

# Exponential Talent

-Chihuahua-  
exponencial



# The Mexico Advantage



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## Deloitte manufacturing competitiveness index 2013 2021

Posición	País	Lugar 2013
1	China	1
2	Estados Unidos	3
3	Alemania	2
4	Japón	10
5	Corea del Sur	5
6	Reino Unido	15
7	República de China (Taiwán)	6
8	<b>México</b>	12
9	Canadá	7
10	Singapur	9

Posición	País
1	Estados Unidos
2	China
3	Alemania
4	Japón
5	India
6	Corea del Sur
7	<b>México</b>
8	Reino Unido
9	República de China (Taiwán)
10	Canadá

México is already on par with the 10 most competitive advanced manufacturing economies and getting better.

<https://www2.deloitte.com/content/dam/Deloitte/mx/Documents/manufacturing/Competitividad-en-Mexico.pdf>

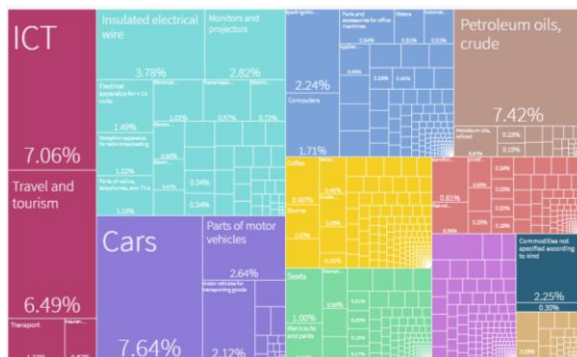
# The Mexico Advantage

## Net exports by Year and HS code

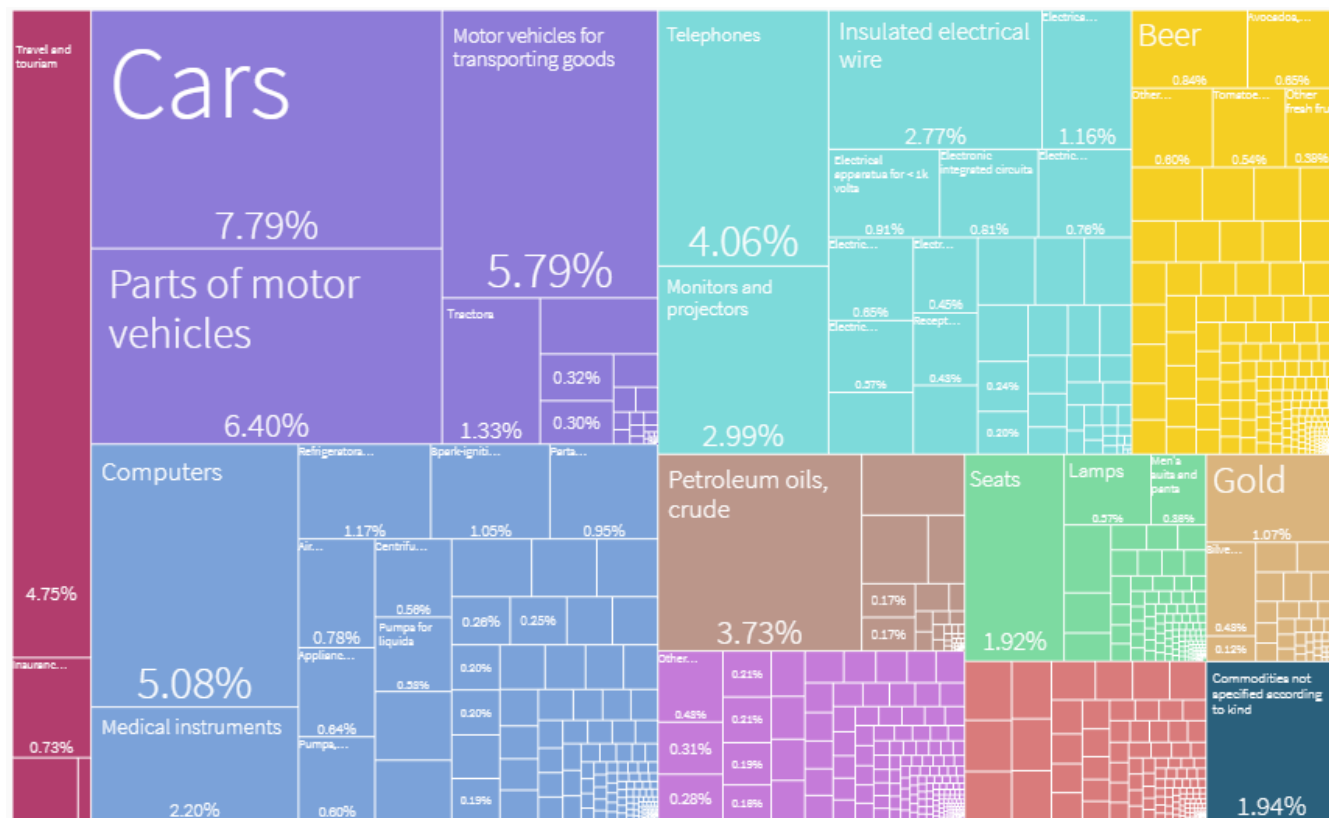


2016  
413 USD B

1995  
95.2 USD B



430% growth  
20.6% CAGR





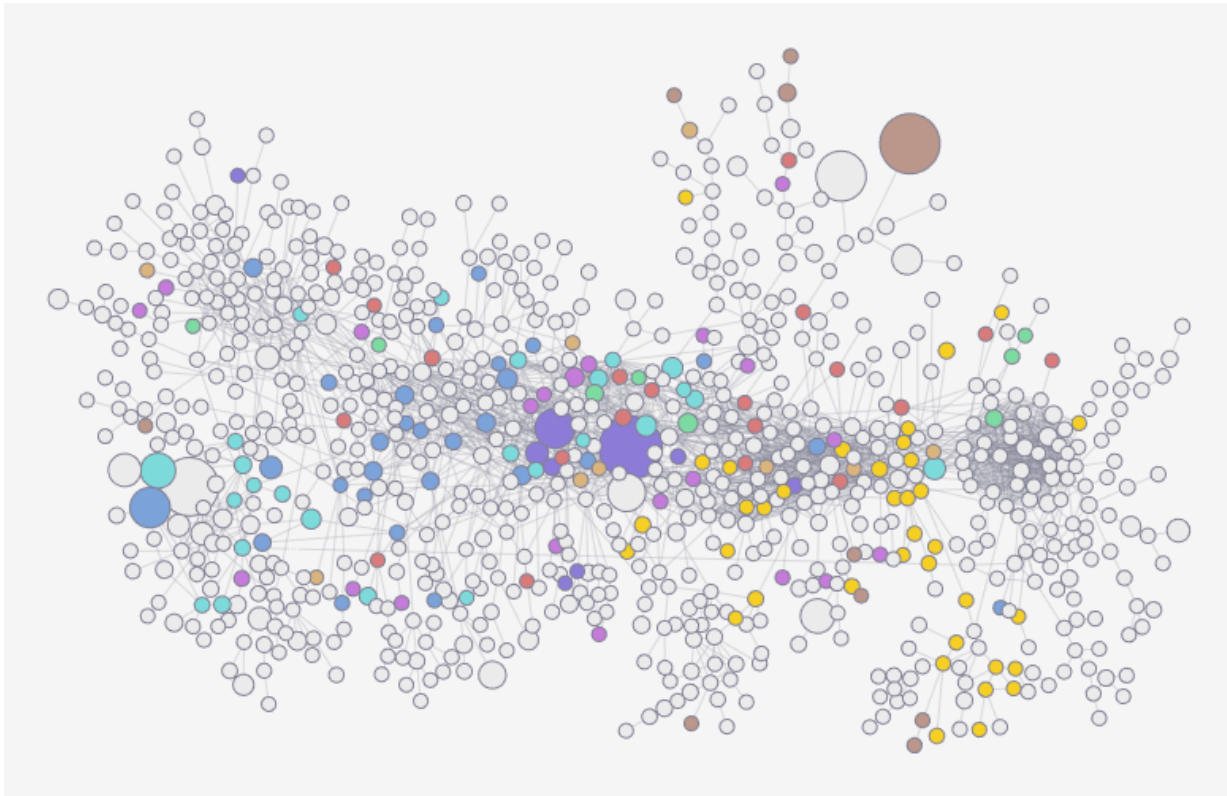
# Economic Complexity



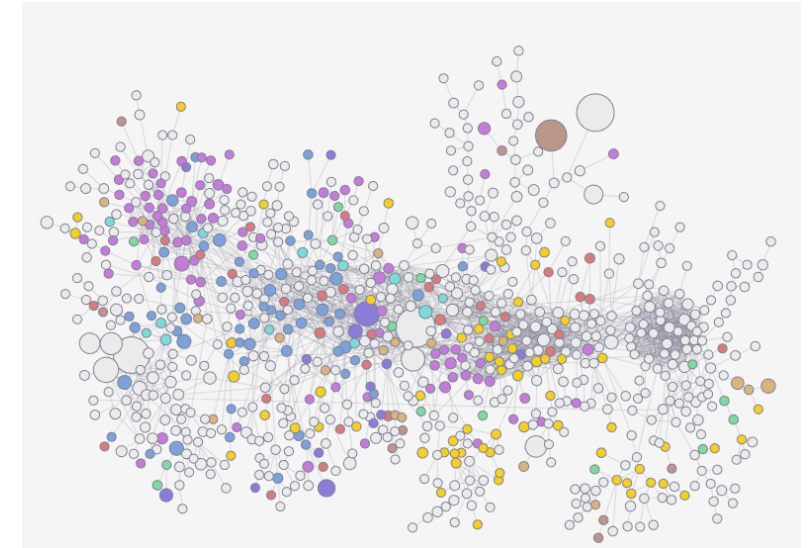
SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



