnX or the new LEAP-X. It also provides support to existing engines, such as the CFM56, in the areas of production, redesign and operation. In Energy they focus on various technologies ranging from steam and wind turbines, to generators or gas turbines, and they are in charge of Services for Latin America and support local projects such as the installation and setup of GE turbines in Tamazunchale and Manzanillo.

Eurocopter

Within the Aerospace Aerocluster, Eurocopter has a maintenance center to perform small and medium inspections equivalent to 150 to 600 flying hours, as well as one and two years of use for aircraft of the Ecureuil family—Ardilla AS350, AS355 and EC130. It has the capacity to inspect six helicopters at the same time and also possesses a Eurocopter AS365N3 Dauphin. The aim of the center is to provide different services to meet the required quality standards and develop one of the best helicopter maintenance bases in the country.

4.2.3. Aircraft with High Domestic Content

One of the strategy's most important milestones is the deployment of an aircraft manufactured in Mexico, with high Mexican integration and engineering content. To this end, different companies have gradually increased their design, engineering and manufacturing capacities so that aerospace structures, components and systems are conceptualized, designed, tested and manufactured in Mexico.

Among the most advanced companies is Bombardier, whose progress with the Learjet 85 is outstanding. The aircraft, manufactured largely from composite materials, is an example of collaboration within the framework of the North American Free Trade Agreement (NAFTA), involving the company's plants in Mexico, the United States and Canada.

Currently, Bombardier Aerospace in Querétaro, Mexico, manufactures the fuselage, assembles the wings, the horizontal and vertical stabilizers and manufactures and installs the electrical harnesses of this innovative aircraft. The final assembly of the Learjet 85 will be done in Wichita, United States. The development of the Learjet 85 program in Mexico is a major step forward, considering that the company began operations in Mexico in 2006 and only eight years later is manufacturing the components of a completely new airplane, contributing to the development of the aerospace industry in Mexico.

Along with technical capacities, all the necessary conditions to achieve this milestone are moving forward in Mexico.

4.2.4. Defense Strategy

4.2.4.1. Strategic Trade

Mexico is a key player in industrial goods production on a global scale. It has become a responsible, reliable partner for the development, production and distribution of aerospace, defense and dual-use assets. Mexico is taking strides towards doing business in the high-technology and defense market by creating the conditions required to give certainty to the international community.

Based on an approach to attract international business, and in the context of security and control of information, processes, products and services, important opportunities will be created to:

- Attract investment, opening the door to transnational producers of latest generation technology and with access to high-technology contracts.
- Promote the development of new sectors to diversify goods and technologies.
- Transfer leading edge technology and generate added value, strengthening domestic capacities.
- Boost important technology-based industries (aerospace and software).
- Provide legal certainty in foreign trade operations by enabling trade relations between countries sharing the same control regimes.

4.2.4.2. Export Control Regimes

In addition to the requirements of confidence and eligibility to participate in high-technology and defense projects, there must be mechanisms that attract businesses with the most potential to generate economic development, added value, and raise Mexico's competitiveness and its innovation capacities.

Mexico has been a driver of strategic trade, creating an inter-ministerial group which identifies the possibilities of attracting international investment and trade, as well as focusing business intelligence and competitiveness efforts on the identification of projects with the potential to boost the country's participation in defense and high-technology markets (without access restrictions to dual-use technology). This implies greater benefits for economic and technology development.

Based on this dynamic, it was necessary to join the main export control regimes, which meant modifying the national export control system. However, since 2011, a new system has been implemented that requires prior permission to export all conventional arms, dual-use goods, software and related technologies.

4.2.4.2.1. Wassenaar Arrangement (WA)

The first version of the NFP highlighted the huge potential for the country's economic and technological development in the dual-use technologies and defense markets, both in research, design, development and manufacturing processes and products, as in supply services associated with these industries.

Mexico officially joined the Wassenaar Arrangement on January 25, 2012. As mentioned, this mechanism was established to contribute to regional and international security and stability, by promoting transparency and responsibility in the transfer of conventional weapons, goods and dual-use technologies.

Different government agencies and organizations were coordinated to generate this new export control system and to establish the right conditions to join the regime, which was identified as having the greatest impact on Mexico's economic and technological development.

Mexico's entry into the Wassenaar Arrangement has two important implications. The first is that Mexico joins a community committed to the non-proliferation of conventional weapons, which also promotes a safe environment for the trade of restricted-use goods among its members. The second is that, to become part of the mechanism, Mexico joined the club of high-technology countries, giving it access to new markets and to leading edge technology, while improving the country's competitiveness and the attraction of investment in different sectors.

Membership does not entail the obligation to transfer technology or knowledge between member countries. However, it gives certainty to the international community and makes Mexico eligible to become a reliable partner for developing business in the restricted high-technology market, to which it did not have access previously.

The potential for economic and technological development is huge since Mexico's entry to the Wassenaar Arrangement. As said, it provides access to an additional export market of close to 11.3 billion dollars a year. This opens an attractive outlook for the country which requires a strategy to maximize and capitalize on the potential benefits of the negotiation.

The Ministry of Economy (SE) and ProMéxico, together with state governments, have coordinated strategic regional plans to steer the aerospace sector, while establishing competitive poles in restricted high technologies in both product research, design, development and manufacture and in the supply of industry-related services.

4.2.4.2.2. Other Export Control Regimes

Although the Wassenaar Arrangement has the greatest impact on Mexico's aerospace and defense industry, the country has also gained admission to other regimes to increase competitiveness and international business opportunities.

On November 16, 2012, Mexico became the 47th member of the Nuclear Suppliers Group. Created in 1974, the group's goal is to contribute to the non-proliferation of weapons and

nuclear material by implementing guidelines to regulate the export of nuclear goods, and related dual-use software, technologies and products.

With this new membership, the Mexican export industry gained greater competitiveness, operating in a more secure environment and strengthening its industrial platform to continue the development of leading edge technology in sectors that use nuclear elements (such as electricity generation and nuclear medicine), among others.

In August, 2013 Mexico became the 42nd member of the Australia Group (AG), which relates to the international export control regime of chemical substances, biological agents, plant and animal pathogens, and related technologies. The AG is responsible for the control of chemical substances, biological agents and elements and equipment for the manufacture of dual-use chemical and biological substances in the chemical and biotechnology industries.

4.2.4.3. Acquisition of Industrial Equipment and Systems (offset) and Government Procurement

Since the first version of the NFP, the group formed by the industry, academia and government pointed out that industrial compensations are an alternative to develop more competitive industries; boost design, research and development capacities; promote the generation of intellectual property in partnership with multinational companies, and incorporate and produce new technologies. This is derived from the country's major acquisitions, especially through government procurement.

Offsets are industrial compensation practices established as a condition of purchase in the contractual negotiations for large acquisitions (for example, aircraft). These compensation practices are used in military and commercial purchases. Offsets can be direct (involving goods and services related to the acquired items) or indirect (involving unrelated goods and services) and include practices such as: co-production, authorized production, outsourced production, technology transfer, in-kind trade, training and direct foreign investment, among others.

As a result of this strategy, the first draft of the offsets policy is in development and will seek to attract new technologies, and promote industrial and commercial development that boosts the competitiveness of strategic national and international projects.

4.2.4.4. From Buy American to Buy NAFTA

The Buy American Act in the United States, which considers all government and US Defense Department acquisitions, restricts purchases from suppliers whose products do not have a minimum of 50% domestic content.

Article 1004 of NAFTA prevents the existence of protectionist domestic legislations on government acquisitions made in Mexico, Canada and/or the United States (this is no longer applied, except in the case of Mexico). Due to this, and aware of the benefits to be obtained from the elimination of this restriction, Mexico intends to sign a Memorandum of Understanding (MoU) with the United States seeking exemption from the Buy American Act in purchases from the US Department of Defense. The MoU will establish that the application of restrictions of the Buy American Act and the Balance of Payments Program on the purchase of products from 21 rated countries (Waiver 225.872-1) is inconsistent with public interest. The MoU will be signed to guarantee a reciprocal treatment in military purchases made between Mexico and the United States.

4.2.4.5. Creation of a North American Security Block

Events that have occurred in the region (9/11, Hurricane Katrina, and the fight against drug trafficking, among others) have made Canada and the United States aware that guaranteeing security in North America also requires the participation and cooperation of the third country of the region: Mexico.

Some trilateral processes, such as the Security and Prosperity Partnership (SPP) of North America, and cooperation in terms of intelligence, military exercises, technical assistance and military training carried out in cooperation with Mexico through the US Northern Command (USNORTHCOM), are solid proof that Mexico is a key component to offer a comprehensive solution for shared problems (organized crime, terrorism, natural disasters) threatening security in the North American region.

For the three countries that form North America, these military cooperation initiatives show a trend towards the creation of a common security block in the region. This allows greater convergence by promoting economic and trade integration, security and the creation of better welfare levels for the population.

The formation of a North American security block is related to regional economic integration in dual-use (civil and military) technologies. Mexico's acceptance into the Wassenaar Arrangement demonstrates its reliability for the integration of sensitive industrial processes of the high-technology and defense sector. This affects North America's competitiveness as a block in international markets.

4.2.4.6. Dual-Use High-Technology Platform-Defense Parks

Mexico's geostrategic position and competitive and comparative advantages make it the ideal destination for producing goods and developing sensitive technologies likely to be used for commercial purposes, in addition to producing goods and dual-use technologies.

As mentioned, Mexico's entry into the Wassenaar Arrangement also integrates it into a collaborative group focused on the non-proliferation of weapons of mass destruction, while representing new opportunities to attract high-technology civil and military projects. Mexico currently attracts 5% of all permits granted by the US Department of State for the production of dual-use goods.

Under these conditions, and considering the general factors that make Mexico a competitive country, a particular strategy and associated public policies were implemented to develop the industry and attract greater investment and high-value technology transfers.

One of the premises of the strategy is the focus of the defense sector on specific centers of competitiveness, by their evolution and geographical position. This will achieve the constant attraction of advanced manufacturing companies, technology and talent. To do this, the strategy provides for the establishment and development of specialized parks with the infrastructure, procedures and conditions defined by international control regimes, while facilitating the transactions and logistics of companies operating within it. This can be achieved if the park is designed and operated as a special economic zone (SEZ) focused on dual-use and restricted technologies. This requires specialized infrastructure for the parks that includes:

- Research and development center for dual-use and restricted technologies.
- Technological park, incubator, and business accelerator.
- Specialized services center (export control office of the SE; the DGAC; the National Metrology Center, among others).
- Testing laboratory for the industry, for certification bodies and the academy.
- Technical support center in information technologies.
- Perimeter security controls for full adherence to the security standards managed by companies in the field.

The proposed actions, both to generate public policy and develop infrastructure, are aligned with the general strategy to boost centers of high international competitiveness, in this case, specializing in dual-use products and technologies.

4.2.5. Integrated Aviation Services Center in Mexico

The global aerospace industry will undergo structural changes during the next few years. Price hikes in fuel and raw materials will impact the revenue of airlines, manufacturing companies and air fleet MRO companies. The search for competitive destinations, specialized labor and the logistical advantages of certain countries will become the main business drivers to establish integrated aviation centers.

These centers will offer an ideal ecosystem for industry development, providing advantages in maintenance services, conversion, management and decommissioning of mature fleets; integration of spare parts, parts and repair services into the supply chain; preferential trade areas; and the training of and access to technicians, engineers, pilots, crew and ground support personnel, whose demand will rise in the coming years.

Mexico's geographical and business position, and developed capacities in advanced manufacturing and process engineering, provides an unbeatable opportunity to establish the country as one of the leading world centers for aviation services.

Mexico is therefore keenly interested in establishing an Aviation Service Center that integrates traditional business opportunities with services for next generation aircraft and engines, both in MRO and complementary activities to integrate national and international supply chains and serve the full life cycle of an aircraft.

Mexico is working with key industry players, especially in the areas of intelligent management of mature fleets, engine and airframe maintenance in order to operate this Integrated Aeronautical Center in Mexico.

One of the first results of these conditions is the alliance between Aeroméxico and Delta, and the approach from top international players intending to make strategic partnerships with Mexican companies to establish an MRO hub. Meanwhile, European and North American companies have initiated approaches to establish the conversion and decommissioning activities of mature fleets, to complement the vision of such a center.

The strategy to define the location and startup will be confined to the evaluation of the country's different clusters where its implementation is feasible. The locations looked at have the space required to house a world-class hub, and the best flow of aircraft to validate the initial business case. Each of the airports evaluated is close to an industrial development with the capacity to grow and strengthen the required suppliers. Below is a description of two of the primary components of the hub.

4.2.5.1. Intelligent Management of Mature Fleets (TARMAC)

The goal is to establish a center dedicated to the final stages of an airplane's life cycle, where it can be retired, dismantled and recycled in safe and environmentally responsible conditions. This activity creates important lines of business by extracting recyclable materials and selling valuable components which are still in reusable condition, either directly, or after being remanufactured, repaired or reconditioned.

The dismantling of aircraft which have reached the end of their useful life is a great business opportunity, especially after Airbus stated that by 2015, 85% of an aircraft will be able to be recovered, reused and recycled. Over the next twenty years, an estimated 10,500 commercial aircraft will complete their useful life and have to be dismantled and recycled for sustainability and public health reasons.

The project is set to operate under the regulations established by the Aircraft Fleet Recycling Association (AFRA) whose purpose is to stop inappropriate disposal practices of this kind of transport and implement a code of conduct for aircraft dismantling. AFRA was initiated by Boeing and ten other companies in 2006 and currently has 70 members including Rolls Royce, Pratt & Whitney, Grupo Safran, Bombardier, and Bell Helicopter.

4.2.5.2. International Aerospace Training Center

This training center will be part of the aviation services hub to develop human capital, to complement the efforts of other national academic institutions with aerospace programs, thus satisfying the strong current and future demand for trained personnel in the national and international aviation industry. The aim will be to cover different disciplines including aircraft operation, design, manufacture and maintenance.

The center will train pilots, crew and ground support staff, engineers and technicians specialized in MRO, avionics and electronics, inspectors and auditors, among others, according to international quality standards. The center will be developed in such a way that it can be created either privately or, depending on the location of the hub, as part of an academic institution with aerospace capacities. However, aerospace companies established in Mexico have the support of the Mexican education system, which has proven very successful in training technicians and engineers with specialties in MRO and retrofitting aircraft and their components.

For several decades, Mexican education programs have produced professionals who have excelled in domestic MRO and aerospace manufacturing companies. The quality and international renown of the country's programs have secured various strategic partnerships between global operators and companies and education centers in the sector, in order to develop special programs and guarantee direct access to local talent. Mexico's experience in training professionals for the aerospace industry goes beyond the explosive growth of recent years. Training centers have been established in Mexico which are known throughout Latin America. For example, pilot, ground and air personnel and MRO technician training has evolved to include sophisticated academic programs in aviation design and engineering.

Today, Mexico has developed the capabilities required to train aviation personnel. A clear example is the strengthening of various research centers and higher education institutions.

Another example is CAE Systems, a leader in modeling, simulation and training for civil and commercial aviation, located in Toluca, State of Mexico. Its simulation center focuses on training for helicopters and commercial aircraft. It is the first advanced simulation training center in the country, and required an initial investment of 63 million dollars.[14]

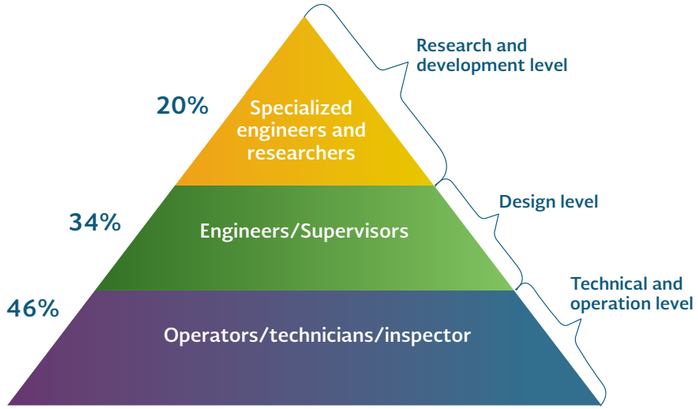
The center has four flight simulators (one for Airbus, one for Bombardier's Learjet, another for Bell helicopters and one for Viva Aerobus, Magnicharter and Estafeta). In a second stage, foreign pilots are expected to train in the center. These investments allow domestic companies to save thousands of dollars. Until 2012 this type of training was only available outside Mexico.

4.2.6. Human Capital and Training Activities for the Aerospace Industry

An essential factor for the development of any industrial sector, if it is to be profitable, sustainable and competitive, is the availability of human capital across levels, skills and competences. This applies particularly to high-demand industries like aerospace. Therefore, human resource training is a strategic activity for the sector.

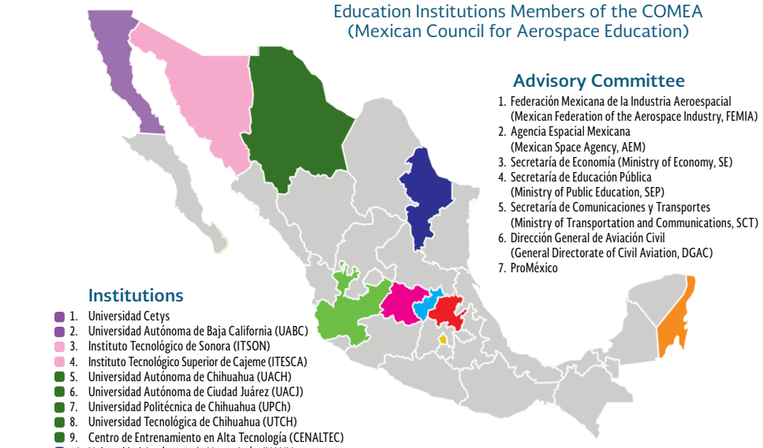
14 http://eleconomista.com.mx/estados/2012/04/25/cae-abre-centro-simulacion-aerea-toluca

Graph 8. Needs Pyramid



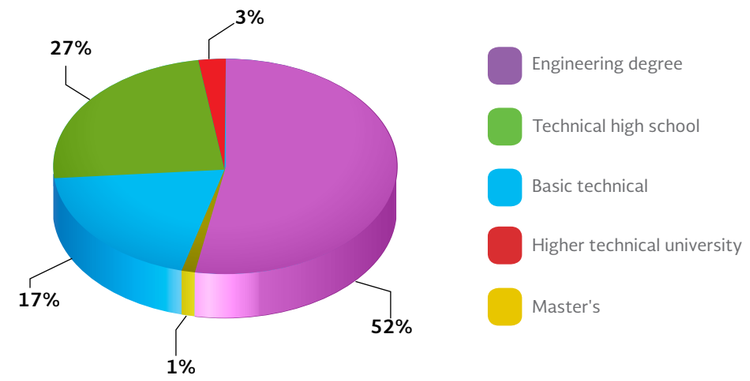
Currently, the highest demand for human capital is primarily in machining, aerostructures, special processes, electromechanics, MRO, design and composite materials.

