



**DESIGN, ENGINEERING AND ADVANCED MANUFACTURING IN MEXICO**

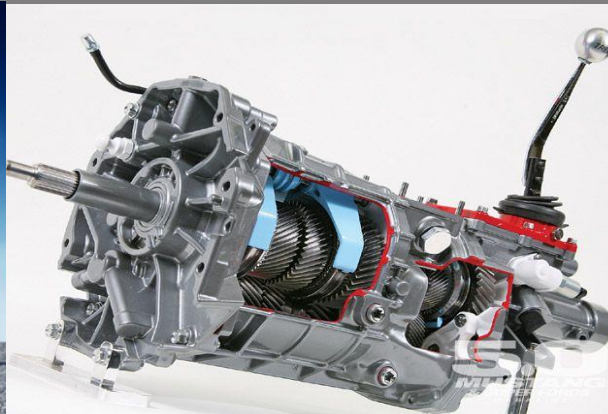
August 30<sup>th</sup>, 2012

# Where was this designed?

Fusion 2013 (Ford)



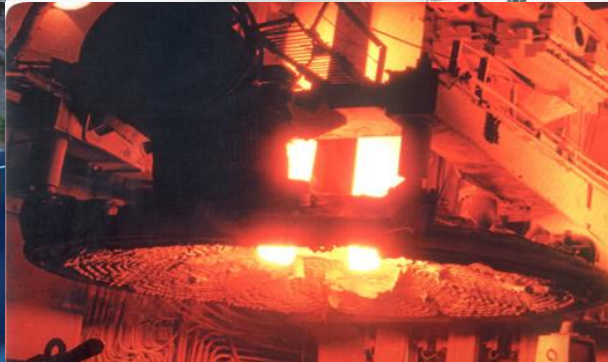
Corvette's transmission (Tremec)



Minnesotas's train (Bombardier)



Mastretta



Sponge iron



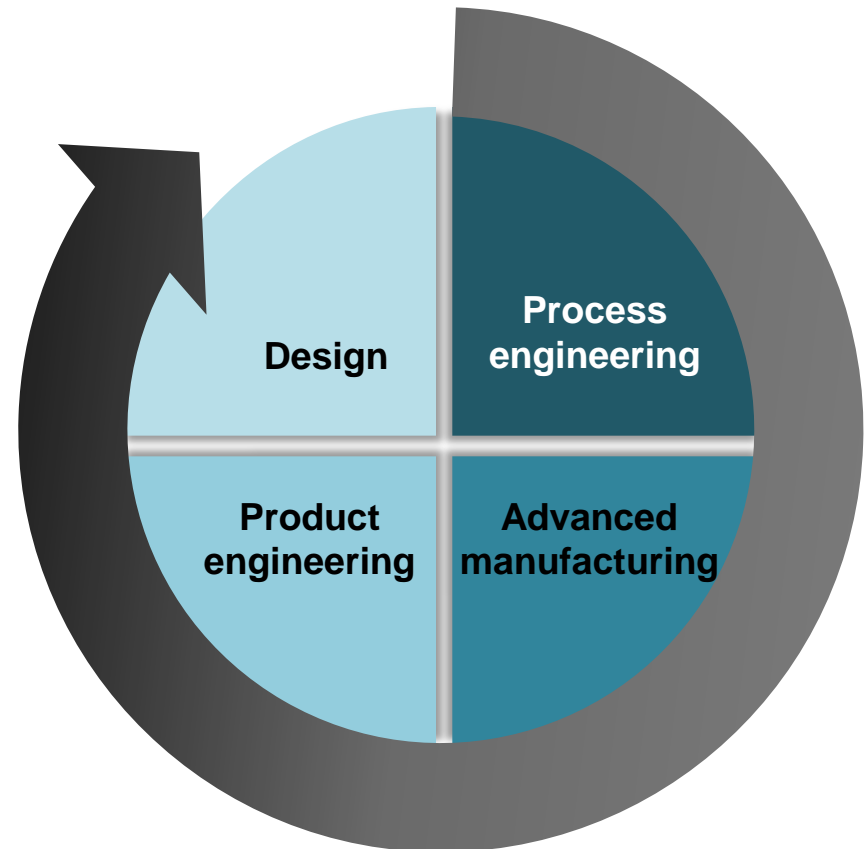
A340/737 interiors (Volare Engineering)