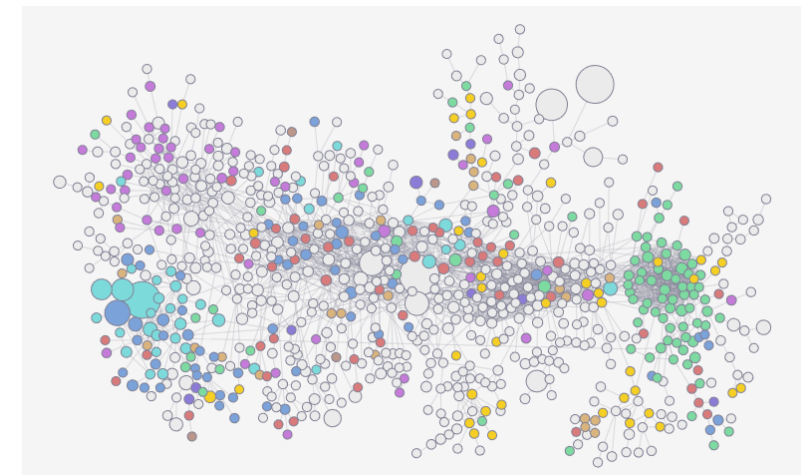
Mexico



USA



China







# Economic Complexity

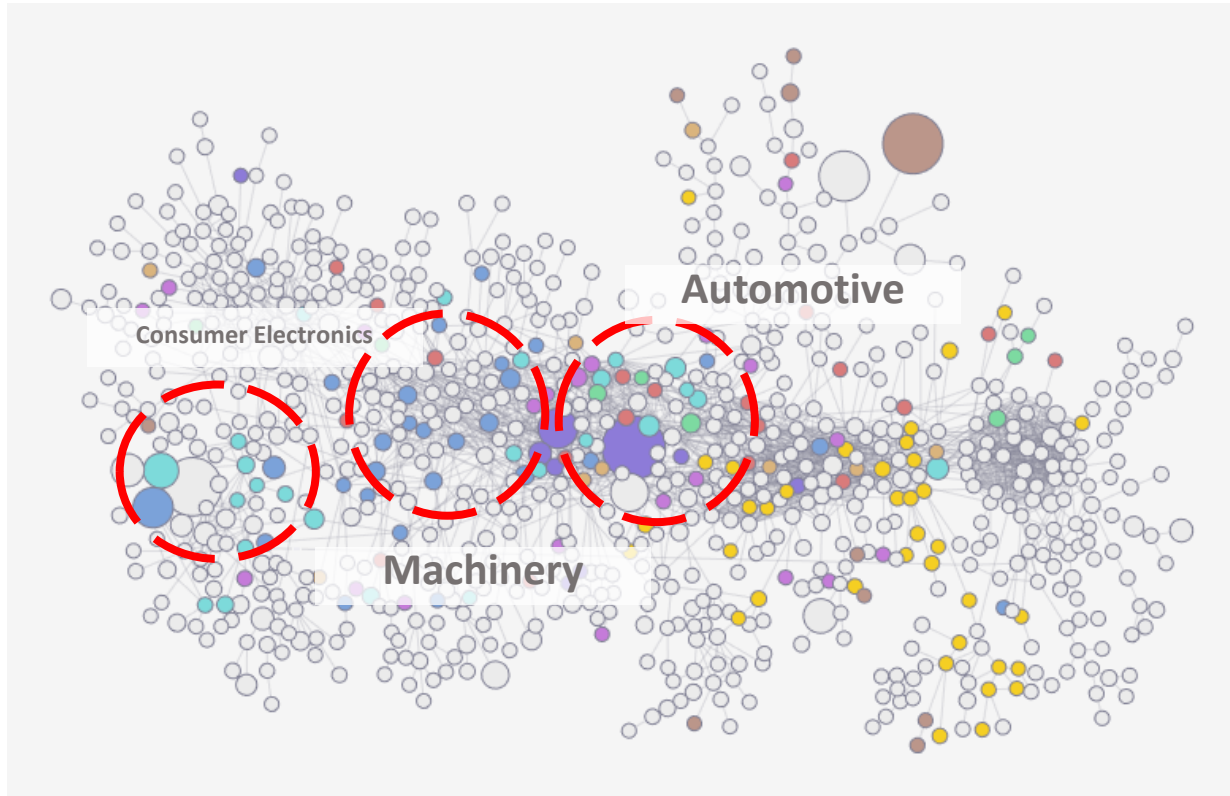


SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO

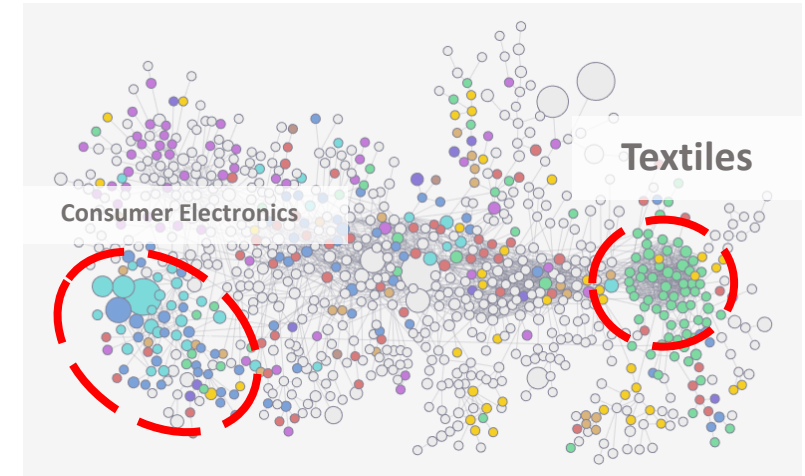


Chihuahua  
STATE GOVERNMENT

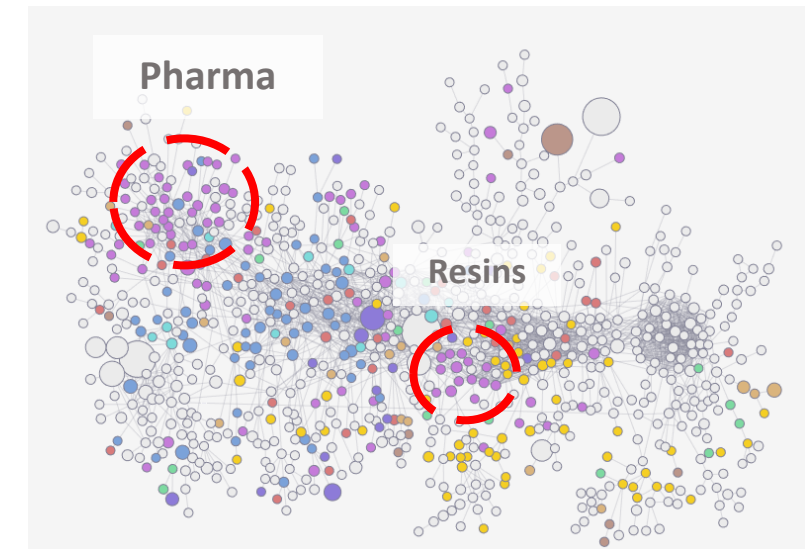
Mexico



China



USA





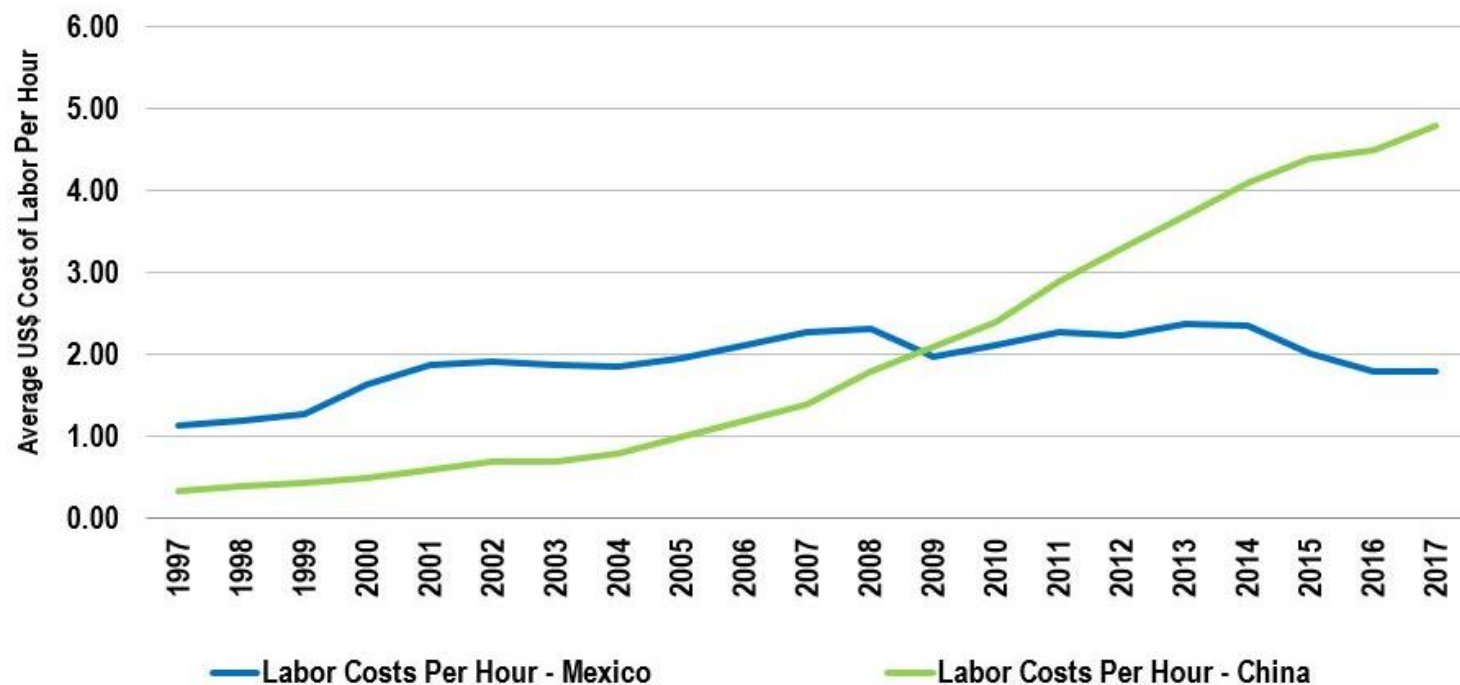
# Competitiveness



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



When you take into consideration the rising labor costs of China and inflation rates across the two countries, Mexico offers a stable labor market on real US dollars per fully loaded labor hour.



Source: The Economist Intelligence Unit (EIU). Calculation based on data from China Statistical Yearbook and International Labour Organization (ILO) data on hours worked, as of 2018. This chart is for illustrative purposes only and does not reflect the past or future performance or portfolio composition of any Franklin Templeton fund. **Past performance does not guarantee future results.