Graph 9. Aerospace Education Coverage

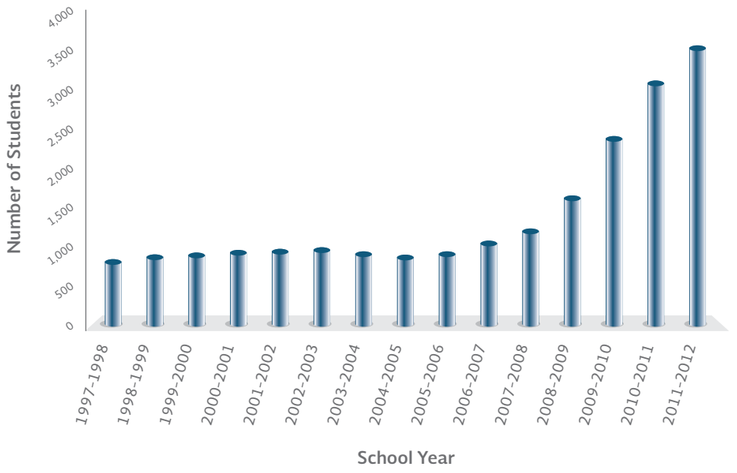


Summary of education institutions for the aerospace industry in Mexico:

Graph 10. Education Institutions for the Aerospace Industry in Mexico



Graph 11. Enrollment in Aviation/Aerospace Engineering



Mexico has been training aviation technicians and engineers since 1937. Today, 21 education institutions offer 52 aerospace education programs covering core courses, high school, technical degrees, higher technical university, professional licenses, engineering degrees (mostly aerospace), as well as some masters programs.

It is important to align talent training with the industry's current—and future—needs. As part of the sector's strategy, a work group has been put together to develop the Integrated Strategic Aerospace Education Program, which will be defined by the triple helix (government, industry and academia), under the coordination of a committee represented by entities such as the Mexican Federation of the Aerospace Industry (FEMIA), the Mexican Space Agency (AEM), the Mexican Council for Aerospace Education (COMEA), ProMéxico, and the Ministry of Public Education (SEP), among others.[15]

15 The information contained in this chapter on human capital and its training activities for the aerospace industry was provided by COMEA

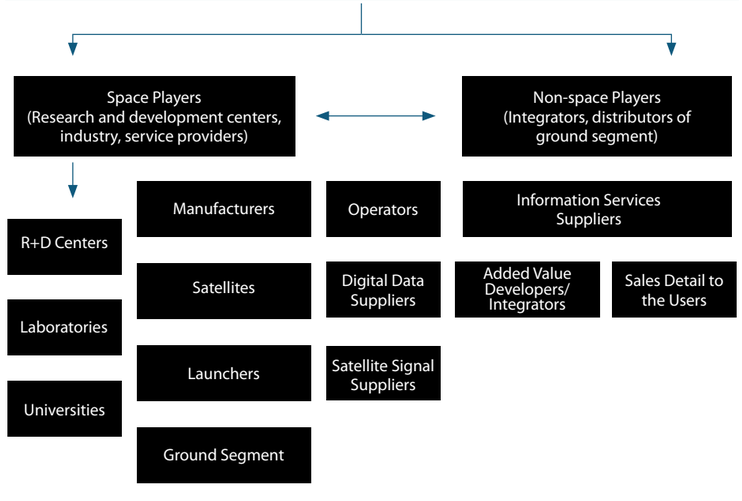
4.2.7. Mexican Space Agency (AEM)

Mexico's foray into space involves the participation of groups from the triple helix. Since the early fifties, a series of experiments and efforts have been made by the National Commission of Outer Space (CONEE). Also influential was the Mexican Communications Institute (Instituto Mexicano de Comunicaciones, IMC) during the nineties. This development mobilized industrial, academic and government communities for several years. The momentum led to the creation of the Mexican Space Agency (AEM), which was approved on April 2, 2010 by the Chamber of Deputies (the decree was published in the Official Gazette of the Federation on July 30, 2010). Almost a year later, and as a result of this synergy, the Outline of Mexican Space Policy was published on July 13, 2011.

During the integration of the AEM (in 2010), Mexico positioned at the forefront of space technology with the acquisition of the MEXSAT System, a constellation of three geostationary satellites for social coverage (Bicentennial Satellite, launched in November 2012) and to support national security (Centennial and Morelos and III) with a total investment of 20 billion pesos and an operating budget of close to 5 billion pesos.

The Mexican government maintains the commitment to boost Mexico's development and competitiveness, recognizing the strategic role of the space sector. To reaffirm that commitment, the AEM focuses its efforts on integrating space infrastructure oriented to meet social needs, venturing into space transport, promoting the integrated development of the space sector, consolidating it and coordinating its value chain.

Graph 12. Simplified Value Chain of the Space Economy



Source: OECD Measuring Space Economy.

Different multidisciplinary teams are currently working to ensure the successful achievement of the milestones of the space industry and their ties to the proper development of the sector's national strategy, thus seeking to protect technological sovereignty and independence, and the sustainability of the Mexican space industry.

4.2.8. Development of Aerospace Sector Suppliers and Advanced Manufacturing

4.2.8.1. National Assessment of Advanced Manufacturing

A national assessment of advanced manufacturing capacities is planned in order to trigger competitive, high added value clusters and their development. This will help define the status of supply in different added value processes and their physical distribution around the country.

The study will lay the foundation for identifying gaps and business opportunities in the supply chain, and suppliers with the potential for large scale development. It will concentrate on the main manufacturing regions which account for the majority of design, engineering, and advanced manufacturing capacities. The study will identify existing regional capacities for the definition of productive vocations for the industry, and other competitive clusters in advanced manufacturing. Aerospace sector companies will be able to use the study to strengthen, optimize and expand their national supply chains.

Several of the leading companies of the sector are committed to this initiative and recognize it as a high-impact tool that will allow them to identify the different productive ecosystems and their location, current capacities and potential.

The study will provide useful decision-making information. Initially, it will serve for acquisitions and supplier development, but it will also be a departure point for expanding operations and attracting new areas of development.

4.2.8.2. Supplier Development / Sourcing Council

Mexico has implemented different programs aimed at developing suppliers to strengthen the national productive chain. One, led by the Ministry of Economy in cooperation with the United Nations Program for Development (UNDP), resulted in the joint suppliers' development model. The program is based on training certified consultants with the necessary skills to improve production chains.

Meanwhile, ProMéxico implemented the methodology of the Transnational Corporations Partnerships (ACT, acronym in Spanish) model, which seeks to leverage the strong interest of large companies established in Mexico to grow their business, particularly through domestic supply and transfer of operations.

The ACT model proposes integrating the aerospace sector into the supply chain by identifying the main products imported by original assembly companies, the establishment of inquiry lines to determine qualified domestic supply certified to the required standards, and to identify whether the current installed capacity is sufficient to meet those requirements. In the absence of domestic supply, the system supports a program to attract projects to transfer international supply companies' operations for them to establish in Mexico.

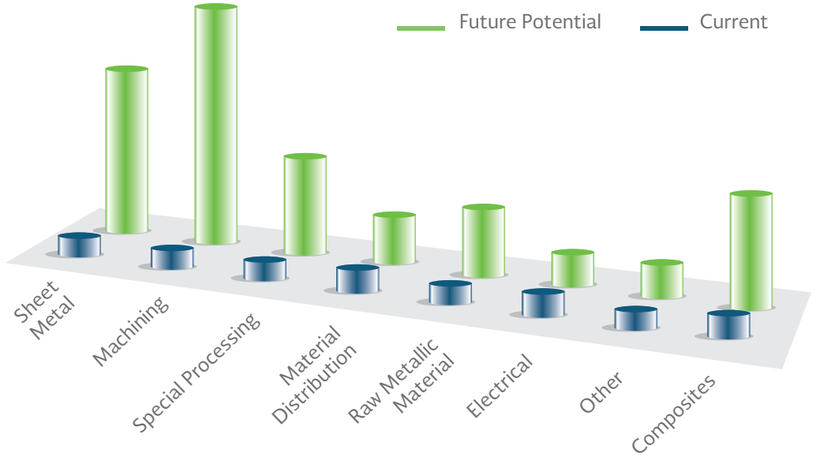
Another important initiative mentioned in the first NFP concerns quality. In response, a council of companies was created for the supplier development. The Sourcing Council is focused on developing specialized suppliers for the aerospace sector, which obtained results in coordinating the efforts of a group of companies in order to establish spaces for multidisciplinary collaboration, to encourage partnerships and team work among members. The Council consists of Eaton, Grupo Safran, Bombardier, Honeywell, Bell Helicopter and Rockwell Collins.

Among its first actions, the Council drew up a map showing the capacities of companies in the industry and identified the specific needs to strengthen them. As a result of the joint actions towards supplier development, some important achievements were made:

- Detection of missing links in the supply chain.
- Qualified domestic supply, certified to the required standards in work processes.
- Capacities to carry out programs to attract talent.
- Establishment of international supply companies in Mexico.

The following graph identifies the processes with most demand. It also shows the estimated proportion of demand growth in those processes in Mexico—from three to five years—considering only the requirements of the companies that form the Council.

Graph 13. Increased Purchasing Demands



As the graph shows, the increased demand justifies national initiatives aimed at supplier development, and the initiatives to complement domestic supply chains.

4.2.9. Logistics Development

Since the first version of the NFP, the development of logistics was highlighted as a key factor to increase the industry's competitiveness. Logistics development represents a great opportunity to promote the aerospace industry (and manufacturing in general) and turn the country into the logistics hub of the Americas.

While other programs have been launched to support and encourage the sector's competitiveness through trade facilitation, there is still much to be done in developing logistics networks, projects and infrastructure. The first version of the NFP defined the following strategic lines:

- Promote the creation of a bigger and better supply of logistics services in Mexico.
- Promote the incorporation of best practices in corporate logistics management.
- Position Mexico internationally as a world class logistics hub.
- Promote logistical adjustments in infrastructure operations to achieve trade facilitation.
- Promote certification of the quality of logistics services.
- Develop human capital training with capacities in logistics services.
- Improve coordination between federal and local governments with the private initiative.

Some actions implemented by different players in the aerospace sector have enabled progress along certain strategic lines for logistics development. Federal and local government agencies, the SE, the Ministry of Finance and Public Credit (SHCP), the Bank of Mexico (BM), and the Federal Competition Commission (Comisión Federal de Competencia, CFC), among others, have supported the progress of different projects aligned to promote logistics development.

4.2.9.1. Infrastructure

In addition to the actions mentioned above, the SE launched programs like the Logistics Competitiveness Agenda 2008-2012 (ACL) and the Competitiveness Program in Logistics and Supply Centers (Prologyca), which were created to build a logistics platform that enables domestic and foreign trade, with the aim of promoting the supply of logistics services more efficiently by supporting projects that encourage competitiveness and the sustainability of logistics infrastructure and related services.

The application of these initiatives must guarantee that the projects contribute directly to strengthen existing logistics networks and boost the integration and creation of new networks aligned with the national strategy.

4.2.9.2. Public Policies and Intervention Mechanisms

The efficient integration of local supply chains with global chains requires regulatory initiatives aimed at eliminating or minimizing bottlenecks or trade barriers. There are numerous programs that promote international trade, including the following:

a) IMMEX

IMMEX enables the temporary import of goods needed for a specific industrial process or service for the manufacture, transformation or repair of foreign goods for export or export services, without having to pay the general import tax, value added tax or countervailing duties. Import activities are completely tax free.

b) Draw Back

This program allows beneficiaries to recover the amount of tax paid on imported inputs, raw materials, parts and components, packaging and containers, fuels, lubricants and other materials incorporated into the exported product, or the importation of goods that are returned in the same state, as well as goods for repair or alteration.

c) Trade Facilitation

The World Trade Organization (WTO), the World Bank (WB), and the Organization for Economic Cooperation and Development (OECD) coined the term "trade facilitation" to refer to the simplification and harmonization of international trade procedures to streamline the exchange of goods and services between countries.

Mexico has been active in the creation of programs to promote this concept which has benefitted different sectors in the country, including aerospace. The implementation of the programs has allowed specific actions to reduce operation and production costs. In Mexico, the trade facilitation program has been based on the following lines:

- Tariff Simplification and Rethinking of Exemption Schemes

The SE established a program to gradually reduce tariffs; the implementation of a simplified tariff policy seeks to bring tariff levels in line with those of our trade partners, among them the United States. This measure has saved companies more than a billion dollars.

A country with a complex tariff structure has negative effects in the dynamics of foreign trade, reducing trade flows and hampering transactions with classification errors due to different tariff levels between similar products.

Customs and foreign trade facilitation has enabled trade openness with countries that do not have trade agreements with Mexico. This has meant that producers have greater access to inputs and capital goods supply at competitive prices, thus becoming more efficient in the production of finished products that they offer on the domestic market and abroad.

According to the International Institute for Management Development's Global Competitiveness Index, Mexico has climbed ten places in just two years. It is the only country in Latin America that moved up in this ranking, positioning ahead of countries like Turkey, Brazil and Russia. This was due in part to tariff simplification and rethinking of exemption schemes.

- Customs and Foreign Trade Facilitation

Customs and foreign trade facilitation concerns the streamlining of customs dispatch procedures, the revision of standards and their homologation with international the standard, among other factors. In Mexico, more than 10 billion import requests and more than 37 thousand export requests are processed every year. In addition, there are more than 60 thousand active users of foreign trade, 40 documents, 165 procedures, 200 different bits of data and more than 30 players (government, exporters, importers, transporters, etc.).

In order to provide information and move forward on trade issues in Mexico, the SE created the SIICEX website[16] as a free tool to access government information related to foreign trade. The site is directed to business owners, importers, exporters, and anyone with an interest. The information that can be consulted includes foreign trade laws and regulations; treaties and agreements to which Mexico is party; the decrees of the Development Programs, and the Tariff Law of the General Import and Export Tax (TIGIE); quota agreements and permits (among other forms); statistical information; tariff classifications—including information about tariff and non-tariff restrictions; topics of interest and publications of the Official Gazette of the Federation, related to foreign trade.

The Foreign Trade One-Stop Window[17] was created as a SIICEX tool. The website streamlines and simplifies information flows (trade and government) and optimized corporate time in terms of inquiries on trade procedures. It also reduces time for administrative processes and facilitates information about customs clearance. The SIICEX helps in the search for information and eliminates freight and courier expenses, reducing costs for physical storage space.

16 Available at www.siicex.gob.mx

17 Available at http://ventanillaunica.gob.mx

Progress was also made in the New Mexican Export Control System. As mentioned, in early 2012 Mexico became part of the Wassenaar Arrangement—the most important multilateral export control regime for the export of conventional weapons, dual-use goods and technology in the world. Mexico's entry into these export control regimes enable it to transition from a manufacturing country to one that also designs, builds and manufactures dual-use goods, software, technology, arms and explosives.

- Creation of the 9806.00.06 and 05 Tariff Sections Relevant to the Aerospace Sector

The tariff heading 9806.00.06 was created to provide tariff benefits for the import of inputs for the aviation sector in Mexico and make it more competitive. The description of the heading is as follows:

"Goods for the assembly or manufacture of aircraft or aircraft parts, when the companies have a Certificate of Approval for Production issued by the Ministry of Communications and Transport (SCT)."

The initiative arises to facilitate the operation and drive the development of aerospace companies that import aviation machinery, equipment, instruments, materials, parts, and components. This tariff heading allows free import for the assembly or manufacture of aircraft or aircraft parts, provided the companies have the certificate of approval issued by the SCT.

In addition, heading 9806.00.05 allows goods for the repair or maintenance of aircraft or aircraft parts, which benefits MRO activity given that imports made under this heading are also tariff free[18] and have administrative advantages.

The heading has benefited companies in the sector, regardless of the activities they perform: parts design and development, assembly or manufacture of harnesses and cables, fuselage parts, landing system components, machined and metal parts, turbine parts, precision equipment, audio and video systems, electronic components, aircraft repair and maintenance work (repair of interior, mechanical and electrical parts), repair and maintenance of turbines, among others.

18 www.jmcti.org/kaigai/Latin/2006/2006_10/2006_10_M01.pdf

4.2.9.3. Special Economic Zones (SEZ)

In earlier versions of the NFP, the working group determined that the logistics component of the supply chain could be more efficient, and that customs procedures must be simplified to facilitate the integration of production chains and generate cooperative conditions for manufacturing activities or the export of services through Special Economic Zones (SEZ), aimed at the aerospace activity.

This has led to joint work with the SHCP, to adapt the existing economic zones, or create new ones, based on international dynamics of the sector to generate more competitive advantages. In Mexico, the SEZ are in defined areas for the performance of industrial and service activities. They typically offer incentives to foreign investors, expectations for high economic returns, product processing markets for re-export, tax exemptions, favorable infrastructure conditions, administrative facilities, skilled labor and economic growth for the development of the domestic market.

Some of these zones have a customs regime that allows the introduction of foreign goods to Mexican territory for a limited time (for handling, storage, custody, exhibition, sale, distribution, elaboration, transformation or repair). The implementation of this regime benefits programs that boost exports and allows the aerospace sector to further develop, especially regarding MRO.

The main SEZ are located in Guanajuato Puerto Interior (Guanajuato), Puerto Fronterizo Colombia (Nuevo León), Logistik Free Trade Zone (San Luis Potosí), Zona Franca (Baja California), and Refieson (bonded area located in Sonora).

In general, Mexican aerospace companies can obtain advantages by establishing within an SEZ (or rather, operating through them). However, some can receive greater benefits (depending on their activity); MROs, for example, or companies that use dual-use high technology. To be competitive, these must operate in highly efficient logistics environments able to meet the specific needs of this productive activity. Despite there being no SEZ in Mexico aimed specifically at the aerospace sector, there are prime conditions for their development.

In short, it is intended that the planning of SEZ be part of the centers of competitiveness to guide the industry towards a better management of key links in the production chain, diversify and complement the industrial base, promote the evolution towards knowledge intensive industries and insert national companies into global chains.

4.2.10. Engineering Council

In earlier versions, the NFP presented a project related to the creation of this Council, which would represent the interests of the main companies and organizations that provide knowledge-intensive services (engineering). This responded to the country's need to train specialized professionals, manage talent in science and engineering, and create the right conditions to develop projects focused on knowledge development. These challenges have come up consistently during the development of sectorial and regional strategies.

It is thus crucial to create an Engineering Council that manages the establishment of international standards and actions to be followed by the different companies that design, engineer and develop new products with intensive knowledge generation. So far, an initial group of companies is moving forward with common activities aimed at real, current and future needs of the high-technology industry and strategic sectors for the country.

4.2.11. Engineering City

Considering competitiveness as the capacity to attract and retain investments and talent, this project, raised by the working group shortly after the third version of the NFP was published, considers the creation of certain conditions to retain high-level professionals once they have been identified or developed.

Different national clusters with high concentrations of engineering talent have advanced industrial capacities, a suitable business environment and attractive working conditions. However, the quality of life to which these professionals have access makes talent retention difficult in those places.

The current national strategy and regional strategies include the creation of competitiveness clusters where integrated ecosystems are developed that allow high-level industrial growth, and the integrated development of talent, enhancing quality of life, access to services and the right conditions for social and family life.

Different companies that have furthered the growth of the aerospace industry and the generation of activities with higher added value are committed to this vision and collaborate with municipal, state and federal governments to generate ecosystems that not only promote industrial activity and talent training, but also improve the quality of life of professionals. These initiatives seek to facilitate the retention of advanced talent through a good mix between working conditions and the environment in which the professionals and their families are immersed (housing, transport, culture, leisure, accessibility, green areas, services, etc.).