# What is advanced manufacturing?

## About Advanced Manufacturing

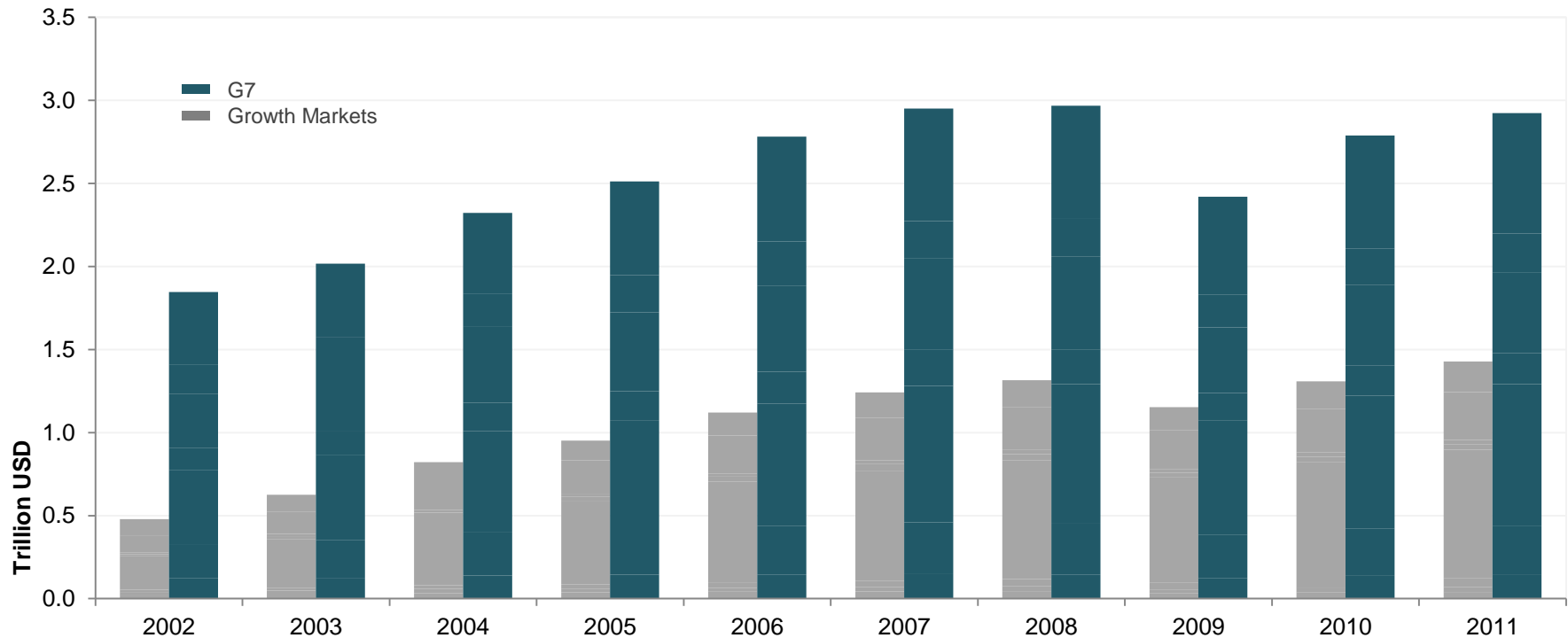
- Describes businesses which use a **high level of design or engineering skills** to produce technologically complex products and processes.
- Because of the specialized requirements involved, **the associated goods and services tend to be of high value.**