**



# Competitiveness



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*When you take into consideration logistics and potential tariff and regulatory hurdles Mexico becomes more competitive as a manufacturing platform to the North American region*

## SHIPPING

Cost and time in weeks for a 40-foot container

CHINA



MEXICO



By 2015, the cost of outsourcing manufacturing to China is predicted to be equal to the cost of manufacturing in the U.S.

## FREE TRADE AGREEMENTS

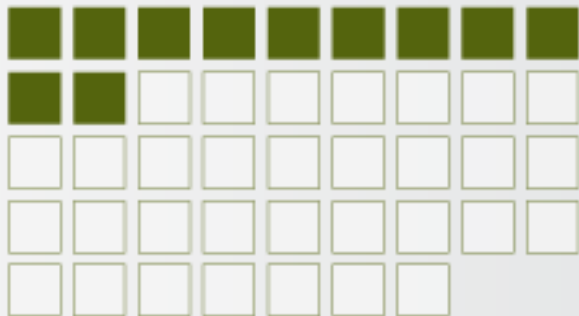
Number of Free Trade Agreements per country

CHINA



8 agreements  
covering 14 countries

MEXICO



11 agreements covering 43 countries

# Chihuahua's Highlights



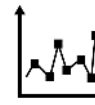
SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*3.4 million inhabitants (average age of 25 years old).*



*One of the most important manufacturing centers in America.*



*High economic growth, 4.4% in the last 3 years (more than twice the national).*



*National leader in exports and employment for the manufacturing industry.*



*A preferred investment destination, \$1.1bn USD of FDI a year (5<sup>th</sup> national place in 2017).*





# Chihuahua's Competitive Advantages



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*Strategic Geographic Location and Connectivity to North America markets.*



*Talent and Industrial Culture.*



*Innovation and Technology Development in the Research and Engineering Centers.*



*World Class Infrastructure and Availability of Natural Gas for Industrial Projects.*



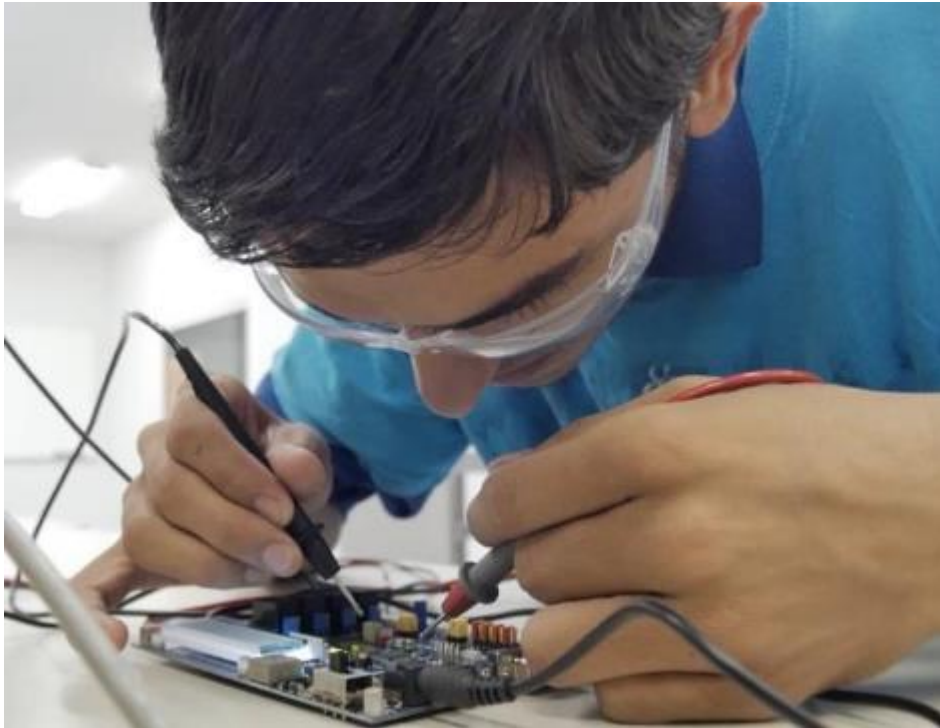
*Clusters and Industries with Advanced Integration and Cooperation.*