4.2.12. Examples of Progress (Specific Projects)

The different versions of the NFP have defined priorities related to the attraction of targeted aerospace investment, especially those which contribute high-value processes and technologies and generates better integrated supply chains. Some examples are the opening of the SNECMA plant (focused on the manufacture of steel and titanium parts, forged parts and the configuration of a network of suppliers and contractors), the opening of the Aernnova aviation structures plant (and the upcoming opening of its composites manufacturing plant), and the growth of the UTAS plant in Sonora (dedicated to new processes including the manufacture of turbine blades and machined components for injectors, among others). These are some examples of the results obtained based on the definition of the strategy. They are the first of many examples typical of aviation development in Mexico.

Investment projects also involve opening specialized laboratories, research centers, and certification units. Some of them are described below.

4.2.12.1. Honeywell's Advanced Engineering and Design Campus

Honeywell has developed important aerospace engineering, design and manufacturing capacities in Mexicali, Baja California. As mentioned in the section on turbine development in Mexico, this company has an advanced engineering and design campus—Mexicali Research and Technology Center (MRTC)—with the capacity to perform full-scale simulations of different aircraft. Engineers are able to put their interoperability, control, and maturity to the test. Honeywell manufactures heat exchangers and electro-mechanical components in Mexicali that are incorporated into commercial planes like the Boeing 737, Boeing 787, and the Airbus A350 XWB, and in executive jets like the Gulfstream GV.

4.2.12.2. Messier-Dowty Industrial Plant in Mexico

This project, which alludes to a new Snecma manufacturing plant in Mexico, was mentioned in the first NFP. It opened on March 17th, 2010 and represented a 150 million dollar investment and 500 new jobs.[19]

Since its development, there has been an increase in the volume of major parts, the manufacture of steel and titanium parts, and forged parts, and in parallel, the development of a local network of suppliers and skilled contractors.

4.2.12.3. Aernnova Project in Mexico[20]

The first version of the NFP also mentioned the investment announced by Aernnova, which is now a reality. The aviation structures plant in Querétaro has a production area of 12,400 m2 and concentrates on the assembly of large, fully equipped aviation structures such as sections of fuselage, wings and stabilizers, ready for direct integration into the client's final assembly line. It currently assembles structures for Embraer, Bombardier and Sikorsky planes.

The plant is responsible for the overall management of the manufactured aerostructures, allowing it to address assembly activities and take over the engineering, management of the supply chain, development and homologation of the supplier chain.

The metal components plant (also in Querétaro), produces parts in sheet metal technology and fully finished machined aviation parts ready for integration into the structure assembly plant lines. The Aernnova project in Querétaro required an investment of 84 million dollars and created 1,070 jobs (810 specialized operators and 260 technicians, engineers, and managers).

Aernnova has also submitted plans to open a composite component manufacturing plant and create an Aviation Engineering and Design Center (structures and systems). With these investments, the Aernnova project in Mexico will reach a volume of 134 million dollars, creating 1,624 positions, of which 320 will be engineers and graduates. This kind of project encourages investment, job creation and, above all, technology transfer in engineering and manufacturing processes, and stimulates the development of regional production ecosystems through new suppliers, the incorporation of new design capacities, component manufacture and the development of higher added value products.

19 http://eleconomista.com.mx/estados/2012/03/14/sames-echo-andar-otra-planta-queretaro%

20 www.aernnova.com/user/sp/news.php?id=36

4.2.12.4. Goodrich Plant Growth Project (UTAS)

The first version of the NFP proposed the growth of the plant in Guaymas, Sonora. The main products manufactured in the new facilities are turbine blades and machined injector components, processes which initially were completely new for the region: non-destructive tests, digital x-rays, laser welding, and formation of super plastics. These processes are now an essential part of UTAS in Mexico.

In 2011 Goodrich was recognized with a Coparmex-Best Practices Award for its participation in the community (large company category). In 2012 the company opened the aerospace engineering center in Mexicali, Baja California (planned since the first version of the NFP), which aims to develop leading-edge aerospace technology in the state, taking advantage of the region's human talent.

The company's participation has not been limited to its operation and production in Mexico; the CEO is the president of the aerospace cluster in Baja California, and is actively involved in the development of the regional strategy in the state, which is defined in the State of Baja California Road Map (coordinated and organized by ProMéxico).

Goodrich is a clear example of a strategically designed investment that has benefitted the company and the country alike, leaving economic, social and technological spillovers; strategic investments that were envisioned at five years, and are today a reality.

4.2.13. Regional Strategies

As part of the next stage of development of the aerospace and defense industry in Mexico, it was agreed to establish regional strategies that identified and furthered the development of production vocations in the country's aerospace clusters.

These strategies seek to trigger poles of competitiveness, that is, ecosystems of innovation and high-level coordination which raise the competitiveness of the regions and harmoniously combine different sectors, and which are conducive to innovation, collaboration, and competition. By developing poles of competitiveness, companies within them will have advantages in terms of access to a broader supplier base, specialized support services, talent pools, and access to knowledge, technologies and markets, among other things, in order to attract similar and complementary companies. In addition to local benefits, the poles will facilitate efficient insertion into national and international production and innovation networks.

Thus, regional strategies, in addition to being aligned with the national strategy, consider three pillars as competitiveness enablers in the region:

1. **Innovation system:** based on the region's capacity to generate innovation across regional and sectorial levels of its vocation.
2. **Cluster dynamics:** based on the concentration of the mass of companies, universities, suppliers and institutions, with the capacity to generate a value chain.
3. **Triple helix:** focused on the combined efforts of the academy, government and industry.

This vision has enabled the development of complementary and inter-related regional strategies, in line with the national vision. Below are the most important regions of the Mexican aerospace industry in terms of exports and cluster coordination.

A. Baja California

The development of the aerospace industry in Baja California began more than four decades ago with manufacturing activities. It is one of the most important states for the Mexican aerospace industry with approximately 80 companies in the sector and exports of 1.822 billion dollars a year. The United States receive the majority of Baja California's exports; the rest go to Canada, the United Kingdom, France, and Germany, among other countries. Exports from the state have grown steadily since 2002.

Based on the strategy developed between the industry, academia and government, Baja California will focus its innovation capacities on services based on high-value knowledge process outsourcing (KPO) for the A+D industry, and stimulate its development potential in fuselage systems and power plants.

Baja California has 24,349 students enrolled in engineering and technology from a universe of close to 905,441 nationwide, making it one of the leading states for students in these areas.[21] The state is emerging as an aerospace cluster that is defining its capacities cross-wise.

Baja California's strategic milestones are:

Baja California is the main hub for the export of high-value knowledge process outsourcing (KPO) services for the country's A+D industry.

Baja California is an international competitiveness pole through the coordination of a high-value production ecosystem.

Baja California is a trigger; it coordinates actions for Mexico to become the Latin American leader in KPO for fuselage systems and power plants.

Through specific actions, companies that constitute the aerospace cluster in the state are collaborating with the three levels of government, academia and its specialized centers to generate talent that aligns with the demands for new product production, quality and certification in the region (particularly specialized technicians and professionals), while developing the specialized engineering which is required locally to support the growth of industrial operations and expand new production areas. The active participation of the national aviation authority (DGAC) will be sought to establish a regional certification office and promote activities related to the BASA agreement.

Regarding the education sector, the scarcity of talent in the global aerospace industry opens an enormous window of opportunity for Baja California. Five years ago, the Autonomous University of Baja California (Universidad Autónoma de Baja California, UABC) opened an Aerospace Technology and Engineering Center and an engineering campus with one of the best laboratories specializing in composite materials, built in collaboration with Honeywell Aerospace. One of the Center's latest achievements is the launch of an experimental rocket by UABC students, in collaboration with experts from the State University of San José and supervised by NASA.

21 http://mim.promexico.gob.mx/wb/mim/seleccion_de_indicadores

Another important education institution is the Cetys University. The institution is certified by the Western Association of Schools and Colleges (WASC) and has an aviation engineering program and a master's in aerospace engineering. The university is working on the construction of a laboratory for scale-model aircraft prototypes and automobile models, for which it has constituted three research teams made up of students, professors and engineers from the local industry.

The Tijuana University of Technology (Universidad Tecnológica de Tijuana, UTT) has a robust outreach program with aerospace companies. It has a mechatronics engineering program and two professional technical programs in mechatronics and the manufacture of aerospace harnesses, which were adapted to the needs of the local industry.

The UTT recently opened the Product Lifecycle Management Lab, the fourth of its kind in Mexico. The laboratory includes latest generation software that enables to virtually control of the product manufacturing process, from conception to industrial design, testing, manufacture, delivery to the client and services. The laboratory will allow regional companies to simulate manufacturing processes in order to reduce costs, time frames and errors.

The National College of Professional Technical Education (Colegio Nacional de Educación Profesional Técnica, Conalep), one of the most important technical schools in the country, is also present in the state. In coordination with the Baja California Aerospace Cluster, it recently opened its precision engineering center to meet the needs of the aerospace industry in the region. The center is the first of four soon to be opened in the state.

The center was partially sponsored by local companies like Zodiac and Solar Turbines, which supported equipment installation and got involved in the development of training programs to ensure the technical and design content, as well as compliance with AS9100 standards and regulations.

In addition, the importance of the mega binational CaliBaja region should be emphasized. It consists of the counties of San Diego and Imperial (United States) and Tijuana (Baja California). The region offers unique opportunities not only because of its location and easy access, but because of the availability of talent, intellectual and scientific resources, experts, extensive infrastructure and natural resources. Also, the business incentives granted by both countries for a single zone is significant, as well as the space required for expansion.[22]

22 For more information about the project, the complete strategy can be found in the MRT Flight Plan of Baja California, available at: www.promexico.gob.mx/work/models/promexico/Resource/1983/1/images/MRT_Baja_California_2012_esp.pdf

B. Chihuahua

Chihuahua's industrial and advanced manufacturing capacity makes it one of the states with greatest development and potential in the country's aerospace and defense sector. Chihuahua has five OEMs and more than 37 certified suppliers.

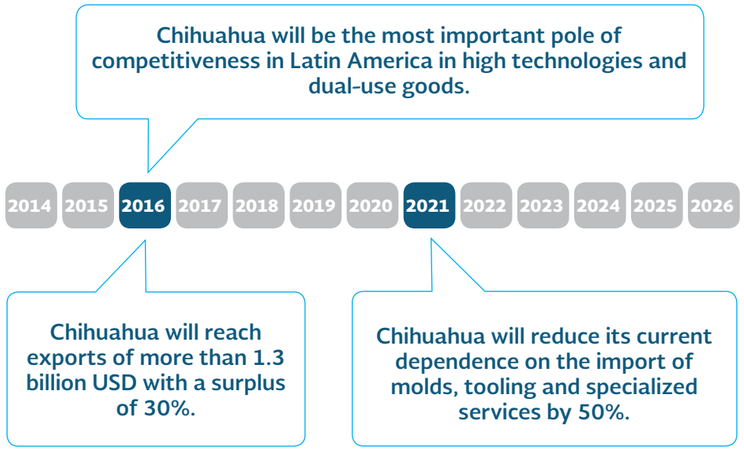
Original Equipment Manufacturers (OEMs) and/or Assemblers

Textron Aviation: Cessna and Beechcraft merge into a single company.

1. **Cessna:** harnesses for electrical systems, structural components for fuselages, wings, and cabins. Commercial and private aviation. Main processes: electrical assembly, lamination processes, die-casting, shaping, riveting, application and curing of chemical compounds. Generates 900 jobs. First company to initiate aerospace patent registration processes in Mexico.
2. **Beechcraft:** structural components for fuselages, wings, and cabins. Commercial, private, and military aviation. Main processes: forging, casting, shaping, riveting, assembly, integrity testing. Generates 940 jobs.
3. **Textron International Mexico:** components and assembly of structural elements for helicopter cabins and fuselages, and electrical harnesses. Commercial and private aviation. Main processes: application of chemical compounds, electrical, mechanical and structural assembly and secondary manufacturing support processes. Generates 500 jobs. Currently assembling more than 60% of the complete helicopter process.
4. **Honeywell Aerospace:** turbine parts and components. Commercial and military aviation. Honeywell's plants in Chihuahua are considered the most important high-precision machining center in America. Main processes: multi-axis CNC high-precision machining, heat and surface treatments, non-destructive integrity testing. Generates more than 1,500 jobs.
5. **EZ Air Interior Limited (JV between Embraer and Zodiac):** manufacture of cabin interiors for Embraer 170/190 models. Main processes: composite materials, sheet metal, layup room, and harness assembly. Generates 450 jobs.

From the development of the MRT Chihuahua Flight Plan, the industry, academia, and government defined the steps to follow based on the strategy, and their strategic milestones focus on the innovation capacities in the design, engineering, manufacture and assembly of fuselages, aerostructures and their parts (airplanes and helicopters), engines and their parts, electrical wiring systems, high-precision machining, interiors, seats and their components, landing gear parts and emergency systems such as chutes and life rafts, among others.

As a result of the integration of the triple helix, Chihuahua has established itself as a major industry leader. The Chihuahua Aerospace Cluster has identified six main lines of action focused on education, sourcing, certification, technology, infrastructure and promotion. One of the main initiatives focuses on the establishment of an MRO Center.



Chihuahua has more than 42 company operations that generate 13 thousand direct jobs in the industry, and a total of 1.5 billion dollars in foreign and local investment. Its capacities lie predominantly in composite materials, sheet metal, aerostructures, forging, welding, and heat and surface treatments.

Chihuahua has important engineering and design centers, constituted mainly by Grupo Safran, Zodiac Aerospace and Honeywell Aerospace, among other international consortiums.

In 2014, Chihuahua's exports exceeded one billion dollars a year. Its main export destinations are the United States, Germany, France and Canada.

Aircraft parts manufactured and assembled in Chihuahua are incorporated into the commercial, regional, and military aircraft of 12 OEMs and in more than 60 airlines around the world, having international certifications such as NADCAP, AS9100, ISO 17025, DGAC, FAA, and EASA, among others.

In terms of human capital training, Chihuahua has 59 universities and technological schools, 65 technical schools and two high-level research and development centers, which provide the talent required by the industry. Of the 30,000 engineering students, around 3,900 engineers and 1,500 technicians graduate every year.

Chihuahua has an advanced materials research center, unique in Mexico, that facilitates the growth and development of the aerospace industry primarily in nanotechnology and metrology. Its aerospace cluster is ready to meet the growing demand of the global aerospace industry.[23]

23 More information about the aerospace industry in Chihuahua at: www.ClusterAeroespacialChihuahua.com www.promexico.gob.mx/work/models/promexico/Resource/1983/1/images/MRT_Chihuahua_2012_esp.pdf

C. Sonora

Sonora is home to one of the most important and integrated aviation machining clusters in the country. The state has become a center of excellence for the manufacture of blades and components for turbines and aeroengines (casting and machining processes, among others).

Its capacities in the aviation sector began with the assembly of electronics (switches and harnesses). Sonora has furthered the complexity and technology related to composites, aerostructures and the availability of special processes. These are only some of the existing processes in the state. Some are unique in the country:

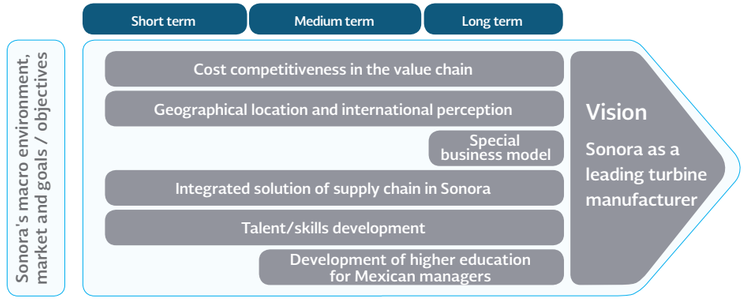
- Investment casting.
- Die casting.
- Sand casting.
- Heat treatment, vacuum heat treating, passivation, brazing, sintering, CAD plating.
- Surface treatment, HVOF spray, VPA, plasma spray, platinum plating, gold plating, sulfuric anodize, chromic anodize, prime, and paint.

Sonora has more than 50 companies and support entities in the aerospace sector. It exports close to 250 million dollars. The United States is its main export destination. It is worth noting that the state also has an important supply of talent. Engineering and technology enrollment is recorded at 29,203 students.

The state recently opened the Advanced Manufacturing and Aerospace Institute of Sonora (Instituto de Manufactura Avanzada y Aeroespacial de Sonora, IMAAS), in Hermosillo, in response to the growing demand for trained technicians due to new investments and/or expansions in the aeronautical sector. The IMAAS is a public school that will offer courses and programs required by the industry, such as:

- Aerostructure assembly
- CNC machining
- Sheet metalworking
- Composite materials
- Tooling

The state's strategy is designed to maximize the potential to manufacture turbine blades and engine components, taking into account cost competitiveness in value chains, the geographical location of the state and a business model based on talent generation and an integrated supply chain.



Some of the most recent advances in the aviation sector in Sonora are:

- Creation of the Advanced Manufacturing and Aerospace Institute of Sonora (IMAAS).
- Establishment of a French company that will assemble doors for the Boeing 787 and create 400 jobs by 2015.
- Opening of a US company that will have surface treatments such as HVOF Spray, VPA, Plasma Spray, etc.
- Establishment of a Mexican company to the south of Sonora for aerostructure repair (MRO).

D. Querétaro

Querétaro has firmly established itself as a strategic point for the global aerospace industry. This has been due in part to the capture of important investments during the last few years. This success has been the product of a close relationship between the state government and the sector, and the support mechanisms that have triggered strategic projects, such as:

- **The Aeronautical University of Querétaro (Universidad Aeronáutica en Querétaro, UNAQ)** is the linchpin for generating specialized human resources and their connection to companies, enabling them to design study programs to meet demand. The UNAQ offers four levels of education: basic technical, higher technical (384), engineering (411) and graduate (40).[24] Since 2006, 2,851 students have graduated and the number is expected to increase to 6,500 by 2016.
- **The Testing and Aircraft Technologies Laboratory (Laboratorio de Pruebas y Tecnologías Aeronáuticas, LABTA)** is a unique project in Latin America, consisting of three research centers that unite their specialties to provide a comprehensive range of laboratory testing and services that will strengthen the development of the supply chain. The installed capacity of LABTA will enable the durability assessment of components and materials used in an aircraft through testing that reproduces their in-flight operating conditions.

24 www.unaq.edu.mx/index.php/noticias-y-eventos/54-mas-de-850-estudiantes-inician-hoy-en-la-unaq-el-cuatrimestre-Septiembre-diciembre-2012

- **The Querétaro Aerocluster** aims at contributing to develop and strengthen the sector's capacities. It consists of thirty companies that manufacture and supply structures, parts and components, three MRO companies, five design and engineering centers, three innovation and development centers, five service companies, three education institutions and an innovation and research network.

Querétaro's aerospace sector offers opportunities and new investments for aviation operations under an appropriate infrastructure and optimal business conditions, particularly those intended to complement the supply chain for complex machining processes, surface coatings, heat treatments, sheet metalworking, forging and casting.

The state exports mainly goods for the assembly or manufacture of aircraft and aircraft parts, turbojets with thrusts in excess of 25 kN, landing gear and parts and goods for aircraft or aircraft part repair or maintenance.

Querétaro has focused primarily on products and machining processes for complex components, aerostructure manufacture, engine component manufacture, brake system manufacture, MRO for propulsion engines, landing gear manufacture and MRO, technical treatments and component manufacture for complex materials.

Querétaro has 30 aerospace companies and support entities and has reported exports of 1.137 billion dollars. The aerospace sector in Querétaro is composed mainly of the following companies: Bombardier, Grupo Safran (Messier-Bugatti-Dowty and Snecma), Eurocopter, Brovedani Reme, Elimco Prettl Aerospace, Galnik, GE Infrastructure, Galnik, Crio, NDT Export México and ITP, the majority of which have obtained AS 9001, ISO 9001, ISO 14001, and NADCAP certification.