## Mexico in the advanced manufacturing cycle



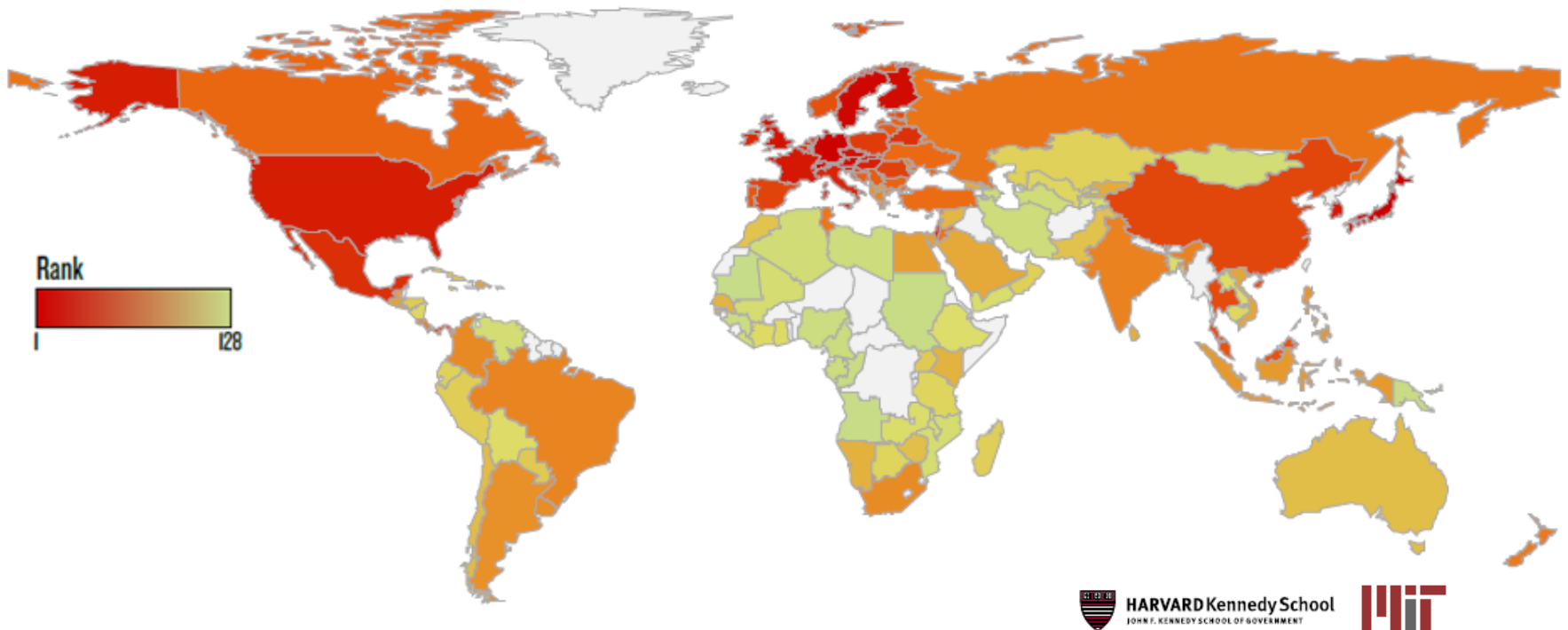
# Evolution of technology exports

## Technology exports of G7 vs. Growth Markets



- In 2002, technology exports from emerging markets were only **¼ of the G7's**.
- By 2011, this figure has grown to **half of the G7's**.

# A high degree of economic complexity



## **Mexico ranks in the top 20 of Harvard and MIT's Atlas of Economic Complexity**

- Recognizes that our country holds vast amounts of productive knowledge.
- We manufacture and export a large number of sophisticated goods.