# Talent and Industrial Culture



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*Large, union-free, highly qualified and stable labour force with an industrial culture over 3 generations.*



*More than 5k engineering graduates, 34k skilled trades graduates and 29% of science, technology, engineering and mathematics graduates (STEMs).*



*More than 98% of region industry engineers and technicians are local.*



*State-of-the-art training in the High-Technology Training Centre (CENALTEC) and in the 59 universities and 65 vocational/technical institutions of the state.*

# Talent and Industrial Culture



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## Available Talent!!

- 6,410 Science, Technology, Engineering and Mathematics (STEM) graduates per year.
- Far more talent available than other locations such as Guadalajara or Bajío Region.

## Technological Infrastructure

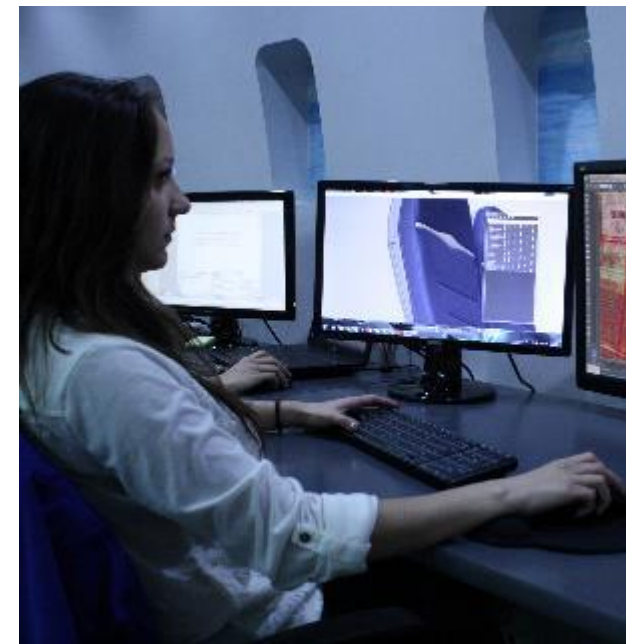
- Telecom infrastructure and redundancy to ensure the smooth operation of your company's day to day activities.

## Large ecosystem

- Suppliers of software services, research centers, IT Cluster, etc. are part of the ecosystem.

## Expertise in Business Process Outsourcing

- Companies such as Teleperformance and Data Zone are established in the state and operate successfully.





# Talent and Industrial Culture



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## Skilled Trades

**+62,000** Students.

**+13,000** Graduates per year.

**+26,000** New Enrollment.

## Bachelors

**+115,000** Students.

**+17,000** Graduates per year.

**+26,000** New Enrollment.





# Talent and Industrial Culture



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## College Graduates per Year per Area:

**+4,400** Engineering & IT.

**+3,600** Administrative and Business.

**+3,400** Social Sciences and Law.

**+1,700** Health Sciences.

## Masters & PhD Graduates per Year per Area:

**1,000** Administrative and Business.

**500** Social Sciences and Law.

**+200** Engineering & IT.



# Innovation and Technology Development



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*5 Advanced Research and Engineering Centers, public and private, focused in design, product development and testing:*



• **A P T I V** •

**Honeywell**



*2 Innovation and Technology Development Centers in progress: SPARK (Chihuahua) & CIITA (Juarez).*



# Design and engineering Success stories

## Honeywell



Research and Development Center in Chihuahua City, focused in mechanical development, packaging, embedded software.

- ✓ Started operations in 2006.
- ✓ 100 engineers.
- ✓ Linked to 4 manufacturing plants in Chihuahua.

## SAFRAN



SAFRAN Engineering Services in Chihuahua City is focused in mechanical design, electrical design, systems design, manufacturing.