An important link between the industry and higher education and research institutions is the region's Aerospace Research and Innovation Network (Red de Investigación y de Innovación Aeroespacial de Querétaro, RIIAQ), whose aim is to help to develop and strengthen research, technology development and innovation capacities.

E. Nuevo León

The state of Nuevo Leon is known for its significant industrial development, and as a leader in advanced manufacturing. Its geographical location, combined with its highly qualified human capital and its supply network, make it an ideal place to do business in Mexico and the rest of North America.

Contributing 8% of the domestic GDP and 11% of all goods manufactured in Mexico, Nuevo León has developed and consolidated various industries including automotive, metalworking, household appliances and aviation. With multi-sectorial industrial experience going back more than a hundred years, Nuevo León has a vast network of suppliers that has enabled the recent transformation from basic to advanced manufacturing, capable of supplying highly specialized sectors like aviation.

The state currently has 28 companies in the aviation sector, which export their products mainly to the NAFTA market. The sector exports 651 million dollars per year, with steady growth over the last five years; the majority of the companies have 100% Mexican capital. The state also has success stories like FRISA, a 100% Mexican high-technology company that made inroads into the global market by positioning its forged rings with the world's leading aircraft engine manufacturers.

Nuevo León's aerospace cluster was created in 2008. Its aim is to promote the integration and growth of the aviation sector in the state. In line with the NFP, its strategy includes the integration of local suppliers to the value chain of the national aviation industry through the development and conversion of suppliers which manufacture high added value pieces for the country's main OEM and Tier 1 companies. The medium-term goal is to export aerospace components to the rest of North America, Europe and the main leading markets.

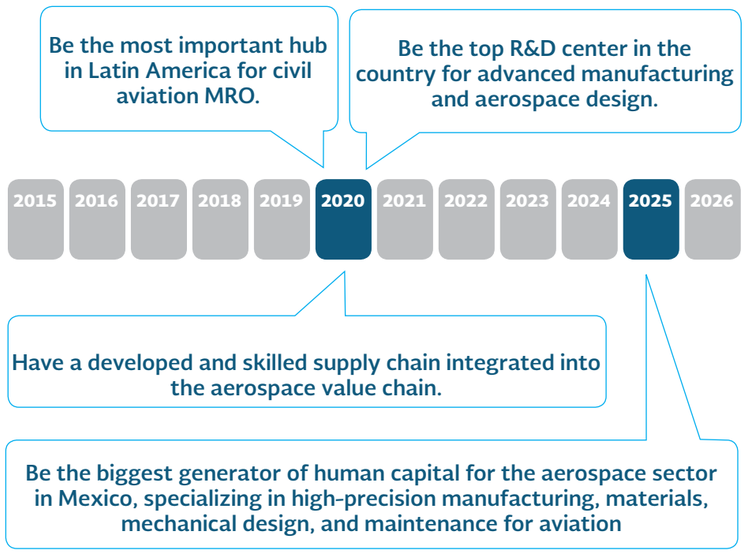
One of the state's main strengths is its capacity to house large MRO centers. Its international airport has room for an integrated maintenance workshop for commercial aircraft. In addition, the Aeropuerto del Norte, the only private airport in Mexico, has more than 25 MRO workshops, making it the second biggest airport in Mexico and Central America for corporate aviation operations. The aerospace cluster in Nuevo León is also working on the integration and promotion of these companies.

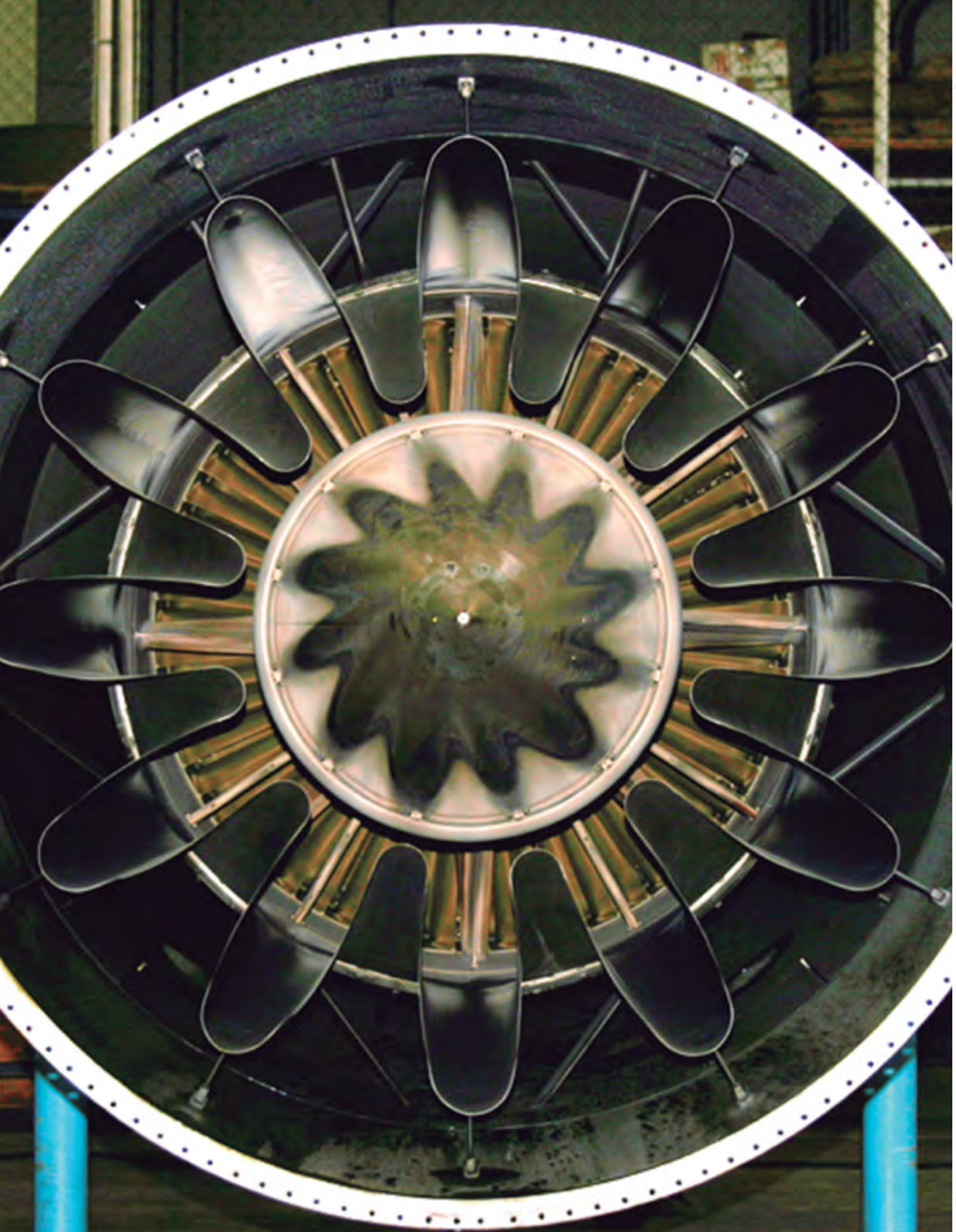
One of the keys to the economic success that has positioned Nuevo León as an industrial capital in Mexico and an attractive business destination is the quality and excellence of its highly competitive education institutions, which graduate more than 6 thousand engineers every year. Their programs include:

- An aerospace engineering degree with three majors: design and manufacturing, aircraft maintenance and air transport at the Autonomous University of Nuevo León (Universidad Autónoma de Nuevo León, UANL). In 2012 a master's degree in aerospace engineering was launched.
- A double master's degree in aerospace engineering and lightweight technologies from the Monterrey Institute of Technology and Higher Education (ITESM) with the Steinbeis University of Berlin, Germany, with support from the association of aerospace companies of Baden-Württemberg.
- Technical schools and customized programs for state technical institutes. They have developed courses and specialties in engines, CNC machining and welding of advanced materials, among others.

In 2014, the strategy for the aerospace sector in the region called "Road Map for the region of Nuevo Leon" was held. Nuevo León's strategy is based on leveraging its capacities in advanced manufacturing, engineering, design and research and development to apply them to the development of the region's aerospace sector.

According to the triple helix the strategic milestones for Nuevo León are to:





Conclusions

The growing number of investment projects in the aerospace sector has turned Mexico into one of the most competitive and strategic destinations for manufacturing and sourcing services and industrial processes. Its increasing development of design and engineering capacities has enabled it to attract high-value projects related to the main commercial programs, while its potential in defense and dual-use markets draw the attention of major international players.

A large part of this success is the result of the application of methodologies that allow the coordination of the most important players in defining the sector's development strategies. This document is the fourth version of the NFP and its application to three regional road maps. Its third version formed the basis and synthesis of the Strategic Program for the Aerospace Industry (Programa Estratégico de la Industria Aeroespacial, ProAéreo). This edition intends to become a coordinating element and a springboard for the development of a national strategy of the Mexican space industry.

The benefits of the implementation process expressed in this road map are of high strategic value. They are aimed at the creation of better business opportunities for Mexico's trade partners, at the implementation of value chains and, primarily, the creation of social and economic well-being through the generation of well-paid, stable job opportunities for Mexican talent.

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Joëlle Cournoyer, Vicepresident of Operations
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Planta de estructuras
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1 Capabilities and Certifications
R Coatings
PPQ Chemical Processing
D Design
D&I Engineering + Design
TC Heat Treating
I+D Research and Development
M Manufacture
MRO Maintenance, Repair & Overhaul
EM Material Testing
END Nondestructive Testing
MNC y MS Non Conventional Machining and Surface Enhacement
S Welding

COMPANY	Aeroengines: Propelers/rotors/Power Plant (Parts & components)	Fuselage: Nacelles/Pylons, Stabilizers	Aircraft Construction Assembly	Avionics²	Landing Gear	Wings	Computer System Softwares / Information systems	Electrical power/Airborne Auxiliary Power	Electrical Cable Accessories / Harnesses	Aircraft Interior Equipment Furnishing	Autoflight Systems and Equipment	Communication Systems and equipment	Control Systems & Equipment/ Flight Controls	Fuel & Fuel Systems	Hydraulic Systems & Hydraulic Power	Indicating/ Recording Systems	Safety & Survival Equipment	Air Conditioning	Fire Protection / Ice & Rain Protection	Lights	Oxygen	Pneumatic	Vaccum	Water / Waste / Water Ballast	Windows	Central Maintenance System	Inert Gas System	Cargo and Accessory Systems	Fasteners	Space systems & equipment	Armaments and Related Equipment: Missile Related Products	Technical Textils	Others
Aguascalientes																																	
Sensata technologies de México, S. de R. L. de C.V.								M				M	M													M							
Flextronics Manufacturing México, S. A. de C. V.								M			M	M	M															M		M			
Baja California																																	
3D Robotics										M																							
Aerodesign de México S.A. de C.V (C&D Zodiac Aerospace)										M																							
Aerospace Solutions de México S. de R.L. de C.V.																																	I+D/ MRO
Aerothenical Solutions S. de R.L. de C.V.	MRO	MRO							MRO																								
Afiliados Industriales de Precision																																	M
Aerospace Coatings International (Industrial Vallera de Mexicali, S. A. de C.V.)		MRO																															
Allied, Tools & Die Comapny																																	
Americas Plating Company																																	C
All-power Manufacturing Co.																																	
Anodimex de México, S. de R. L. de C. V.																																	1
Ensambles del Pacífico, S. de R. L. de C. V.								M	M																								
Arneses y Conexiones S.A.de C.V.									M																								
Asteelflash Group																																	
BAP Aerospace de México, S. de R.L. de C.V.																																	1
BC Manufacturing S. de R.L. de C.V.																																	
Bourns de México, S.A. de C.V.																																	
Chromalloy, S. A. de C. V. (Chromalloy Aerospace)	M/ MRO																																
Remec México, S. A. de C. V.															M																		1
Compoende Aeronáutica de México, S.A. de C.V.	I+D																																
Consolidated Precision Products, S. de R. L. de C. V.																																	
Craig Tools																																	M
Crissair de México, S. A. de C. V.															M																		
Cubic de México S.A. de C.V.				M			M	M	M			M																					
Custom Sensors and Technologies Aerospace de México	M							M	M					M	M																		
Delphi Connection Systems Tijuana, S. A. de C. V.								M	M																								
Deutsch Servicios,S. de R.L. de C.V.																																	
Dynamic Resources Group Tecate Llc, S. A. de C. V.																																	
Eaton Industries, S. de R. L. de C. V.	M							M	M					M	M																		
Electro Opticas Superior (lockheed Martin)																																	
Empresas L.M., S. A. de C. V.								M	M																								
Ensambladores Electronicos de México, S. de R.L. de C.V.				M				M	M																								
Esterline México S. de R.L. de C.V.								M	M																							M	
Coast Aluminum																																	
Conesys																																	
Southco Inc. - Hartwell Dzus S.A. de C.V.																																	

COMPANY	Machinery Manufacture -CNC and Precision Engineering: Rough: Turning	Rough: Milling		Finish: Turning	Finish: Honing	Computer system softwares: MBD: CATIA V5	CAD / CAM / CAE	Forging & Aerostructure fabrication forming: Forging	Labor Work: Deburring	Shot Peen	Grit Blasting (Surface Prep)	Treatment Processes: Heat Treat: Quench & Temper	Stress Relieving	Solution + Age	Surface Treatments: Chrome Plate	HVOF Spray	Cad Plating	MCAC	Sulfuric Anodise	Chromic Anodise	Prime & Paint
Aguascalientes																					
Sensata technologies de México, S. de R. L. de C.V.																					
Flextronics Manufacturing México, S. A. de C. V.																					
Baja California																					
3D Robotics																					
Aerodesign de México S.A. de C.V (C&D Zodiac Aerospace)	M	M		M	M	M	M		M				M								M
Aerospace Solutions de México S. de R.L. de C.V.																					
Aerothenical Solutions S. de R.L. de C.V.																					
Afiliados Industriales de Precision																					
Aerospace Coatings International (Industrial Vallera de Mexicali, S. A. de C.V.)																					1
Allied, Tools & Die Comapny																	1		1	1	
Americas Plating Company																					
All-power Manufacturing Co.																					
Anodimex de México, S. de R. L. de C. V.																	1		1	1	
Ensambles del Pacífico, S. de R. L. de C. V.	1	1		1	1	1															
Arneses y Conexiones S.A.de C.V.																					
Asteelflash Group																					
BAP Aerospace de México, S. de R.L. de C.V.											1						I+D		1	1	I+D
BC Manufacturing S. de R.L. de C.V.																					
Bourns de México, S.A. de C.V.																					
Chromalloy, S. A. de C. V. (Chromalloy Aerospace)																					
Remec México, S. A. de C. V.		1							1												
Compoende Aeronáutica de México, S.A. de C.V.	1	1		1																	
Consolidated Precision Products, S. de R. L. de C. V.	1	1							1		1										
Craig Tools																					
Crissair de México, S. A. de C. V.																					
Cubic de México S.A. de C.V.																					
Custom Sensors and Technologies Aerospace de México						1	1					1	1	1							1
Delphi Connection Systems Tijuana, S. A. de C. V.	1	1		1	1																
Deutsch Servicios,S. de R.L. de C.V.																					
Dynamic Resources Group Tecate Llc, S. A. de C. V.	1	1		1	1																
Eaton Industries, S. de R. L. de C. V.						1	1					1	1	1							1
Electro Opticas Superior (lockheed Martin)																					
Empresas L.M., S. A. de C. V.	1	1		1	1																1
Ensambladores Electronicos de México, S. de R.L. de C.V.																					
Esterline México S. de R.L. de C.V.																					
Coast Aluminum																					
Conesys																					
Southco Inc. - Hartwell Dzus S.A. de C.V.																					

COMPANY	Testing & Certifications: NDT: MPI	LPI	Acid Etch	MCL: Chemical	Mechanical	Tooling	Transformation processes: Castings: Investment	Die	Sand	Joint processes: Soledring & welding	Adhesives	Others	Materials: Raw Materials: Material Range: Stainless Steel	Steel	300M or Equivalent	Aluminium	Titanium	Delran	Composites
Aguascalientes																			
Sensata technologies de México, S. de R. L. de C.V.																			
Flextronics Manufacturing México, S. A. de C. V.																			
Baja California																			
3D Robotics																			
Aerodesign de México S.A. de C.V (C&D Zodiac Aerospace)										M	M		M			M			M
Aerospace Solutions de México S. de R.L. de C.V.																			
Aerothenical Solutions S. de R.L. de C.V.																			
Afiliados Industriales de Precision																			
Aerospace Coatings International (Industrial Vallera de Mexicali, S. A. de C.V.)										1	1								
Allied, Tools & Die Comapny													1			1			
Americas Plating Company																			
All-power Manufacturing Co.																			
Anodimex de México, S. de R. L. de C. V.													1			1			
Ensambles del Pacífico, S. de R. L. de C. V.																			
Arneses y Conexiones S.A.de C.V.																			
Asteelflash Group																			
BAP Aerospace de México, S. de R.L. de C.V.	I+D	1	1	1	I+D														
BC Manufacturing S. de R.L. de C.V.																			
Bourns de México, S.A. de C.V.																			
Chromalloy, S. A. de C. V. (Chromalloy Aerospace)																			
Remec México, S. A. de C. V.						1										1			
Compoende Aeronáutica de México, S.A. de C.V.																			
Consolidated Precision Products, S. de R. L. de C. V.		1								1									
Craig Tools						M													
Crissair de México, S. A. de C. V.																			
Cubic de México S.A. de C.V.																			
Custom Sensors and Technologies Aerospace de México	1	1								1			1	1	1	1	1		
Delphi Connection Systems Tijuana, S. A. de C. V.																			
Deutsch Servicios,S. de R.L. de C.V.																			
Dynamic Resources Group Tecate Llc, S. A. de C. V.						M													
Eaton Industries, S. de R. L. de C. V.	1	1								1			1	1	1	1	1		
Electro Opticas Superior (lockheed Martin)																			
Empresas L.M., S. A. de C. V.																			
Ensambladores Electronicos de México, S. de R.L. de C.V.																			
Esterline México S. de R.L. de C.V.																			
Coast Aluminum																			
Conesys																			
Southco Inc. - Hartwell Dzus S.A. de C.V.																			