# Mexico is among the leaders

## Medium and HighTech Exports as a percentage of GDP (2011)

No.	Country	% GDP
1	Germany	28.2%
2	South Korea	27.2%
<b>3</b>	<b>Mexico</b>	<b>19.3%</b>
4	China	18.3%
5	France	13.1%
6	Canada	11.6%
7	Japan	10.6%
8	Italy	10.5%
9	United Kingdom	9.9%
10	Indonesia	7.0%
11	United States	5.5%
12	Turkey	5.2%
13	India	4.0%
14	Brazil	3.5%
15	Russia	3.0%

### Medium Technology (MT):

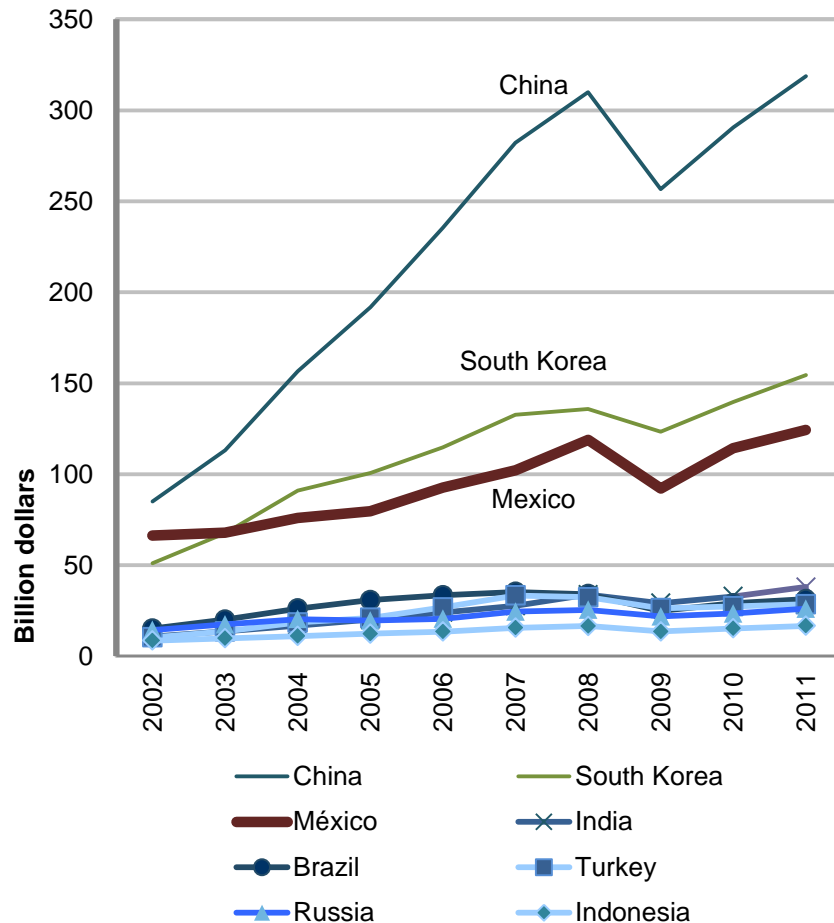
- Specialty Chemicals
- Machinery, Equipment, Appliance
- Electrical Industrial Machinery
- Motor Vehicles & Parts Total
- Motorcycles & Transport. Equipment
- Railroads & Equipment