- ✓ 160 engineers.
- ✓ Linked to 4 manufacturing plants in Chihuahua.
- ✓ Design & Engineering services open to external suppliers with the SAFRAN Group knowledge & support.



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## • APTIV •



Engineering Center in Juárez City, focused on the design, development, testing and validation of automotive components.

- ✓ Started operations in 1995.
- ✓ +2000 engineers.
- ✓ +1,000 Invention Records.
- ✓ +500 patents.
- ✓ Linked to 1 manufacturing plant in Chihuahua.

# Latest Investments from Asian companies



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*During 2018 & 2019 Asian countries have invested more than 170 Million USD in Expansion projects and New Investments*

Company	Country of Origin	Sector	Production
Xinlida Autoparts	China	Automotive	Brake Parts
YFY Jupiter	China	Packaging	Paper Pulp Forms & Printing
NIDEC	Japan	Automotive	Brushless Motors
YAZAKI	Japan	Automotive	Wire Harness
Sumitomo	Japan	Automotive	Wire Harness
Sumitomo	Japan	Automotive	Wire Harness
Sumitomo	Japan	Automotive	Wire Harness
Sumitomo	Japan	Automotive	Wire Harness
YAZAKI	Japan	Automotive	Wire Harness
Sumitomo	Japan	Automotive	Wire Harness
Sumitomo	Japan	Automotive	Wire Harness
Foxconn	Taiwan	Electronics	Computers, Smart Phones
Foxconn	Taiwán	Electronics	Computers, Smart Phones
Foxconn	Taiwán	Electronics	Computers, Smart Phones
Foxconn	Taiwán	Electronics	Computers, Smart Phones
Foxconn	Taiwán	Electronics	Computers, Smart Phones
Wistron	China	Electronics	TV and Solar panels



# Electrical and electronic cluster



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*Chihuahua is the 3<sup>rd</sup> FDI destination nationally in electrical-electronics industry with 126 companies and more than 94k employees*



# Automotive Cluster



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*Chihuahua is #1 automotive employer in Mexico with more than 155k employees, 157 companies and 2 OEM's (Ford and BRP)*



# Aerospace cluster



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*Chihuahua accounts for 30% of the aerospace employment in Mexico with more than 17k employees, 40 certified suppliers and 6 out of the 8 OEM's operating in Mexico*



# Medical Device Cluster



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*More than 29k employments and 53 companies producing state of the art products in medical devices and pharmaceutical products*





# Strategic Logistics



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*The roads of Chihuahua are part of one of the main logistics network between Mexico and North America.*

Chihuahua to:	Distance (kilometers)	Distance (miles)	Time (hours)
El Paso	363	226	3.5 h
Los Angeles	1,609	1,030	15.7 h
Detroit	2,969	1,845	28 h
Wichita	1,575	979	15 h
Boston	4,010	2,492	38 h
San Francisco	2,269	1,410	22 h
Montreal	3,865	2,402	37 h