COMPANY	Services: Maintenance Repair & Overhaul	Raw Material suppliers	Testing and Certifications Services	Ground Support & Air Field Equipment	Consultancy, Finance & Logistics	HR Manpower	Stock Solutions	Flight Training	Research, Design & development	Training Skills, Universities, collegues and institutes	Certifications: AS9100	AS9100B	NADCAP	ISO 9000:2000	ISO 9001:2000	ISO 9001:2008	FAA	DGAC	ITAR	MIL
Aguascalientes																				
Sensata technologies de México, S. de R. L. de C.V.																				
Flextronics Manufacturing México, S. A. de C. V.																				
Baja California																				
3D Robotics											1		1							
Aerodesign de México S.A. de C.V (C&D Zodiac Aerospace)		M								M	1		1					1		
Aerospace Solutions de México S. de R.L. de C.V.																				
Aerothenical Solutions S. de R.L. de C.V.																				
Afiliados Industriales de Precision																				
Aerospace Coatings International (Industrial Vallera de Mexicali, S. A. de C.V.)																				
Allied, Tools & Die Comapny		M													1	1				
Americas Plating Company																				
All-power Manufacturing Co.																				
Anodimex de México, S. de R. L. de C. V.		M													1	1				
Ensambles del Pacífico, S. de R. L. de C. V.											1			1						
Arneses y Conexiones S.A.de C.V.																				
Asteelflash Group		M										1	1		1					
BAP Aerospace de México, S. de R.L. de C.V.						M														
BC Manufacturing S. de R.L. de C.V.			1																	
Bourns de México, S.A. de C.V.																				
Chromalloy, S. A. de C. V. (Chromalloy Aerospace)	1										1		1							
Remec México, S. A. de C. V.			1									1				1			1	
Compoende Aeronáutica de México, S.A. de C.V.																				
Consolidated Precision Products, S. de R. L. de C. V.			1								1		1							
Craig Tools																1				
Crissair de México, S. A. de C. V.												1								
Cubic de México S.A. de C.V.												1								
Custom Sensors and Technologies Aerospace de México											1		NDT/ HT/ CHP/W				1	1	1	1
Delphi Connection Systems Tijuana, S. A. de C. V.											1		1							1
Deutsch Servicios,S. de R.L. de C.V.																				
Dynamic Resources Group Tecate Llc, S. A. de C. V.											1									
Eaton Industries, S. de R. L. de C. V.											1		NDT/ HT/ CHP/W				1	1	1	1
Electro Opticas Superior (lockheed Martin)																				
Empresas L.M., S. A. de C. V.												1			1					
Ensambladores Electronicos de México, S. de R.L. de C.V.											1		1							
Esterline México S. de R.L. de C.V.											1									
Coast Aluminum												1								
Conesys																				
Southco Inc. - Hartwell Dzus S.A. de C.V.																				

1 Capabilities and Certifications
R Coatings
PPQ Chemical Processing
D Design
D&I Engineering + Design
TC Heat Treating
I+D Research and Development
M Manufacture
MRO Maintenance, Repair & Overhaul
EM Material Testing
END Nondestructive Testing
MNC y MS Non Conventional Machining and Surface Enhacement
S Welding

Baja California

COMPANY	Aeroengines: Propelers/rotors/Power Plant (Parts & components)	Fuselage: Nacelles/Pylons, Stabilizers	Aircrart Construction Assembly	Avionics[2]	Landing Gear	Wings	Computer System Softwares / Information systems	Electrical power/Airborne Auxiliary Power	Electrical Cable Accessories / Harnesses	Aircraft Interior Equipment Furnishing	Autoflight Systems and Equipment	Communication Systems and equipment	Control Systems & Equipment/ Flight Controls	Fuel & Fuel Systems	Hydraulic Systems & Hydraulic Power	Indicating/ Recording Systems	Safety & Survival Equipment	Air Conditioning	Fire Protection / Ice & Rain Protection	Lights	Oxygen	Pneumatic	Vaccum	Water / Waste / Water Ballast	Windows	Central Maintenance System	Inert Gas System	Cargo and Accessory Systems	Fasteners	Space systems & equipment	Armaments and Related Equipment: Missile Related Products	Technical Textils	Others
Ryerson Metals																																	
FSI de Baja, S. A. de C. V.																																	
Galvanizadora Tijuana																																	
GKN Aerospace Chem-tronics Inc.	M/MRO																																
Goodrich Aerospace de México, S. de R. L. de C. V.	M	M																															
Hartwell Dzus S.A. de C.V.																																	
Honeywell Aerospace de México, S. de R. L. de C. V.	M		M	MRO				M	M/MRO				M	M	M			M			M			M			M						
Hutchinson Seal de México, S. A. de C . V.															M																		
Interiores Aereos SA de CV (Gulfstream)	M	M		M					M																								
Jet Cabo	MRO																																
Jonathan Mfg. de México, S. de R. L. de C. V.		M																															
Lat Aero-Espacial, S. A. de C. V.																																	
Leach International México, S. de R.L. de C.V.																																	
LMI Aerospace																																	
Máquinas, Accesorios y Herramientas de Tijuana, S.A.																																	
Martek Power (Cooper)																																	
MTI de Baja																																	
Nex Tech Aerospace	M	M	M			M																											
North American Production Sharing de México, S.A. de C.V.																																	
Oncore de México, S.A. de C.V.																																	
Orcon de México, S. A. de C. V.	M/MRO/I+D	M/MRO								M/MRO/I+D																							
Parker Hannifin S. de R. L. de C. V.															M																		
Placas Termodinamicas S.A. de C.V.																																	
Procesos Térmicos y Especiales de Mexicali, S. de R. L. de C. V.																																	
River Manufacturing International																																	
Rkern Manufacturing de México, S. de R. L. de C. V.																																	
Seacon Global																																	
Sego Precisión de México, S. de R. L. de C. V.	M	M													M																		
Suntek Manufacturing Technologies, S. A. de C. V.								M	M																								
Suntron de México, S. de R. L. de C. V.				M					M		M	M	M																				
Spectrum Integrity												I+D	I+D																	I+D			
Switch Luz, S. A.									M																								
Techmaster de México S.A. de C.V.	M	M		M	M	M		M	M	M		M			M	M	M	M	M	M				M			M						
TDI-Transistor Devices de México, S. de R.L. de C.V.				M																													
Technology and Industrial Services de México																																	
Teledyne Microelectric Technologies																																	
Transmex International, S. A.				M				M	M		M	M	M			M			M	M							M			M	M		
Tyco Electronics Tecnologías, S.A. de C.V.				M				M	M																								

COMPANY	Machinery Manufacture -CNC and Precision Engineering: Rough: Turning	Rough: Milling	Finish: Turning	Finish: Honing	Computer system softwares: MBD: CATIA V5	MBD: CAD / CAM / CAE	Forging & Aerostructure fabrication forming: Forging	Labor Work: Deburring	Shot Peen	Grit Blasting (Surface Prep)	Treatment Processes: Heat Treat: Quench & Temper	Heat Treat: Stress Relieving	Heat Treat: Solution + Age	Surface Treatments: Chrome Plate	HVOF Spray	Cad Plating	MCAC	Sulfuric Anodise	Chromic Anodise	Prime & Paint	Testing & Certifications: NDT: MPI	NDT: LPI	NDT: Acid Etch	MCL: Chemical	MCL: Mechanical	Tooling	Transformation processes: Castings: Investment	Castings: Die	Castings: Sand	Joint processes: Soledring & welding	Joint processes: Adhesives	Others
Ryerson Metals																																
FSI de Baja, S. A. de C. V.																																
Galvanizadora Tijuana																																
GKN Aerospace Chem-tronics Inc.																																
Goodrich Aerospace de México, S. de R. L. de C. V.																											1	1	1			
Hartwell Dzus S.A. de C.V.																																
Honeywell Aerospace de México, S. de R. L. de C. V.		1	1		1	1		1		1	1		1						1	1		1	1	1		1				1	1	
Hutchinson Seal de México, S. A. de C . V.																				1										1	1	
Interiores Aereos SA de CV (Gulfstream)					1																											
Jet Cabo																																
Jonathan Mfg. de México, S. de R. L. de C. V.																																
Lat Aero-Espacial, S. A. de C. V.																				1										1	1	
Leach International México, S. de R.L. de C.V.																																
LMI Aerospace							1																									
Máquinas, Accesorios y Herramientas de Tijuana, S.A.																																
Martek Power (Cooper)																																
MTI de Baja																																
Nex Tech Aerospace																																
North American Production Sharing de México, S.A. de C.V.																																
Oncore de México, S.A. de C.V.																																
Orcon de México, S. A. de C. V.					1	1																										1
Parker Hannifin S. de R. L. de C. V.																				1										1	1	
Placas Termodinamicas S.A. de C.V.																																
Procesos Térmicos y Especiales de Mexicali, S. de R. L. de C. V.																																
River Manufacturing International	1	1	1			1	1	1																		M						
Rkern Manufacturing de México, S. de R. L. de C. V.	M	M	M	M				M																		M						
Seacon Global																																
Sego Precisión de México, S. de R. L. de C. V.	1	1	1			1	1	1																		M	1		1	1		
Suntek Manufacturing Technologies, S. A. de C. V.																																
Suntron de México, S. de R. L. de C. V.																																
Spectrum Integrity																																
Switch Luz, S. A.																																
Techmaster de México S.A. de C.V.																																
TDI-Transistor Devices de México, S. de R.L. de C.V.																																
Technology and Industrial Services de México																																
Teledyne Microelectric Technologies																																
Transmex International, S. A.																																
Tyco Electronics Tecnologías, S.A. de C.V.																																

COMPANY	Materials: Raw Materials: Material Range: Stainless Steel	Steel	300M or Equivalent	Aluminium	Titanium	Delran	Composites	Services: Maintenance Repair & Overhaul	Raw Material suppliers	Testing and Certifications Services	Ground Support & Air Field Equipment	Consultancy, Finance & Logistics	HR Manpower	Stock Solutions	Flight Training	Research, Design & development	Training Skills, Universities, collegues and institutes	Certifications: AS9100	AS9100B	NADCAP	ISO 9000:2000	ISO 9001:2000	ISO 9001:2008	FAA	DGAC	ITAR	MIL
Ryerson Metals																		1									
FSI de Baja, S. A. de C. V.																											
Galvanizadora Tijuana																							1				
GKN Aerospace Chem-tronics Inc.																		1		1							
Goodrich Aerospace de México, S. de R. L. de C. V.																		1	1	1							
Hartwell Dzus S.A. de C.V.									M																		
Honeywell Aerospace de México, S. de R. L. de C. V.	1	1		1	1		1	1	1	1		1	1			1	1		1	1		1		1	1	1	
Hutchinson Seal de México, S. A. de C . V.																		1		1							
Interiores Aereos SA de CV (Gulfstream)																		1		1							
Jet Cabo																											
Jonathan Mfg. de México, S. de R. L. de C. V.																		1									
Lat Aero-Espacial, S. A. de C. V.									M																		
Leach International México, S. de R.L. de C.V.																											
LMI Aerospace									M									1		1							
Máquinas, Accesorios y Herramientas de Tijuana, S.A.									M																		
Martek Power (Cooper)																											
MTI de Baja																											
Nex Tech Aerospace																		1									
North American Production Sharing de México, S.A. de C.V.																											
Oncore de México, S.A. de C.V.																											
Orcon de México, S. A. de C. V.																			1								
Parker Hannifin S. de R. L. de C. V.																											
Placas Termodinamicas S.A. de C.V.																											
Procesos Térmicos y Especiales de Mexicali, S. de R. L. de C. V.																											
River Manufacturing International	1	1		1	1				M													1					
Rkern Manufacturing de México, S. de R. L. de C. V.																		1									
Seacon Global																											
Sego Precisión de México, S. de R. L. de C. V.	1	1	1	1	1	1	1																				
Suntek Manufacturing Technologies, S. A. de C. V.																		1									
Suntron de México, S. de R. L. de C. V.																		1					1			1	
Spectrum Integrity																											1
Switch Luz, S. A.																											
Techmaster de México S.A. de C.V.																											
TDI-Transistor Devices de México, S. de R.L. de C.V.																											
Technology and Industrial Services de México									M			1					1										
Teledyne Microelectric Technologies																											
Transmex International, S. A.											M1							1			1			1		1	1
Tyco Electronics Tecnologías, S.A. de C.V.																				1							

1 Capabilities and Certifications
R Coatings
PPQ Chemical Processing
D Design
D&I Engineering + Design
TC Heat Treating
I+D Research and Development
M Manufacture
MRO Maintenance, Repair & Overhaul
EM Material Testing
END Nondestructive Testing
MNC y MS Non Conventional Machining and Surface Enhacement
S Welding

COMPANY	Aeroengines: Propelers/rotors/Power Plant (Parts & components)	Fuselage: Nacelles/Pylons, Stabilizers	Aircraft Construction Assembly	Avionics²	Landing Gear	Wings	Computer System Softwares / Information systems	Electrical power/Airborne Auxiliary Power	Electrical Cable Accessories / Harnesses	Aircraft Interior Equipment Furnishing	Autoflight Systems and Equipment	Communication Systems and equipment	Control Systems & Equipment/ Flight Controls	Fuel & Fuel Systems	Hydraulic Systems & Hydraulic Power	Indicating/ Recording Systems	Safety & Survival Equipment	Air Conditioning	Fire Protection / Ice & Rain Protection	Lights	Oxygen	Pheumatic	Vaccum	Water / Waste / Water Ballast	Windows	Central Maintenance System	Inert Gas System	Cargo and Accesory Systems	Fasteners	Space systems & equipment	Armaments and Related Equipment: Missile Related Products	Technical Textils	Others
Baja California																																	
Vescio Manufacturing International																																	
Volare Engineering, S. de R. L. de C. V.										I+D																							1
Well Allyn S. de R.L. de C.V.									I+D																								
Chihuahua																																	
Altaser Aerospace	M				M																												
Atlas Aerospace																																	
Bell Helicopter / Textron International Mexico S de RL de CV		M	M						M																								
A.E. Petsche Co.																																	
Arnprior Aerospace Inc.	M																																
Cambrian Industries																																	
Capsonic S.A. de C.V.								M																									
CAV Aerospace	M		M																														
CAV Aerospace Limited - Ice Protection																																	
Cessna Aircraft Chihuahua / Textron Aerospace de México. (grupo American Industries)		M						M	M																								
Fokker Aerostructures México		M	M			M																											
HT-Mx Tratamientos Secundarios (Procesos Termicos HTMx SAPI de CV)																																	
Beechcraft (Grupo American Industries, S. A. de C. V.)		M							M																								
Honeywell Aerospace de México, S. A. de C. V.	M																																
JBT AeroTech								M	M																								
Kaman Aerospace	M	M	M		M																												
KeyTronic Juárez, S.A. de C.V.																																	
L3 Crestview Aerospace Chihuahua Ops. (Grupo American Industries, S. A. de C. V.)		M	M			M																											
Labinal Power Systems de México, S. A. de C. V.									M/I+D																								M/I+D
LISI AEROSPACE	M				M																								M				
Safran Engineering Services Mexico			D+I	D+I/I+D	D+I			D+I/I+D	D+I/I+D		D+I	D+I	D+I		D+I	D+I																	D+I
Servicios y Operaciones Integrales, S.A. de C.V.										D+I/I+D/M							M																
SGI de México, S. A. de C. V. (Electroswitch)								M																									
Sippican de México, S. de R. L. de C. V.																																	
Metal Finishing Co.	M																																
EZAIR Interior Limited (Grupo American Industries, S.A. de C.V.)									1	M								M			M				M			M					
The Nordam Group	MRO									M																							
Tighitco Latinoamérica, S. A. de C. V.	M																																
Zodiac Aerosafety Systems/Zodiac Aerevacuation Systems																	M																
Zodiac Elastomer of America/Amfuel (Grupo American Industries, S. A. de C. V.)										M							M																
Zodiac Interconnect America/Icore International (Grupo American Industries, S. A. de C. V.)																	M																
Zodiac Lighting Solution/IDD Aeroespace (Grupo American Industries, S. A. de C. V.)																	M			M													
Zodiac Seat United States/Weber Aircraft (Grupo American Industries, S. A. de C. V.)																	M																
Zodiac Seat Shells LCC (Grupo American Industries, S. A. de C. V.)										M/D+I																							

COMPANY	Machinery Manufacture -CNC and Precision Engineering: Rough: Turning	Rough: Milling	Finish: Turning	Finish: Honing	Computer system softwares: MBD: CATIA V5	CAD / CAM / CAE	Forging & Aerostructure fabrication forming: Forging	Labor Work: Deburring	Shot Peen	Grit Blasting (Surface Prep)	Treatment Processes: Heat Treat: Quench & Temper	Stress Relieving	Solution + Age	Surface Treatments: Chrome Plate	HVOF Spray	Cad Plating	MCAC	Sulfuric Anodise	Chromic Anodise	Prime & Paint	Testing & Certifications: NDT: MPI	LPI	Acid Etch	MCL: Chemical	Mechanical	Tooling
Baja California																										
Vescio Manufacturing International																										
Volare Engineering, S. de R. L. de C. V.	M	M	M		1																					
Well Allyn S. de R.L. de C.V.																										
Chihuahua																										
Altaser Aerospace	1	1	1	1		1		1															1			1
Atlas Aerospace		1																								
Bell Helicopter / Textron International Mexico S de RL de CV					1	1		1			1									1		1				
A.E. Petsche Co.																										
Arnprior Aerospace Inc.					1			1					1					1	1	1		1				
Cambrian Industries	1	1	1			1																				
Capsonic S.A. de C.V.																										
CAV Aerospace				1	1	1	1	1			1	1	1													
CAV Aerospace Limited - Ice Protection																										
Cessna Aircraft Chihuahua / Textron Aerospace de México. (grupo American Industries)							1																			
Fokker Aerostructures México								1												1						
HT-Mx Tratamientos Secundarios (Procesos Termicos HTMx SAPI de CV)											1	1	1													
Beechcraft (Grupo American Industries, S. A. de C. V.)	1	1	1		1	1	1	1		1	1	1	1							1						M
Honeywell Aerospace de México, S. A. de C. V.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
JBT AeroTech																										
Kaman Aerospace					1	1	1	1			1	1	1													
KeyTronic Juárez, S.A. de C.V.																										
L3 Crestview Aerospace Chihuahua Ops. (Grupo American Industries, S. A. de C. V.)	1	1	1	1	1	1	1	1																		
Labinal Power Systems de México, S. A. de C. V.			1	1	1																					
LISI AEROSPACE	1	1	1	1		1		1		1								1		1	1	1				
Safran Engineering Services Mexico					1	1																				
Servicios y Operaciones Integrales, S.A. de C.V.		1				1																			1	D+I/I+D/M
SGI de México, S. A. de C. V. (Electroswitch)																										
Sippican de México, S. de R. L. de C. V.																										
Metal Finishing Co.																		1	1	1	1	1	1			
EZAIR Interior Limited (Grupo American Industries, S.A. de C.V.)		1	1			1	1	1		1	1		1	1		1		1	1	M						1
The Nordam Group						1														1	1					
Tighitco Latinoamérica, S. A. de C. V.											1	1	1	1	1	1	1	1	1							
Zodiac Aerosafety Systems/Zodiac Aerevacuation Systems					1	1																				
Zodiac Elastomer of America/Amfuel (Grupo American Industries, S. A. de C. V.)																										
Zodiac Interconnect America/Icore International (Grupo American Industries, S. A. de C. V.)																										
Zodiac Lighting Solution/IDD Aeroespace (Grupo American Industries, S. A. de C. V.)		1				1																				
Zodiac Seat United States/Weber Aircraft (Grupo American Industries, S. A. de C. V.)																										
Zodiac Seat Shells LCC (Grupo American Industries, S. A. de C. V.)	1				1	1														1						