### High Technology (HT):

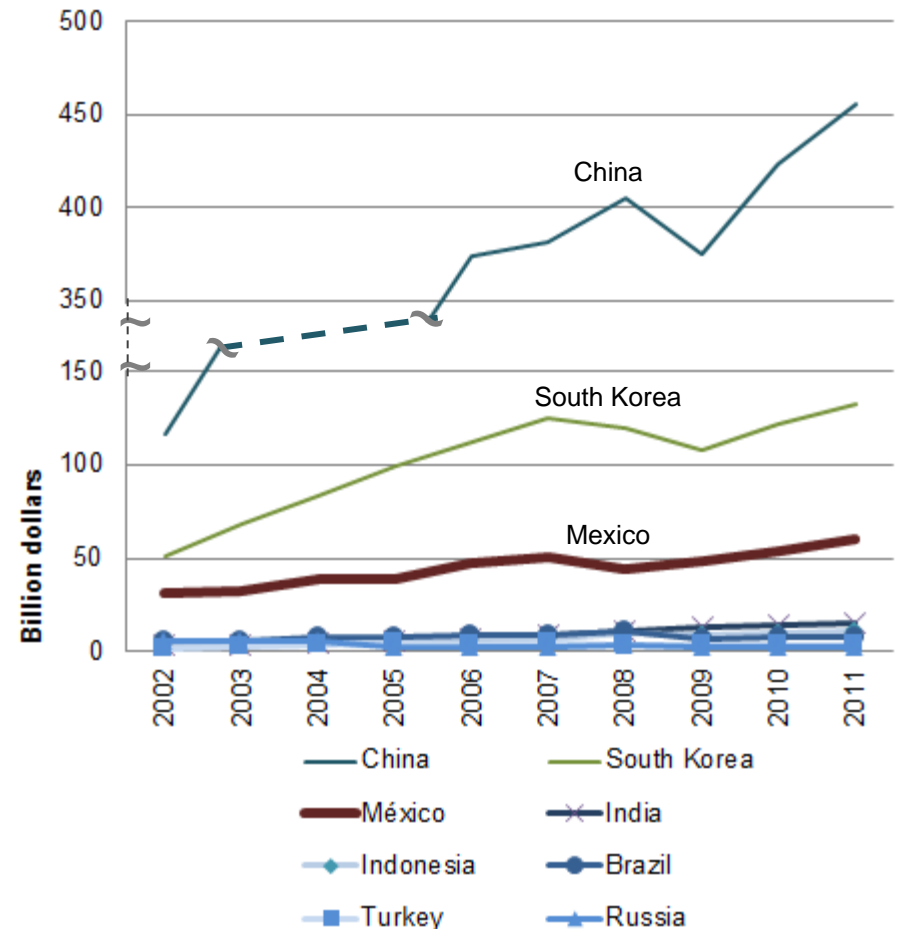
- Aircraft & Spacecraft
- Advanced materials
- Computers & Office Machinery
- Communication Equipment
- Medical, Precision & Optical

# Manufacturing Trends of Growth Markets

## Medium Technology Exports



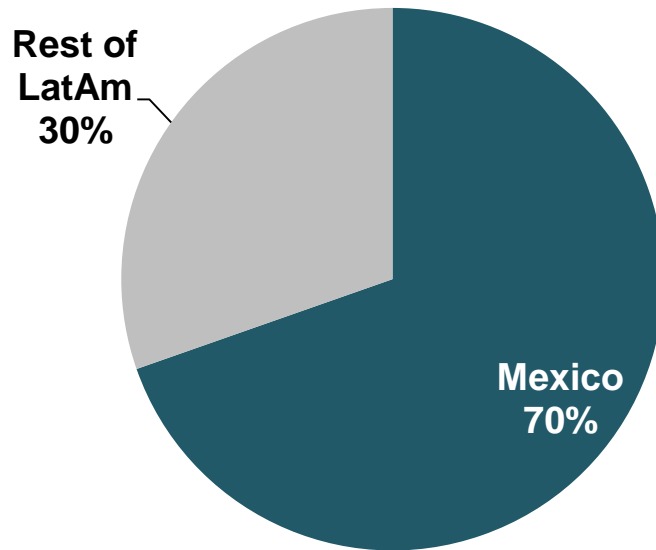
## High Technology Exports



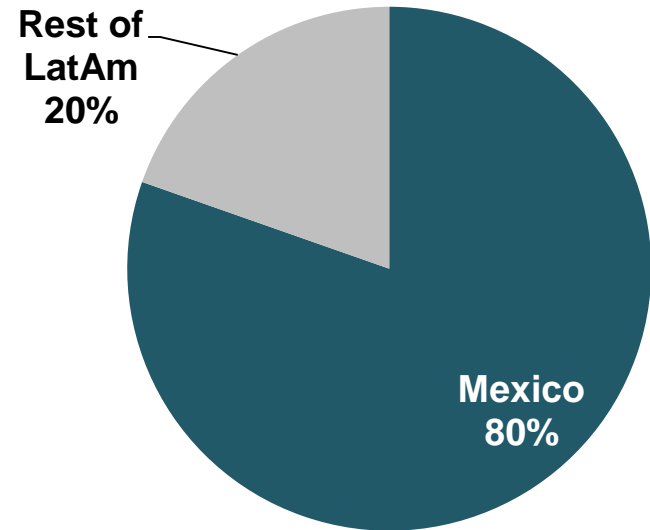
# Mexico vs. LATAM

## LATAM's tech Exports (2011)

Medium Tech Exports



High Tech Exports





# Sectors with advanced manufacturing

## AEROSPACE

- Exports by 4.3 billion dollars.
- 6<sup>th</sup> supplier of US aerospace industry.
- The number of aerospace companies grew 4x since 2005.
- Member of the Wassenaar Arrangement.



## MEDICAL DEVICES

- Leading exporter in Latin America and main supplier to the US.
- 5<sup>th</sup> largest exporter of medical instruments globally.



## Mexican Advanced Manufacturing Sectors



## ELECTRIC-ELECTRONIC

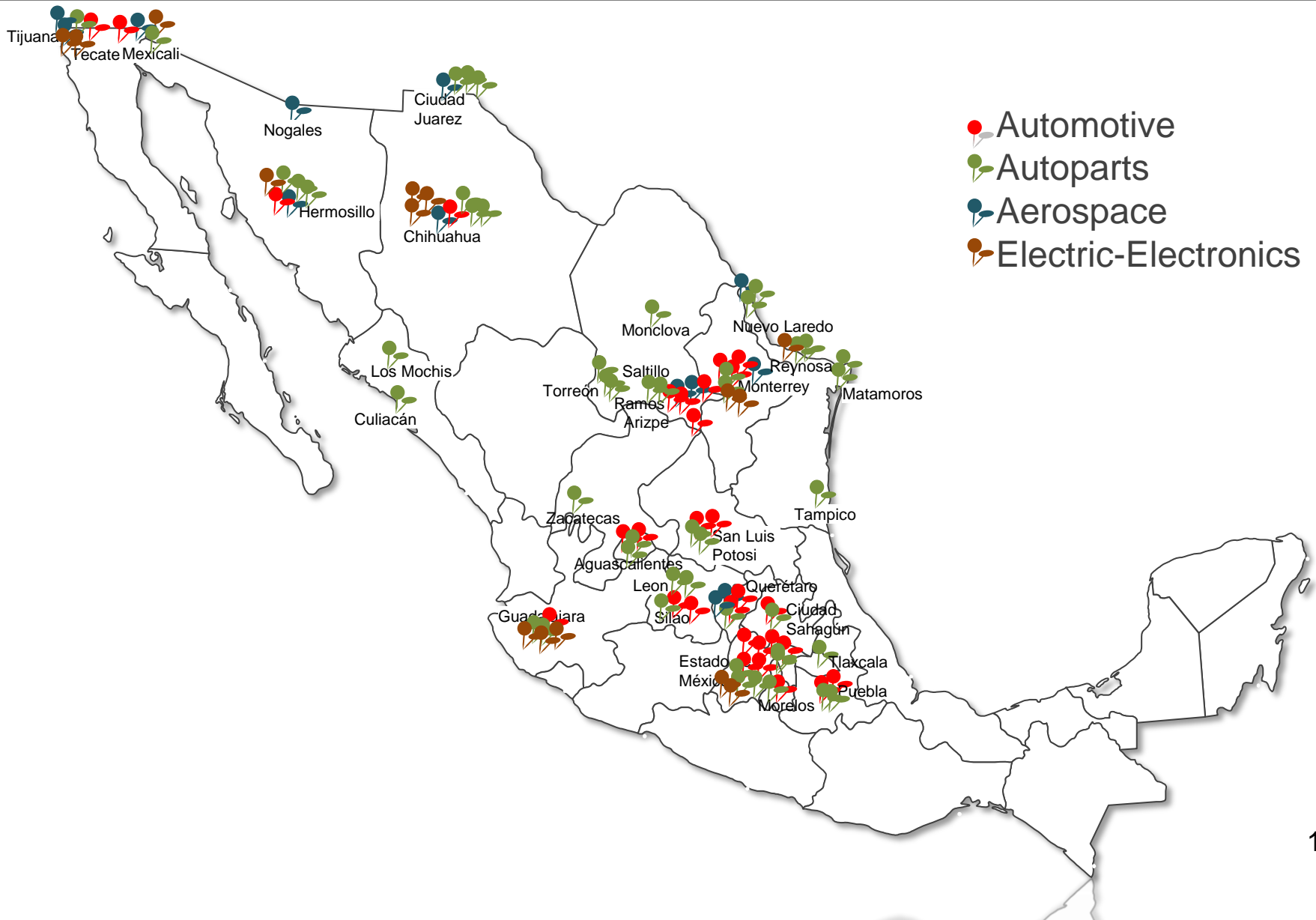
- Largest flat screen TV exporter in the world.
- First exporter of two-door refrigerators with freezer.
- 4<sup>th</sup> exporter of computers.
- World's 6<sup>th</sup> exporter of home appliances.