COMPANY	Transformation processes: Castings: Investment	Die	Sand	Joint processes: Soledring & welding	Adhesives	Others	Materials: Raw Materials: Material Range: Stainless Steel	Steel	300M or Equivalent	Aluminium	Titanium	Delran	Composites	Services: Maintenance Repair & Overhaul	Raw Material suppliers	Testing and Certifications Services	Ground Support & Air Field Equipment	Consultancy, Finance & Logistics	HR Manpower	Stock Solutions	Flight Training	Research, Design & development	Training Skills, Universities, collegues and institutes	Certifications: AS9100	AS9100B	NADCAP	ISO 9000:2000	ISO 9001:2000	ISO 9001:2008	FAA	DGAC	ITAR	MIL
Baja California																																	
Vescio Manufacturing International																																	
Volare Engineering, S. de R. L. de C. V.																			1			1	1	1					1				
Well Allyn S. de R.L. de C.V.																								1									
Chihuahua																																	
Altaser Aerospace				1			1	1		1	1			1						1				1								1	
Atlas Aerospace								1		1	1													1									
Bell Helicopter / Textron International Mexico S de RL de CV					1	1							1											1					1		1		
A.E. Petsche Co.																		1		1													
Arnprior Aerospace Inc.							1	1		1	1	1												1		1							
Cambrian Industries																								1				1					
Capsonic S.A. de C.V.																								1			1				1		
CAV Aerospace									1	1	1											1			1	1		1			1		
CAV Aerospace Limited - Ice Protection																																	
Cessna Aircraft Chihuahua / Textron Aerospace de México. (grupo American Industries)																																	
Fokker Aerostructures México					1					1			1						1					1	1					1	1	1	
HT-Mx Tratamientos Secundarios (Procesos Termicos HTMx SAPI de CV)																													1				
Beechcraft (Grupo American Industries, S. A. de C. V.)				1	1		1	1		1				1	M					1			1	1						1	1	1	
Honeywell Aerospace de México, S. A. de C. V.	1		1	1	1	1	1	1	1	1	1		1	1										1		1				1	1	1	
JBT AeroTech																																	
Kaman Aerospace					1					1															1	1	1				1		
KeyTronic Juárez, S.A. de C.V.																																	
L3 Crestview Aerospace Chihuahua Ops. (Grupo American Industries, S. A. de C. V.)							1	1		1	1																1						
Labinal Power Systems de México, S. A. de C. V.																						1		1					1		1	1	
LISI AEROSPACE							1			1	1														1	1					1		
Safran Engineering Services Mexico														1		1	1					1	1	1						1	1	1	
Servicios y Operaciones Integrales, S.A. de C.V.					D+I/I+D/M											1						1		1					1	1	1		
SGI de México, S. A. de C. V. (Electroswitch)																																	
Sippican de México, S. de R. L. de C. V.																																	
Metal Finishing Co.																										1							
EZAIR Interior Limited (Grupo American Industries, S.A. de C.V.)					1		1	1		1			1		1	1			1			1	1	1			1				1		
The Nordam Group										1	1		1											1		NDT					1		
Tighitco Latinoamérica, S. A. de C. V.																									1		1				1		
Zodiac Aerosafety Systems/Zodiac Aerevacuation Systems					1					1														1	1					1	1		
Zodiac Elastomer of America/Amfuel (Grupo American Industries, S. A. de C. V.)																															1		
Zodiac Interconnect America/Icore International (Grupo American Industries, S. A. de C. V.)																															1		
Zodiac Lighting Solution/IDD Aeroespace (Grupo American Industries, S. A. de C. V.)				1																				1							1	1	
Zodiac Seat United States/Weber Aircraft (Grupo American Industries, S. A. de C. V.)																															1		
Zodiac Seat Shells LCC (Grupo American Industries, S. A. de C. V.)					1		1			1			1									1									1		

1 Capabilities and Certifications
R Coatings
PPQ Chemical Processing
D Design
D&I Engineering + Design
TC Heat Treating
I+D Research and Development
M Manufacture
MRO Maintenance, Repair & Overhaul
EM Material Testing
END Nondestructive Testing
MNC y MS Non Conventional Machining and Surface Enhacement
S Welding

COMPANY	Aeroengines: Propelers/rotors/Power Plant[1] (Parts & components)	Fuselage: Nacelles/Pylons, Stabilizers	Aircrart Construction Assembly	Avionics[2]	Landing Gear	Wings	Computer System Softwares / Information systems	Electrical power/Airborne Auxiliary Power	Electrical Cable Accessories / Harnesses	Aircraft Interior Equipment Furnishing	Autoflight Systems and Equipment	Communication Systems and equipment	Control Systems & Equipment/ Flight Controls	Fuel & Fuel Systems	Hydraulic Systems & Hydraulic Power	Indicating/ Recording Systems	Safety & Survival Equpment	Air Conditioning	Fire Protection / Ice & Rain Protection	Lights	Oxygen	Pheumatic	Vaccum	Water / Waste / Water Ballast	Windows	Central Maintenance System	Inert Gas System	Cargo and Accesory Systems	Fasteners	Space systems & equipment	Armaments and Related Equipment: Missile Related Products	Technical Textils	Others
Coahuila																																	
Exova de México, S. A. de C. V.																																	
GSC Internacional, S. de R. L. de C. V.																																	
Howmet de México, S. de R. L. de C. V.																																	
Parkway Productos de México, S. de R. L. de C. V.	M																																
Saltillo Jet Center, S. de R. L. de C. V.				MRO																													
Senior Aerospace Ketema, S. A. de C. V. (Manufacturas Zapalinamé, S. A. de C. V.)	M																																
Unison Industries, S. A. de C. V.	M				MRO				M								MRO																
Intelligent Sourcing Solutions SA de CV																																	
Kimball Solutions (Agro Industrial DUZA S.A. de C.V.)																																	
KIRBYMEx S.A. de C.V.																																	
Metalmarq (Impulsora Comercial de la Laguna, SA de CV)			M																														
Antair, S.A. de C.V.																																	
Durham Machining Works Mexico SA de CV																																	
Distrito Federal																																	
Aerovías de México, S. A. de C. V.	MRO			MRO	MRO	MRO		MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO				MRO											
Mexicana MRO Services																																	
Eurocopter de México S. A. de C. V.																																	
Gima Aerospace, S. de R. L. de C. V.	MRO	MRO		MRO						MRO																							
Safran de Mexico																																	
Senermex, Ingeniería y Sistemas, S. A. de C. V.	I+D	I+D	I+D	I+D	I+D	I+D	I+D	I+D	I+D		I+D	I+D	I+D					I+D										I+D		D+I/I+D/M	D+I/I+D/M		I+D
Servicio Técnico Aéreo de México, S. A.																																	
Tata Technologies de México, S. A. de C. V.	4	4			4	4	4	4	4	4				4	4	4		4		4					4						4		
Durango																																	
Draka Durango S de RL de CV									M																								
Tecnología Avanzada en Composite S.A. DE C.V.		M				M				M								M							M								
Estado de México																																	
Ingenieros en Aeronautica y Arquitectos Interioristas de Aeronaves S.A. de C.V.	MRO		M+D					MRO	MRO	M								MRO	M						MRO				MRO				1
Aerovics, S. A. de C. V.																																	1
Centro de Servicio Avemex, S. A. de C. V.	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO					
Procesos Control Numérico Computarizado, S.A. de C.V.	M				M																												
Raytheon Aircraft Services México, S. de R. L. de C. V.	MRO+D	MRO		MRO	MRO+D	MRO	1	1	1			MRO																					
Representaciones Asesoría, Mantenimiento y Servicios Anexos, S. A. de C. V (RAMSA)																																	
Indumet, S.A de C.V.	M	M	M		M	M								M															M				
Tecniflex Ansorge de México y Compañía, S. en C.S. de C.V.																																	M/I+D
Guanajuato																																	
Bodycote Thermal Processing México, LTD										M																							
Rototekx, S. de R. L.	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO			MRO	MRO	MRO	MRO	MRO															
Servicios Integrales Aeronáuticos, S. A. de C. V.										M/I+D							D+I																

COMPANY	Machinery Manufacture -CNC and Precision Engineering: Rough – Turning	Rough – Milling	Finish – Turning	Finish – Honing	Computer system softwares: MBD – CATIA V5	CAD / CAM / CAE	Forging & Aerostructure fabrication forming: Forging	Labor Work: Deburring	Shot Peen	Grit Blasting (Surface Prep)	Treatment Processes: Heat Treat – Quench & Temper	Stress Relieving	Solution + Age	Surface Treatments – Chrome Plate	HVOF Spray	Cad Plating	MCAC	Sulfuric Anodise	Chromic Anodise	Prime & Paint	Testing & Certifications: NDT – MPI	LPI	Acid Etch	MCL – Chemical	MCL – Mechanical	Tooling	Transformation processes: Castings – Investment	Die	Sand	Joint processes – Soledring & welding	Adhesives	Others
Coahuila																																
Exova de México, S. A. de C. V.																																
GSC Internacional, S. de R. L. de C. V.																																
Howmet de México, S. de R. L. de C. V.																																
Parkway Productos de México, S. de R. L. de C. V.																																
Saltillo Jet Center, S. de R. L. de C. V.																																
Senior Aerospace Ketema, S. A. de C. V. (Manufacturas Zapalinamé, S. A. de C. V.)																																
Unison Industries, S. A. de C. V.												1									1	1	1							1	1	
Intelligent Sourcing Solutions SA de CV	1	1	1																	1									1	1		
Kimball Solutions (Agro Industrial DUZA S.A. de C.V.)	1	1	1	1		1	1																							1		
KIRBYMEx S.A. de C.V.	1	1	1			1		1		1																				1		1
Metalmarq (Impulsora Comercial de la Laguna, SA de CV)	1	1	1	1	1			1				1								1										1		
Antair, S.A. de C.V.																																
Durham Machining Works Mexico SA de CV	1	1	1					1																								
Distrito Federal																																
Aerovías de México, S. A. de C. V.									MRO			1									1	1	1			MRO				1	1	
Mexicana MRO Services																																
Eurocopter de México S. A. de C. V.																																
Gima Aerospace, S. de R. L. de C. V.																																
Safran de Mexico																																
Senermex, Ingeniería y Sistemas, S. A. de C. V.																										D+I/I+D						
Servicio Técnico Aéreo de México, S. A.																																
Tata Technologies de México, S. A. de C. V.					1	1																										
Durango																																
Draka Durango S de RL de CV																																1
Tecnología Avanzada en Composite S.A. DE C.V.		1				1					1					1										1					1	
Estado de México																																
Ingenieros en Aeronautica y Arquitectos Interioristas de Aeronaves S.A. de C.V.																																
Aerovics, S. A. de C. V.																																
Centro de Servicio Avemex, S. A. de C. V.					1			MRO												1												
Procesos Control Numérico Computarizado, S.A. de C.V.	1		1				1																									
Raytheon Aircraft Services México, S. de R. L. de C. V.																																
Representaciones Asesoría, Mantenimiento y Servicios Anexos, S. A. de C. V (RAMSA)																																
Indumet, S.A de C.V.	1	1	1	1	1	1	1	1						1				1	1		1	1		1	1	M				1		
Tecniflex Ansorge de México y Compañía, S. en C.S. de C.V.												1		1					1	1						MRO						1
Guanajuato																																
Bodycote Thermal Processing México, LTD																																
Rototekx, S. de R. L.																																
Servicios Integrales Aeronáuticos, S. A. de C. V.																																

COMPANY	Materials: Raw Materials – Material Range – Stainless Steel	Steel	300M or Equivalent	Aluminium	Titanium	Delran	Composites	Services: Maintenance Repair & Overhaul	Raw Material suppliers	Testing and Certifications Services	Ground Support & Air Field Equipment	Consultancy, Finance & Logistics	HR Manpower	Stock Solutions	Flight Training	Research, Design & development	Training Skills, Universities, collegues and institutes	Certifications: AS9100	AS9100B	NADCAP	ISO 9000:2000	ISO 9001:2000	ISO 9001:2008	FAA	DGAC	ITAR	MIL
Coahuila																											
Exova de México, S. A. de C. V.																											
GSC Internacional, S. de R. L. de C. V.																											
Howmet de México, S. de R. L. de C. V.																											
Parkway Productos de México, S. de R. L. de C. V.												1															
Saltillo Jet Center, S. de R. L. de C. V.								1																			
Senior Aerospace Ketema, S. A. de C. V. (Manufacturas Zapalinamé, S. A. de C. V.)																											
Unison Industries, S. A. de C. V.	1	1		1	1		1										1									1	1
Intelligent Sourcing Solutions SA de CV	1	1		1														1									
Kimball Solutions (Agro Industrial DUZA S.A. de C.V.)	1	1		1	1		1											1					1				
KIRBYMEx S.A. de C.V.	1	1																1									
Metalmarq (Impulsora Comercial de la Laguna, SA de CV)	1	1		1	1													1					1				
Antair, S.A. de C.V.								MRO		MRO	MRO			MRO													
Durham Machining Works Mexico SA de CV																		1									
Distrito Federal																											
Aerovías de México, S. A. de C. V.	1	1		1	1		1	1									1							1	1		
Mexicana MRO Services								1																			
Eurocopter de México S. A. de C. V.								1																			
Gima Aerospace, S. de R. L. de C. V.																											
Safran de Mexico																											
Senermex, Ingeniería y Sistemas, S. A. de C. V.										1		1	1			1	1		1			1					
Servicio Técnico Aéreo de México, S. A.								1																			
Tata Technologies de México, S. A. de C. V.												1	1			1	1	1									
Durango																											
Draka Durango S de RL de CV			1															1									
Tecnología Avanzada en Composite S.A. DE C.V.							1	MRO	1														1				
Estado de México																											
Ingenieros en Aeronautica y Arquitectos Interioristas de Aeronaves S.A. de C.V.								1	1																		
Aerovics, S. A. de C. V.								1														1					
Centro de Servicio Avemex, S. A. de C. V.								1	1		1	1	1	1		1	1							1	1		
Procesos Control Numérico Computarizado, S.A. de C.V.																											
Raytheon Aircraft Services México, S. de R. L. de C. V.								1																			
Representaciones Asesoría, Mantenimiento y Servicios Anexos, S. A. de C. V (RAMSA)								1	1		1																
Indumet, S.A de C.V.	1	1		1	1				1					1				1					1				
Tecniflex Ansorge de México y Compañía, S. en C.S. de C.V.							1	1								1							1				
Guanajuato																											
Bodycote Thermal Processing México, LTD																											
Rototekx, S. de R. L.								1								1									1		
Servicios Integrales Aeronáuticos, S. A. de C. V.																1						1					

1 Capabilities and Certifications
R Coatings
PPQ Chemical Processing
D Design
D&I Engineering + Design
TC Heat Treating
I+D Research and Development
M Manufacture
MRO Maintenance, Repair & Overhaul
EM Material Testing
END Nondestructive Testing
MNC y MS Non Conventional Machining and Surface Enhacement
S Welding

COMPANY	Aeroengines: Propelers/rotors/Power Plant[1](Parts & components)	Fuselage: Nacelles/Pylons, Stabilizers	Aircrart Construction Assembly	Avionics[2]	Landing Gear	Wings	Computer System Softwares / Information systems	Electrical power/Airborne Auxiliary Power	Electrical Cable Accessories / Harnesses	Aircraft Interior Equipment Furnishing	Autoflight Systems and Equipment	Communication Systems and equipment	Control Systems & Equipment/ Flight Controls	Fuel & Fuel Systems	Hydraulic Systems & Hydraulic Power	Indicating/ Recording Systems	Safety & Survival Equipment	Air Conditioning	Fire Protection / Ice & Rain Protection	Lights	Oxygen	Pheumatic	Vaccum	Water / Waste / Water Ballast	Windows	Central Maintenance System	Inert Gas System	Cargo and Accesory Systems	Fasteners	Space systems & equipment	Armaments and Related Equipment: Missile Related Products	Technical Textils	Others
Jalisco																																	
Aeroriel, S.A. de C.V.																																	
AVNTK, S. C.				1			1																										
Benchmark Electronics de México, S. de R. L. de C. V.				1																													
Flextronics Manufacturing México, S. A. de C. V.				1								1	1							1													1
Hydra Technologies de México, S. A. de C. V.	1		1	1		1			1		1																						
Jabil Circuit de México, S. de R. L. de C. V.				1																											1		
Sanmina-SCI Systems de México. S.A. de C.V.				1			1						1																				1
Vertical Force México																																	
Zoltek de México, S.A. de C.V.																																	
X-Qna																																	
Soluciones Tecnologicas							1																										1
Pounce Consulting				1					1																								
Interlatin							1																										
Foxconn				1					1			1																					
TATA Technologies																																	
Mercury Aircraft Mexico	1																																
Nuevo León																																	
Aero Alterno, S.A. de C.V		MRO			MRO	MRO				MRO			MRO	MRO	MRO		MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO			
Aero Corporación Azor, S.A. de C.V.	MRO	MRO		MRO	MRO	MRO		MRO	MRO	MRO		MRO	MRO	MRO	MRO		MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO			MRO	MRO			MRO	1
Aeronaves Dinámicas del Norte, S.A. de C.V.																																	
Aeroservicios Especializados, S.A. de C.V.																																	
Aeroservicios Técnicos Regiomontanos, S.A. de C.V.	MRO									MRO																							
Aerovitro, S.A. de C.V	MRO	MRO		MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO							1
Ankura Desarrollos Aeronáuticos, S.A. de C.V.						I+D																											
Exova de México, S. de R.L. de C.V.																																	
EZI Metales, S.A. de C.V.		M		M																									M				
Demaq Technologies, S.A. de C.V.																																	1
Full Services NDT, S.A. de C.V.	MRO	MRO			MRO	MRO																											1
FRISA forjados, S.A. de C.V.	M																																
Hawker Beech Services de México, S. de R.L. de C.V.	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO		MRO		MRO					
HEMAQ, S.A. de C.V.	I+D	I+D																															
United Technologies Corporation Aerospace Systems, S. de R.L. de C.V.								M																									
Jaiter, S. A. de C. V.	M																																
Maquinados Industriales Mitras, S.A. de C.V.																																	1
Monterrey Aerospace México, S. de R.L. de C.V.		M																															1
Metalinspec, S.A. de C.V.																																	
Metrolab, S.A. de C.V.																																	1
Monterrey Jet Center, S.A. de C.V.	MRO			MRO						MRO																			M				1

COMPANY	Machinery Manufacture -CNC and Precision Engineering: Rough		Finish		Computer system softwares: MBD		Forging & Aerostructure fabrication forming	Labor Work			Treatment Processes: Heat Treat			Surface Treatments							Testing & Certifications: NDT			MCL		Tooling	Transformation processes: Castings			Joint processes		
	Turning	Milling	Turning	Honing	CATIA V5	CAD / CAM / CAE	Forging	Deburring	Shot Peen	Grit Blasting (Surface Prep)	Quench & Temper	Stress Relieving	Solution + Age	Chrome Plate	HVOF Spray	Cad Plating	MCAC	Sulfuric Anodise	Chromic Anodise	Prime & Paint	MPI	LPI	Acid Etch	Chemical	Mechanical		Investment	Die	Sand	Soledring & welding	Adhesives	Others
Jalisco																																
Aeroriel, S.A. de C.V.																																
AVNTK, S. C.																																
Benchmark Electronics de México, S. de R. L. de C. V.																																
Flextronics Manufacturing México, S. A. de C. V.																																
Hydra Technologies de México, S. A. de C. V.																																
Jabil Circuit de México, S. de R. L. de C. V.																																
Sanmina-SCI Systems de México. S.A. de C.V.																1																
Vertical Force México	1	1				1																										
Zoltek de México, S.A. de C.V.																																
X-Qna																									1	1						
Soluciones Tecnologicas					1																1	1	1			1						
Pounce Consulting																																
Interlatin																										1						
Foxconn																																
TATA Technologies					1	1															1											
Mercury Aircraft Mexico																																1
Nuevo León																																
Aero Alterno, S.A. de C.V																																
Aero Corporación Azor, S.A. de C.V.														1		1			1	1		1			1							
Aeronaves Dinámicas del Norte, S.A. de C.V.																																
Aeroservicios Especializados, S.A. de C.V.																																
Aeroservicios Técnicos Regiomontanos, S.A. de C.V.																																
Aerovitro, S.A. de C.V																																
Ankura Desarrollos Aeronáuticos, S.A. de C.V.																																
Exova de México, S. de R.L. de C.V.											1	1	1									1	1	1	1							
EZI Metales, S.A. de C.V.			1																	1						1				1		
Demaq Technologies, S.A. de C.V.						1																				1						
Full Services NDT, S.A. de C.V.																					1	1										
FRISA forjados, S.A. de C.V.	1		1		1	1	1	1		1	1	1	1								1	1	1		1							
Hawker Beech Services de México, S. de R.L. de C.V.																																
HEMAQ, S.A. de C.V.	1	1	1			1																										
United Technologies Corporation Aerospace Systems, S. de R.L. de C.V.																																
Jaiter, S. A. de C. V.	1	1	1	1																												
Maquinados Industriales Mitras, S.A. de C.V.		1																												1		
Monterrey Aerospace México, S. de R.L. de C.V.																																
Metalinspec, S.A. de C.V.																							1	1	1							
Metrolab, S.A. de C.V.																					1	1	1		1							
Monterrey Jet Center, S.A. de C.V.																				MRO	MRO											