## AUTOMOTIVE AND AUTOPARTS

- 8<sup>th</sup> vehicle producer and 5<sup>th</sup> exporter.
- Mexico's automotive exports (by value in USD) are 3 times larger than Brazil and India combined.
- 19 global OEMs already established.
- 84 of the top 100 autoparts companies already in Mexico.

# Map of Mexico's Advanced Manufacturing



# We are recognized globally

## THE DAILY NEWS

[www.dailynews.com](http://www.dailynews.com)

THE WORLD'S FAVOURITE NEWSPAPER

### MEXICAN AEROSPACE INDUSTRY: BEYOND EXPRESSION



THE SOCIETY OF JAPANESE AEROSPACE COMPANIES

3-1-1 HAKODAKI 6 CHOME, MINATO-KU, TOKYO 105-8565 JAPAN  
TEL: +81-3-5561-0811 FAX: +81-3-5561-0841 <http://www.sjac.co.jp>

22nd May 2013

Mr. Raúl Urzua Trevisi  
Minister  
Embassy of Mexico  
Tokyo

Dear Minister Urzua Trevisi,

I want to express my sincere thanks to you and your staff at your Embassy for organizing our visit to Mexico from May 6 to 11, which was a resounding success.

The nine persons of our delegation to Mexico represent key aerospace companies and business associations in Japan. We were most impressed by the capabilities of the Mexican aerospace industry, by the rapid growth of new companies growing in your country, and by the potential opportunities we could jointly develop in future businesses among Japanese and Mexican aerospace companies.

At the leader of the mission, I am also grateful to the state governments of Querétaro, Chihuahua (where Governor César Duarte greeted our delegation), and Baja California. I also thank the Federation of Mexican Aerospace Companies (FEMIA) for its support.

I can summarize this delegation as one word "Seeing is believing". Especially the productivity improvement based on automated manufacturing and lean production system were beyond my expression. I clearly recognized the vicinity to the US border and advantages that industry enjoys. I foresee that Mexican aerospace industry shall expand their business in the global market through the skillful workers and engineers with pride who were trained by the automation based upon your industry's request.

SJAC welcomes Mexican participants in Japan on the occasion of JADEX in Nagoya in October.

I am looking forward to continuing in contact with you in the Embassy, company representatives and local officials we made our acquaintances in Mexico.

Sincerely,

*T. Kobayashi*

Takashi Kobayashi  
Chairman of the International Committee, SJAC

O.C.

Hon. Excellency Claudio Heller, Ambassador of Mexico in Japan  
Mr. Marcelo López, Under Secretary of Economic Development, State of Querétaro  
Mr. Alberto Chénis, Secretary of Economic Development, State of Chihuahua  
Mr. Alfonso Carrillo, Under Secretary of Economic Development, State of Baja California  
Mr. Carlos Bello, Director of FEMIA  
Mr. Susan Green, Representative of ProMexico in Japan