COMPANY	Materials: Raw Materials: Material Range							Services										Certifications									
	Stainless Steel	Steel	300M or Equivalent	Aluminium	Titanium	Delran	Composites	Maintenance Repair & Overhaul	Raw Material suppliers	Testing and Certifications Services	Ground Support & Air Field Equipment	Consultancy, Finance & Logistics	HR Manpower	Stock Solutions	Flight Training	Research, Design & development	Training Skills, Universities, collegues and institutes	AS9100	AS9100B	NADCAP	ISO 9000:2000	ISO 9001:2000	ISO 9001:2008	FAA	DGAC	ITAR	MIL
Jalisco																											
Aeroriel, S.A. de C.V.								1																			
AVNTK, S. C.										1								1									
Benchmark Electronics de México, S. de R. L. de C. V.																		1			1	1					
Flextronics Manufacturing México, S. A. de C. V.								1				1						1									
Hydra Technologies de México, S. A. de C. V.							1																				
Jabil Circuit de México, S. de R. L. de C. V.												1				1		1			1	1					
Sanmina-SCI Systems de México. S.A. de C.V.										1		1				1		1	1		1						
Vertical Force México		1		1	1	1	1																				
Zoltek de México, S.A. de C.V.							1											1			1						
X-Qna																											
Soluciones Tecnologicas								1		1						1		1									
Pounce Consulting																		1									
Interlatin										1								1									
Foxconn																		1									
TATA Technologies										1						1		1				1					
Mercury Aircraft Mexico																		1			1						
Nuevo León																											
Aero Alterno, S.A. de C.V								1		1		1				1									1		
Aero Corporación Azor, S.A. de C.V.				1				1	1	1	1	1	1	1											1		
Aeronaves Dinámicas del Norte, S.A. de C.V.								1				1													1		
Aeroservicios Especializados, S.A. de C.V.								1				1													1		
Aeroservicios Técnicos Regiomontanos, S.A. de C.V.								1			1	1													1		
Aerovitro, S.A. de C.V								1		1	1														1		
Ankura Desarrollos Aeronáuticos, S.A. de C.V.																											
Exova de México, S. de R.L. de C.V.										1										NDT/ MT/HT /CHP							
EZI Metales, S.A. de C.V.																		1					1				
Demaq Technologies, S.A. de C.V.																		1									
Full Services NDT, S.A. de C.V.										1															1		
FRISA forjados, S.A. de C.V.	1	1	1	1	1													1	1	HT		1	1				
Hawker Beech Services de México, S. de R.L. de C.V.								1		1	1	1	1			1								1	1		
HEMAQ, S.A. de C.V.												1	1			1	1	1					1				
United Technologies Corporation Aerospace Systems, S. de R.L. de C.V.													1														
Jaiter, S. A. de C. V.	1	1		1	1													1					1				
Maquinados Industriales Mitras, S.A. de C.V.																		1									
Monterrey Aerospace México, S. de R.L. de C.V.							1	1				1						1					1		1		
Metalinspec, S.A. de C.V.										1										HT/ MT							
Metrolab, S.A. de C.V.																				MT							
Monterrey Jet Center, S.A. de C.V.								1		1						1								1	1		

1 Capabilities and Certifications
R Coatings
PPQ Chemical Processing
D Design
D&I Engineering + Design
TC Heat Treating
I+D Research and Development
M Manufacture
MRO Maintenance, Repair & Overhaul
EM Material Testing
END Nondestructive Testing
MNC y MS Non Conventional Machining and Surface Enhacement
S Welding

COMPANY	Aeroengines: Propelers/rotors/Power Plant (Parts & components)	Fuselage: Nacelles/Pylons, Stabilizers	Aircrart Construction Assembly	Avionics[2]	Landing Gear	Wings	Computer System Softwares / Information systems	Electrical power/Airborne Auxiliary Power	Electrical Cable Accessories / Harnesses	Aircraft Interior Equipment Furnishing	Autoflight Systems and Equipment	Communication Systems and equipment	Control Systems & Equipment/ Flight Controls	Fuel & Fuel Systems	Hydraulic Systems & Hydraulic Power	Indicating/ Recording Systems	Safety & Survival Equipment
Nuevo León																	
Parker Hannifin de México S.A. De C.V.																	
Tecnología, Procesos y Maquinados, S.A. de C.V.			M														
Transpaís Aéreo, S.A. de C.V.	MRO	MRO		MRO													
Wyman Gordon Monterrey, S de R.L. de C.V.	M																
Conductores Monterrey S.A. de C.V.								M	M								
Aviones y Helicópteros del Norte, S.A. de C.V.	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO	MRO
Unmanned Systems Technology International, S.A. de C.V.	I+D	I+D/ M	I+D/ M	I+D/ M	I+D	I+D/ M	I+D/ M	I+D/ M			I+D/ M	I+D/ M	I+D/ M	I+D/ M	I+D/ M		
Noranco México- Monterrey división																	
Carbones Industriales Mexicanos, S.A. de C.V.																	
Puebla																	
AritexCading México, S. A. de C. V.		M/ I+D			M	M											
Avipro Fabricantes, S. A. de C. V.		M	M														
Querétaro																	
A.E. Petsche Co. (Grupo American Industries, S. A. de C. V.)								M	M								
Aernnova Aerospace México, S. A. de C. V. (Aernnova Aerospace / Aernnova México)		M	M			M											
Aernnova Componentes México, S. A. de C.V.		M	M														
AxON Interconex, S.A. de C.V.								M/ I+D	M								
Bombardier Aerospace México, S. A. de C. V.	M	M		M				M	M			M					
Brovedani Reme México																	
Centro de Ingeniería Avanzada en Turbomáquinas, S. de R. L. de C. V. (GE-IQ)	M																
Crio, S. A. de C.V.																	
Curtiss Wright Controls Flyght Systems México			M,I			M,I							M,I				
ElimcoPrettl Aerospace								M	M/ I+D								
Especialistas en Turbopartes División Aeronáutica S. A. de C. V.	M				M												
Eurocopter de México Planta Queretaro S. A. de C. V.																	
GONZALEZ AEROSPACE																	
Hyrsa American Steel Crowners	M					M											
ITP DISEÑO	D+I			D+I					D+I					D+I			
ITP FABRICACION	M																
ITP Ingenieria y Fabricación, S.A. de C.V.	M, D+I			D+I					D+I					M, D+I, MRO	MRO		
ITP TUBOS	M								D+I					M, D+I			
ITR Turborreactores	M													MRO	MRO		
Alaxia Aerosystems					M												
Meggitt Aircraft Braking Systems Querétaro, S. de R. L. de C. V.									M								
Messier Services Americas, S.A. de C.V.	M				MRO										MRO		
PCC Aerostructures Mexico, S.A. de C.V.		M															
Snecma America Engine Services, S. A. de C. V. (Grupo Safran)	M/ MRO																
SNECMA México , S.A. de C.V. (Grupo Safran)	M																

COMPANY	Air Conditioning	Fire Protection / Ice & Rain Protection	Lights	Oxygen	Pneumatic	Vaccum	Water / Waste / Water Ballast	Windows	Central Maintenance System	Inert Gas System	Cargo and Accessory Systems	Fasteners	Space systems & equipment	Armaments and Related Equipment: Missile Related Products	Technical Textils	Others	Machinery Manufacture -CNC and Precision Engineering: Rough: Turning	Machinery Manufacture -CNC and Precision Engineering: Rough: Milling
Nuevo León																		
Parker Hannifin de México S.A. De C.V.					M													
Tecnología, Procesos y Maquinados, S.A. de C.V.																	1	1
Transpaís Aéreo, S.A. de C.V.																		
Wyman Gordon Monterrey, S de R.L. de C.V.																		
Conductores Monterrey S.A. de C.V.																		
Aviones y Helicópteros del Norte, S.A. de C.V.	MRO	MRO	MRO	MRO	MRO	MRO	MRO		MRO		MRO							
Unmanned Systems Technology International, S.A. de C.V.																		
Noranco México- Monterrey división																1	1	1
Carbones Industriales Mexicanos, S.A. de C.V.																1		
Puebla																		
AritexCading México, S. A. de C. V.								M										
Avipro Fabricantes, S. A. de C. V.																		
Querétaro																		
A.E. Petsche Co. (Grupo American Industries, S. A. de C. V.)																		
Aernnova Aerospace México, S. A. de C. V. (Aernnova Aerospace / Aernnova México)																		1
Aernnova Componentes México, S. A. de C.V.																		
AxON Interconex, S.A. de C.V.																M/ I+D		
Bombardier Aerospace México, S. A. de C. V.																		
Brovedani Reme México																	1	1
Centro de Ingeniería Avanzada en Turbomáquinas, S. de R. L. de C. V. (GE-IQ)																		
Crio, S. A. de C.V.																		
Curtiss Wright Controls Flyght Systems México											M,I							1
ElimcoPrettl Aerospace																		
Especialistas en Turbopartes División Aeronáutica S. A. de C. V.																	1	1
Eurocopter de México Planta Queretaro S. A. de C. V.																M		
GONZALEZ AEROSPACE													M/ I+D			M/ I+D		
Hyrsa American Steel Crowners																M	1	1
ITP DISEÑO																		
ITP FABRICACION							M			M							1	1
ITP Ingenieria y Fabricación, S.A. de C.V.	M, D+I					MRO											1	1
ITP TUBOS	M, D+I																1	1
ITR Turborreactores						M											1	1
Alaxia Aerosystems																	1	1
Meggitt Aircraft Braking Systems Querétaro, S. de R. L. de C. V.																M	1	1
Messier Services Americas, S.A. de C.V.																	1	1
PCC Aerostructures Mexico, S.A. de C.V.																M		1
Snecma America Engine Services, S. A. de C. V. (Grupo Safran)																		
SNECMA México , S.A. de C.V. (Grupo Safran)																		

COMPANY	Finish: Turning	Finish: Honing	Computer system softwares: MBD: CATIA V5	CAD / CAM / CAE	Forging & Aerostructure fabrication forming: Forging	Labor Work: Deburring	Shot Peen	Grit Blasting (Surface Prep)	Treatment Processes: Heat Treat: Quench & Temper	Stress Relieving	Solution + Age	Surface Treatments: Chrome Plate	HVOF Spray	Cad Plating	MCAC	Sulfuric Anodise	Chromic Anodise	Prime & Paint	Testing & Certifications: NDT: MPI	LPI	Acid Etch	MCL: Chemical	Mechanical	Tooling
Nuevo León																								
Parker Hannifin de México S.A. De C.V.	1																							
Tecnología, Procesos y Maquinados, S.A. de C.V.	1		1	1																				
Transpaís Aéreo, S.A. de C.V.																								
Wyman Gordon Monterrey, S de R.L. de C.V.																								
Conductores Monterrey S.A. de C.V.																								
Aviones y Helicópteros del Norte, S.A. de C.V.																								
Unmanned Systems Technology International, S.A. de C.V.			1	1																				
Noranco México- Monterrey división	1		1	1			1		1			1		1		1	1	1		1	1			
Carbones Industriales Mexicanos, S.A. de C.V.																								
Puebla																								
AritexCading México, S. A. de C. V.					1							1					1	1						M/ I+D
Avipro Fabricantes, S. A. de C. V.																								
Querétaro																								
A.E. Petsche Co. (Grupo American Industries, S. A. de C. V.)																								
Aernnova Aerospace México, S. A. de C. V. (Aernnova Aerospace / Aernnova México)			1				1		1	1	1					1	1			1				
Aernnova Componentes México, S. A. de C.V.																								
AxON Interconex, S.A. de C.V.																								
Bombardier Aerospace México, S. A. de C. V.																								
Brovedani Reme México	1	1	1	1																				
Centro de Ingeniería Avanzada en Turbomáquinas, S. de R. L. de C. V. (GE-IQ)																								
Crio, S. A. de C.V.									1	1														
Curtiss Wright Controls Flyght Systems México			1	1	1	1	1											1		1				
ElimcoPrettl Aerospace																								
Especialistas en Turbopartes División Aeronáutica S. A. de C. V.		1	1	1		1																		
Eurocopter de México Planta Queretaro S. A. de C. V.			1	1			1									1	1	1	1	1				
GONZALEZ AEROSPACE																								M
Hyrsa American Steel Crowners	1	1										1	1	1										
ITP DISEÑO			1	1																				
ITP FABRICACION	1		1	1		1		1	1	1	1							1						
ITP Ingenieria y Fabricación, S.A. de C.V.	1	1	1	1		1	1	1		1		1				1	1	1	1	1	1	1	1	
ITP TUBOS	1	1				1														1		1		
ITR Turborreactores	1						1	1		1		1				1	1	1	1	1	1	1		
Alaxia Aerosystems	1	1	1	1																				
Meggitt Aircraft Braking Systems Querétaro, S. de R. L. de C. V.	1																							
Messier Services Americas, S.A. de C.V.	1		1	1			1	1	1								1	1						
PCC Aerostructures Mexico, S.A. de C.V.																								
Snecma America Engine Services, S. A. de C. V. (Grupo Safran)																								
SNECMA México , S.A. de C.V. (Grupo Safran)																					1			

COMPANY	Transformation processes: Castings: Investment	Die	Sand	Joint processes: Soledring & welding	Adhesives	Others	Materials: Raw Materials: Material Range: Stainless Steel	Steel	300M or Equivalent	Aluminium	Titanium	Delran	Composites
Nuevo León													
Parker Hannifin de México S.A. De C.V.													
Tecnología, Procesos y Maquinados, S.A. de C.V.				1			1			1	1		
Transpaís Aéreo, S.A. de C.V.													
Wyman Gordon Monterrey, S de R.L. de C.V.													
Conductores Monterrey S.A. de C.V.													
Aviones y Helicópteros del Norte, S.A. de C.V.													
Unmanned Systems Technology International, S.A. de C.V.						1							1
Noranco México- Monterrey división				1			1			1			
Carbones Industriales Mexicanos, S.A. de C.V.													
Puebla													
AritexCading México, S. A. de C. V.				1			1	1		1			
Avipro Fabricantes, S. A. de C. V.													
Querétaro													
A.E. Petsche Co. (Grupo American Industries, S. A. de C. V.)													
Aernnova Aerospace México, S. A. de C. V. (Aernnova Aerospace / Aernnova México)										1	1		1
Aernnova Componentes México, S. A. de C.V.													
AxON Interconex, S.A. de C.V.				1									
Bombardier Aerospace México, S. A. de C. V.													1
Brovedani Reme México													
Centro de Ingeniería Avanzada en Turbomáquinas, S. de R. L. de C. V. (GE-IQ)													
Crio, S. A. de C.V.													
Curtiss Wright Controls Flyght Systems México							1			1	1		
ElimcoPrettl Aerospace													
Especialistas en Turbopartes División Aeronáutica S. A. de C. V.							1			1	1		
Eurocopter de México Planta Queretaro S. A. de C. V.							1			1	1		
GONZALEZ AEROSPACE													
Hyrsa American Steel Crowners							1	1	1	1	1		
ITP DISEÑO													
ITP FABRICACION				1			1						
ITP Ingenieria y Fabricación, S.A. de C.V.				1			1	1	1	1	1		
ITP TUBOS				1			1	1	1	1	1		
ITR Turborreactores				1			1	1	1	1	1		
Alaxia Aerosystems								1		1	1		
Meggitt Aircraft Braking Systems Querétaro, S. de R. L. de C. V.													
Messier Services Americas, S.A. de C.V.													
PCC Aerostructures Mexico, S.A. de C.V.													
Snecma America Engine Services, S. A. de C. V. (Grupo Safran)													
SNECMA México , S.A. de C.V. (Grupo Safran)													

COMPANY	Services: Maintenance Repair & Overhaul	Raw Material suppliers	Testing and Certifications Services	Ground Support & Air Field Equipment	Consultancy, Finance & Logistics	HR Manpower	Stock Solutions	Flight Training	Research, Design & development	Training Skills, Universities, collegues and institutes	Certifications: AS9100	AS9100B	NADCAP	ISO 9000:2000	ISO 9001:2000	ISO 9001:2008	FAA	DGAC	ITAR	MIL
Nuevo León																				
Parker Hannifin de México S.A. De C.V.											1									
Tecnología, Procesos y Maquinados, S.A. de C.V.											1					1				
Transpaís Aéreo, S.A. de C.V.																		1		
Wyman Gordon Monterrey, S de R.L. de C.V.																				
Conductores Monterrey S.A. de C.V.											1					1				
Aviones y Helicópteros del Norte, S.A. de C.V.	1		1	1	1	1			1									1		
Unmanned Systems Technology International, S.A. de C.V.									1		1									
Noranco México- Monterrey división											1		1							
Carbones Industriales Mexicanos, S.A. de C.V.											1									
Puebla																				
AritexCading México, S. A. de C. V.																	1			
Avipro Fabricantes, S. A. de C. V.		M			M		M													
Querétaro																				
A.E. Petsche Co. (Grupo American Industries, S. A. de C. V.)											1					1				
Aernnova Aerospace México, S. A. de C. V. (Aernnova Aerospace / Aernnova México)													NDT/ HT/ CHP			1		1		
Aernnova Componentes México, S. A. de C.V.																				
AxON Interconex, S.A. de C.V.									1	1	1					1				
Bombardier Aerospace México, S. A. de C. V.																1				
Brovedani Reme México																1				
Centro de Ingeniería Avanzada en Turbomáquinas, S. de R. L. de C. V. (GE-IQ)						1			1	1										
Crio, S. A. de C.V.																1				
Curtiss Wright Controls Flyght Systems México		1							1		1		CHP					1		
ElimcoPrettl Aerospace												1				1				
Especialistas en Turbopartes División Aeronáutica S. A. de C. V.												1				1				
Eurocopter de México Planta Queretaro S. A. de C. V.													NDT/ CHP			1				
GONZALEZ AEROSPACE											1					1				
Hyrsa American Steel Crowners									1											
ITP DISEÑO	1		1	1					1											
ITP FABRICACION			1																	
ITP Ingenieria y Fabricación, S.A. de C.V.	1		1	1					1		1		NDT/ MT/ CHP/ NM&SE	1		1	1	1		
ITP TUBOS									1		1					1		1		
ITR Turborreactores	1		1								1						1	1		
Alaxia Aerosystems														1						
Meggitt Aircraft Braking Systems Querétaro, S. de R. L. de C. V.																1				
Messier Services Americas, S.A. de C.V.	1																1	1		
PCC Aerostructures Mexico, S.A. de C.V.																1				
Snecma America Engine Services, S. A. de C. V. (Grupo Safran)	1																1	1		
SNECMA México , S.A. de C.V. (Grupo Safran)																1				