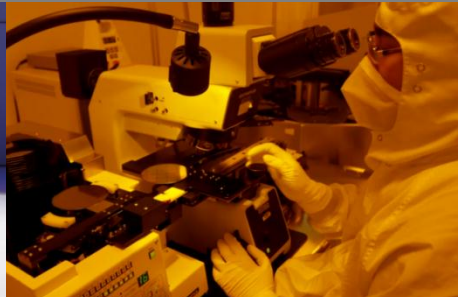
- The Japanese aerospace companies that visited Mexico in 2012 declared to be **“most impressed by the capabilities of the Mexican aerospace industry”**. Mr. Kobayashi, Chairman of the Society of Aerospace Companies declares:
- **“Seeing is believing. Specially, the productivity improvement based on automated manufacturing and lean production system were beyond my expression.”**
- **“I foresaw that Mexican aerospace industry shall expand [...] through the skillful workers and engineers.”**

# Mexico: an excellent business case for advanced manufacturing and more

Jetta Bicentenario (VW)



Skyworks



Mabe



Intel Design Center



Silanes



Honeywell (A350)



Flexible manufacturing (Ford)



Bombardier Learjet 85



SAFRAN



Ericsson (Global Serv. Center)



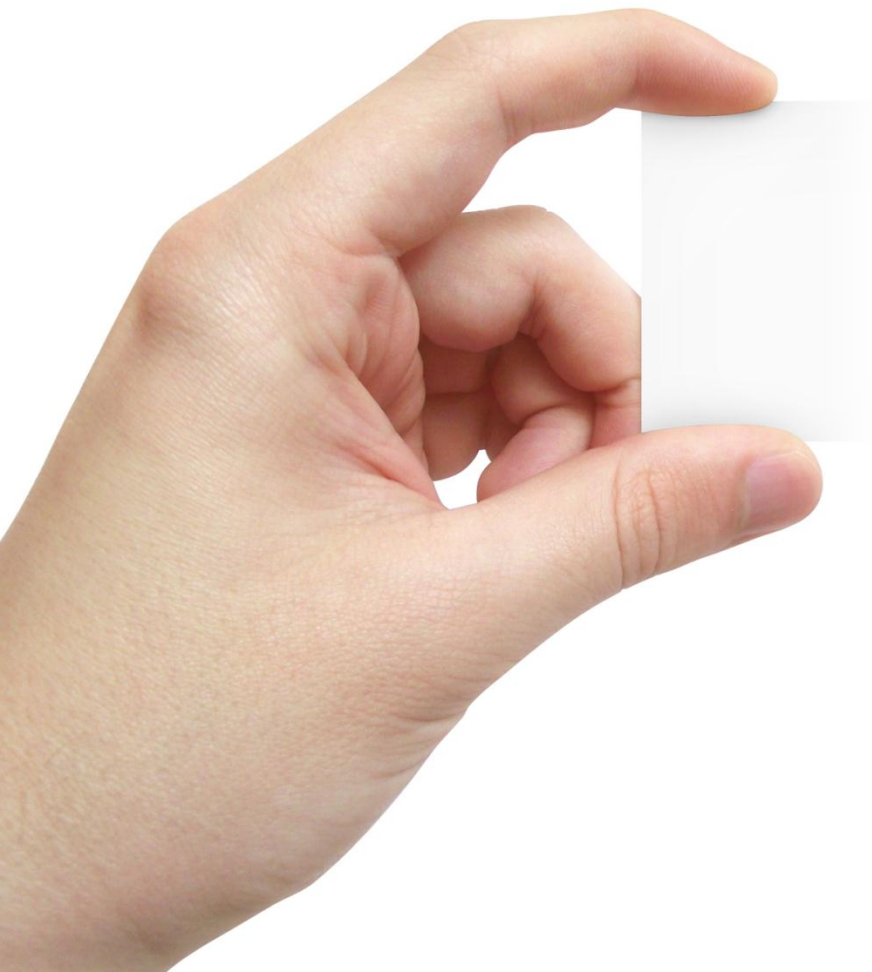
GE (GENx turbine)



Siemens







# Thank you!

**Manuel Sandoval Ríos**

**Executive Director of Prospective  
Analisis & Innovation**



**[www.promexico.gob.mx](http://www.promexico.gob.mx)**



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