1 Capabilities and Certifications
R Coatings
PPQ Chemical Processing
D Design
D&I Engineering + Design
TC Heat Treating
I+D Research and Development
M Manufacture
MRO Maintenance, Repair & Overhaul
EM Material Testing
END Nondestructive Testing
MNC y MS Non Conventional Machining and Surface Enhancement
S Welding

COMPANY	Aeroengines: Propelers/rotors/Power Plant (Parts & components)	Fuselage: Nacelles/Pylons, Stabilizers	Aircrart Construction Assembly	Avionics[2]	Landing Gear	Wings	Computer System Softwares / Information systems	Electrical power/Airborne Auxiliary Power	Electrical Cable Accessories / Harnesses	Aircraft Interior Equipment Furnishing	Autoflight Systems and Equipment	Communication Systems and equipment	Control Systems & Equipment/ Flight Controls	Fuel & Fuel Systems	Hydraulic Systems & Hydraulic Power	Indicating/ Recording Systems	Safety & Survival Equipment	Air Conditioning	Fire Protection / Ice & Rain Protection	Lights	Oxygen	Pheumatic	Vaccum	Water / Waste / Water Ballast	Windows	Central Maintenance System	Inert Gas System	Cargo and Accesory Systems	Fasteners	Space systems & equipment	Armaments and Related Equipment: Missile Related Products	Technical Textils	Others
Querétaro																																	
Southwest United Galnik S.A. de C.V.					M																												
Tecnum Service, S. A. de C. V.					M																												
Thyssenkrupp Aerospace México																																	M
AAMEC		D+I+M	D+I+M		D+I+M	D+I+M																											
Dishon Limited	M		M																														M
Dishon Limited																																	
San Luis Potosí																																	
Aearo Technologies de México, S. A. de C. V.		M																															1
Comercializadora del Centro Bonanza, S. A. de C. V.																																	
GKN Aerospace San Luis Potosí, S. de R. L. de C. V																																	
Hitchiner Manufacturing Company de México, S. de R. L. de C. V.	M																																
Tighitco Latinoamérica, S. A. de C. V.	M	M								M				M			M												M			M	1
Sonora																																	
Acra Aerospace	M																																
Consolidated Precision Products Nogales																																	M
Cadence Aerospace	M								M																								
American Precision Assemblers									M	M										M													M
Amphenol Optimize México, S. A. de C. V.									M																						M		M
Arrow Electronics									M																								M
Avnet Logistics									M																						M		M
BAE Systems Products Group									M																				M		M		M
Benchmark electronics precision technologies	M								M	M	M																						
Be Aerospace						M				M																							
Bodycote																																	
Bosch - División de Sistemas de seguridad									M			M																					
CRM Advanced Manufacturing	M								M																								
Curtis Wright Controls de México S.A. de C.V	M							M	M																						M		M
Daher Aerospace, S. A. de C. V.		M				M				M								M	M														
Ducommun AeroStructures		M				M				M																							M
Ellison Surface Technologies																																	
Consolidated Precision Products Guaymas	M																																
Federal Electronics									M																						M		
G.S. Precision, Inc.	M																																
UTC Aerospace Systems	M																																
Griffith Enterprises, Inc.								M	M																								M
Horst Engineering de México	M																M												M				
Honeywell IPO																																	
Integrated Magnetics de México	M								M																								

COMPANY	Machinery Manufacture -CNC and Precision Engineering: Rough: Turning	Rough: Milling	Finish: Turning	Finish: Honing	Computer system softwares: MBD: CATIA V5	MBD: CAD / CAM / CAE	Forging & Aerostructure fabrication forming: Forging	Labor Work: Deburring	Shot Peen	Grit Blasting (Surface Prep)	Treatment Processes: Heat Treat: Quench & Temper	Stress Relieving	Solution + Age	Surface Treatments: Chrome Plate	HVOF Spray	Cad Plating	MCAC	Sulfuric Anodise	Chromic Anodise	Prime & Paint	Testing & Certifications: NDT: MPI	LPI	Acid Etch	MCL: Chemical	Mechanical	Tooling	Transformation processes: Castings: Investment	Die	Sand	Joint processes: Soledring & welding	Adhesives	Others
Querétaro																																
Southwest United Galnik S.A. de C.V.	1	1	1	1	1	1																										
Tecnum Service, S. A. de C. V.																																
Thyssenkrupp Aerospace México		1				1																										
AAMEC	1	1	1	1	1																									1		
Dishon Limited	1	1	1	1																												
Dishon Limited	1	1	1	1																												
San Luis Potosí																																
Aearo Technologies de México, S. A. de C. V.																																1
Comercializadora del Centro Bonanza, S. A. de C. V.																																
GKN Aerospace San Luis Potosí, S. de R. L. de C. V	1	1	1	1			1																									
Hitchiner Manufacturing Company de México, S. de R. L. de C. V.																																
Tighitco Latinoamérica, S. A. de C. V.					1	1	1	1			1		1						1	1		1									1	
Sonora																																
Acra Aerospace	1	1	1																													
Consolidated Precision Products Nogales																													1			
Cadence Aerospace	1	1																														
American Precision Assemblers																														1	1	
Amphenol Optimize México, S. A. de C. V.																																
Arrow Electronics																																1
Avnet Logistics																														1		1
BAE Systems Products Group																																
Benchmark electronics precision technologies	1	1	1								1	1	1																	1		1
Be Aerospace	1	1		1				1												1												
Bodycote										1		1	1																	1		1
Bosch - División de Sistemas de seguridad																														1	1	
CRM Advanced Manufacturing	1	1	1																													
Curtis Wright Controls de México S.A. de C.V	1	1	1	1				1		1			1	1						1										1	1	1
Daher Aerospace, S. A. de C. V.		1																		1				1	1	1						1
Ducommun AeroStructures													1							1												1
Ellison Surface Technologies										1					1																	1
Consolidated Precision Products Guaymas												1	1										1	1			1					1
Federal Electronics																																
G.S. Precision, Inc.	1	1	1					1	1																							
UTC Aerospace Systems	1	1	1	1				1	1	1	1	1	1								1	1	1									1
Griffith Enterprises, Inc.																																
Horst Engineering de México	1	1	1	1				1		1				1		1		1	1					1								1
Honeywell IPO																																
Integrated Magnetics de México	1	1	1	1				1		1		1								1		1				1				1	1	1

COMPANY	Materials: Raw Materials: Material Range: Stainless Steel	Steel	300M or Equivalent	Aluminium	Titanium	Delran	Composites	Services: Maintenance Repair & Overhaul	Raw Material suppliers	Testing and Certifications Services	Ground Support & Air Field Equipment	Consultancy, Finance & Logistics	HR Manpower	Stock Solutions	Flight Training	Research, Design & development	Training Skills, Universities, collegues and institutes	Certifications: AS9100	AS9100B	NADCAP	ISO 9000:2000	ISO 9001:2000	ISO 9001:2008	FAA	DGAC	ITAR	MIL
Querétaro																											
Southwest United Galnik S.A. de C.V.		1		1	1																1						
Tecnum Service, S. A. de C. V.																							1				
Thyssenkrupp Aerospace México	1	1	1	1	1				1									1									
AAMEC	1	1		1												1											
Dishon Limited																											
Dishon Limited																											
San Luis Potosí																											
Aearo Technologies de México, S. A. de C. V.							1															1					
Comercializadora del Centro Bonanza, S. A. de C. V.																											
GKN Aerospace San Luis Potosí, S. de R. L. de C. V	1	1	1	1	1	1												1				1					
Hitchiner Manufacturing Company de México, S. de R. L. de C. V.									M																		
Tighitco Latinoamérica, S. A. de C. V.				1			1												1	NDT/HT/CHP		1			1		
Sonora																											
Acra Aerospace																			1				1				
Consolidated Precision Products Nogales				1														1				1					
Cadence Aerospace				1														1									
American Precision Assemblers																					1						
Amphenol Optimize México, S. A. de C. V.																		1				1					
Arrow Electronics																		1				1				1	1
Avnet Logistics																		1				1				1	1
BAE Systems Products Group																		1				1					
Benchmark electronics precision technologies	1	1		1	1													1	1	NDT/CHP/NM&SE	1	1	1				
Be Aerospace																		1									
Bodycote	1	1	1		1															1						1	
Bosch - División de Sistemas de seguridad					1													1				1		1		1	1
CRM Advanced Manufacturing																											
Curtis Wright Controls de México S.A. de C.V	1	1	1	1														1		1		1		1		1	
Daher Aerospace, S. A. de C. V.							1											1		1		1					
Ducommun AeroStructures					1		1											1		1		1					
Ellison Surface Technologies																		1		1		1				1	1
Consolidated Precision Products Guaymas	1																	1		1	1						
Federal Electronics																		1				1				1	1
G.S. Precision, Inc.	1			1	1													1				1					
UTC Aerospace Systems	1	1		1			1											1		1		1				1	
Griffith Enterprises, Inc.																		1		1		1		1			
Horst Engineering de México	1	1		1	1													1		1			1				1
Honeywell IPO																											
Integrated Magnetics de México	1	1		1	1													1					1			1	

1 Capabilities and Certifications
R Coatings
PPQ Chemical Processing
D Design
D&I Engineering + Design
TC Heat Treating
I+D Research and Development
M Manufacture
MRO Maintenance, Repair & Overhaul
EM Material Testing
END Nondestructive Testing
MNC y MS Non Conventional Machining and Surface Enhacement
S Welding

COMPANY	Aeroengines: Propelers/rotors/Power Plant[1] (Parts & components)	Fuselage: Nacelles/Pylons, Stabilizers	Aircrart Construction Assembly	Avionics[2]	Landing Gear	Wings	Computer System Softwares / Information systems	Electrical power/Airborne Auxiliary Power	Electrical Cable Accessories / Harnesses	Aircraft Interior Equipment Furnishing	Autoflight Systems and Equipment	Communication Systems and equipment	Control Systems & Equipment/ Flight Controls	Fuel & Fuel Systems	Hydraulic Systems & Hydraulic Power	Indicating/ Recording Systems	Safety & Survival Equipment	Air Conditioning	Fire Protection / Ice & Rain Protection	Lights	Oxygen	Pheumatic	Vaccum	Water / Waste / Water Ballast	Windows	Central Maintenance System	Inert Gas System	Cargo and Accesory Systems	Fasteners	Space systems & equipment	Armaments and Related Equipment: Missile Related Products	Technical Textils	Others
Sonora																																	
Incertec																																	
ITT Cannon de México, S. A. de C. V.								M	M																						M		
JJ Churchill Ltd PRECISION ENGINEERING	M																																
Latelec									M																								
Latecoere		M							M																								
BF&S- Manufacturas y Ensambles Fernandez y Asociados (Planta Agua Prieta)									M			M																					
BF&S- Manufacturas y Ensambles Fernandez y Asociados (Planta Cumpas)	M								M		M	M																			M		
Minco Manufacturing	M																																
National Manufacturing México																	M	M										M					
Paradigm Precision	M																																
Parker Hannifin Aerospace	M								M					M	M																		
Pencom CSS de México, S. de R. L. de C. V.	M																																
Pinnacle Aerospace							D+I/ I+D				D+I/ I+D		D+I/ I+D	D+I/ I+D		D+I/ I+D																	
Phoenix of Chicago									M																								
Sheryl Manufacturing										M																							
QET-Tech Aerospace	MRO	MRO																															MRO
Radiall (Sonora S. Plan, S. A. de C. V.)								M	M	M																							
Rolls Royce IPO																																	
Sargent Aerospace México	M																																
Semco Instruments, Inc.									M																						M		
St. Clair Technologies									M																								
Carlisle Interconnect Technologies									M																						M		
Trac Mexico	M																																
TE Connectivity								M	M																						M		M
Vermillion de México									M																						M		
Williams International	M/ I+D																																
Winchester Electronics (Sonitronies, S. A. de C. V.)																																	
Windtech Inc.	M							M	M																								
Tamaulipas																																	
SIGNAL PROCESSING MATAMOROS, S.A. DE C.V.									M			M																					
Promotora Merhen, S.A. de C.V.																																	
RBC de México, S. de R. L. de C. V.																																	
Servicios Industriales Nova Link, S.A. de C.V.	M								M																								
Yucatán																																	
Frecuencia 122.1, S. A. de C. V.																																	M
PCC Airfoils, S. A. de C. V.	M/ MRO																																
Seal & Metal Products of Latin America, S. A. de C. V.						M										M									M								M
Zacatecas																																	
Triumph Group México, S. de R. L. de C. V.		M	M		M	M									M			M							M								M

COMPANY	Machinery Manufacture -CNC and Precision Engineering / Rough: Turning	Rough: Milling	Finish: Turning	Finish: Honing	Computer system softwares / MBD: CATIA V5	MBD: CAD / CAM / CAE	Forging & Aerostructure fabrication forming: Forging	Labor Work: Deburring	Labor Work: Shot Peen	Labor Work: Grit Blasting (Surface Prep)	Treatment Processes / Heat Treat: Quench & Temper	Heat Treat: Stress Relieving	Heat Treat: Solution + Age	Surface Treatments: Chrome Plate	Surface Treatments: HVOF Spray	Surface Treatments: Cad Plating	Surface Treatments: MCAC	Surface Treatments: Sulfuric Anodise	Surface Treatments: Chromic Anodise	Surface Treatments: Prime & Paint	Testing & Certifications / NDT: MPI	NDT: LPI	NDT: Acid Etch	MCL: Chemical	MCL: Mechanical	Tooling	Transformation processes / Castings: Investment	Castings: Die	Castings: Sand	Joint processes: Soledring & welding	Joint processes: Adhesives	Others	Materials / Raw Materials / Material Range: Stainless Steel	Steel	300M or Equivalent	Aluminium	Titanium	Delran	Composites
Sonora																																							
Incertec																1		1	1			1										1							
ITT Cannon de México, S. A. de C. V.		1																										1		1	1		1	1		1			
JJ Churchill Ltd PRECISION ENGINEERING	1	1	1	1				1	1	1																						1	1	1		1	1		
Latelec																																							
Latecoere																																1							
BF&S- Manufacturas y Ensambles Fernandez y Asociados (Planta Agua Prieta)	1	1	1	1				1		1	1	1								1								1		1		1	1	1		1			
BF&S- Manufacturas y Ensambles Fernandez y Asociados (Planta Cumpas)		1																												1		1							
Minco Manufacturing	1	1	1					1		1															1								1	1		1			
National Manufacturing México	1	1	1					1		1										1										1		1	1	1		1	1		
Paradigm Precision	1	1	1	1				1			1									1	1	1		1									1	1		1	1		
Parker Hannifin Aerospace	1	1	1																																				
Pencom CSS de México, S. de R. L. de C. V.	1	1	1	1				1		1								1				1								1		1	1	1		1			
Pinnacle Aerospace																																							
Phoenix of Chicago																														1									
Sheryl Manufacturing	1	1	1																	1										1									
QET-Tech Aerospace	1	1						1	1	1											1	1																	
Radiall (Sonora S. Plan, S. A. de C. V.)		1						1		1		1	1								1	1						1		1	1	1	1			1			1
Rolls Royce IPO																																							
Sargent Aerospace México	1	1	1	1				1				1									1												1	1	1	1	1		
Semco Instruments, Inc.		1							1		1																		1	1	1	1	1	1		1	1		
St. Clair Technologies																																							
Carlisle Interconnect Technologies																																							
Trac Mexico	1	1	1	1				1		1													1							1			1	1					
TE Connectivity	1	1						1																															
Vermillion de México																																							
Williams International	1	1	1	1				1		1																													
Winchester Electronics (Sonitronies, S. A. de C. V.)																																							
Windtech Inc.																																							
Tamaulipas																																							
SIGNAL PROCESSING MATAMOROS, S.A. DE C.V.																				1										1	1			1		1			
Promotora Merhen, S.A. de C.V.																																							
RBC de México, S. de R. L. de C. V.																																							
Servicios Industriales Nova Link, S.A. de C.V.																																							
Yucatán																																							
Frecuencia 122.1, S. A. de C. V.																																							
PCC Airfoils, S. A. de C. V.																								1							1		1						
Seal & Metal Products of Latin America, S. A. de C. V.	1				1	1		1																															
Zacatecas																																							
Triumph Group México, S. de R. L. de C. V.	1	1	1	1	1	1	M	1																		1							1	1	1	1	1	1	1

COMPANY	Services: Maintenance Repair & Overhaul	Raw Material suppliers	Testing and Certifications Services	Ground Support & Air Field Equipment	Consultancy, Finance & Logistics	HR Manpower	Stock Solutions	Flight Training	Research, Design & development	Training Skills, Universities, collegues and institutes	Certifications: AS9100	AS9100B	NADCAP	ISO 9000:2000	ISO 9001:2000	ISO 9001:2008	FAA	DGAC	ITAR	MIL
Sonora																				
Incertec											1		CHP/ NDT		1				1	
ITT Cannon de México, S. A. de C. V.											1		1		1				1	1
JJ Churchill Ltd PRECISION ENGINEERING											1		1		1				1	
Latelec											1									
Latecoere											1		1		1					
BF&S- Manufacturas y Ensambles Fernandez y Asociados (Planta Agua Prieta)											1				1				1	
BF&S- Manufacturas y Ensambles Fernandez y Asociados (Planta Cumpas)											1				1					
Minco Manufacturing											1				1					
National Manufacturing México													1							
Paradigm Precision											1		1		1					
Parker Hannifin Aerospace											1		1		1					
Pencom CSS de México, S. de R. L. de C. V.											1		1		1					
Pinnacle Aerospace									1											
Phoenix of Chicago											1				1					
Sheryl Manufacturing																				
QET-Tech Aerospace	1										1						1	1		
Radiall (Sonora S. Plan, S. A. de C. V.)											1		1		1					
Rolls Royce IPO																				
Sargent Aerospace México											1		1		1					
Semco Instruments, Inc.											1		1		1				1	
St. Clair Technologies												1			1					
Carlisle Interconnect Technologies											1				1				1	
Trac Mexico											1		1							
TE Connectivity											1								1	1
Vermillion de México											1								1	
Williams International									1		1									
Winchester Electronics (Sonitronies, S. A. de C. V.)											1									
Windtech Inc.											1									
Tamaulipas																				
SIGNAL PROCESSING MATAMOROS, S.A. DE C.V.		1										1				1	1		1	1
Promotora Merhen, S.A. de C.V.																				
RBC de México, S. de R. L. de C. V.																				
Servicios Industriales Nova Link, S.A. de C.V.																				
Yucatán																				
Frecuencia 122.1, S. A. de C. V.											1		1		1					
PCC Airfoils, S. A. de C. V.													NDT/ HT/ CHP		1					
Seal & Metal Products of Latin America, S. A. de C. V.						1			1	1		1			1					
Zacatecas																				
Triumph Group México, S. de R. L. de C. V.		1								1		1				1		1		


Nuestra Pasión
recemos
de los
iores

MÉXICO

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