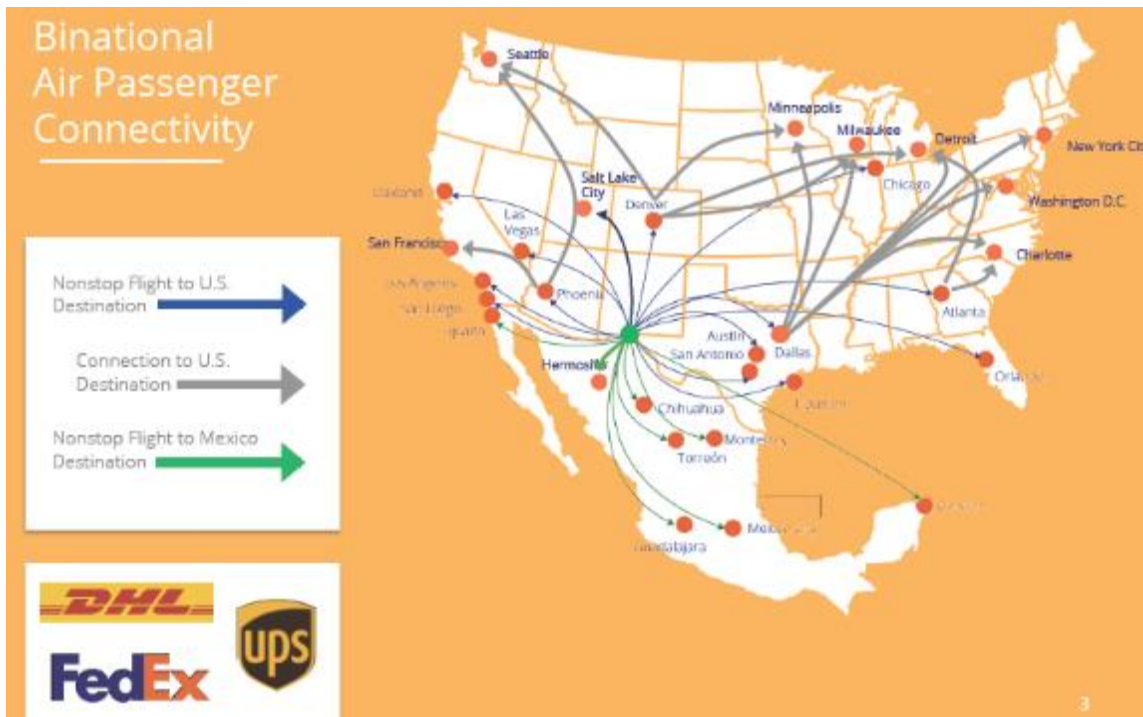
# Strategic Logistics



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*An excellent hub for business, freight and tourism transportation through Chihuahua, Cd. Juárez and El Paso, Texas airports.*



Chihuahua to:	Time (hours)
El Paso	0.5 h
Austin	5 h
Wichita	5 h
Chicago	6 h
Miami	6 h
Minneapolis	6 h
Detroit	6.5 h
Los Ángeles	7.5 h
Boston	8 h
San Francisco	8 h
Seattle	8.5 h
Montreal	9 h

# Strategic Logistics

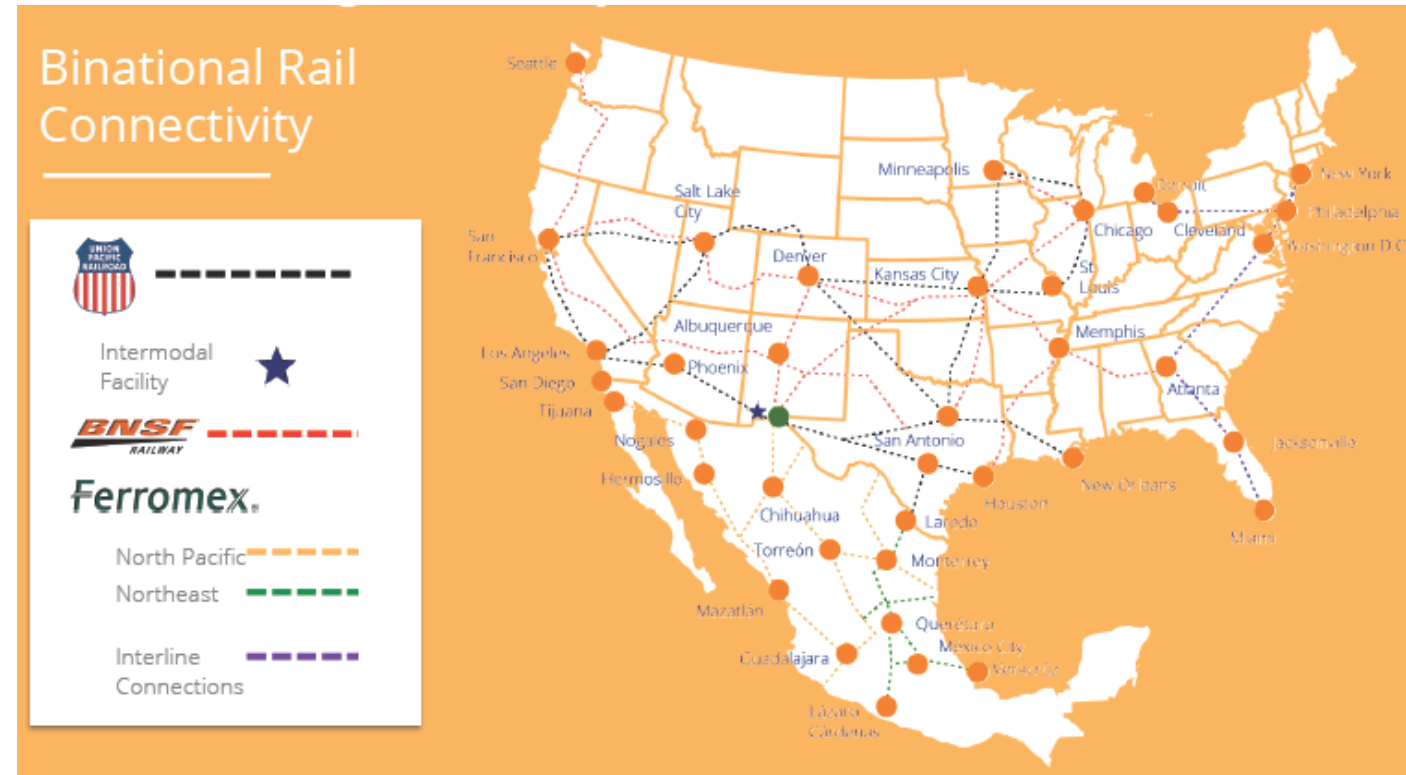


SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



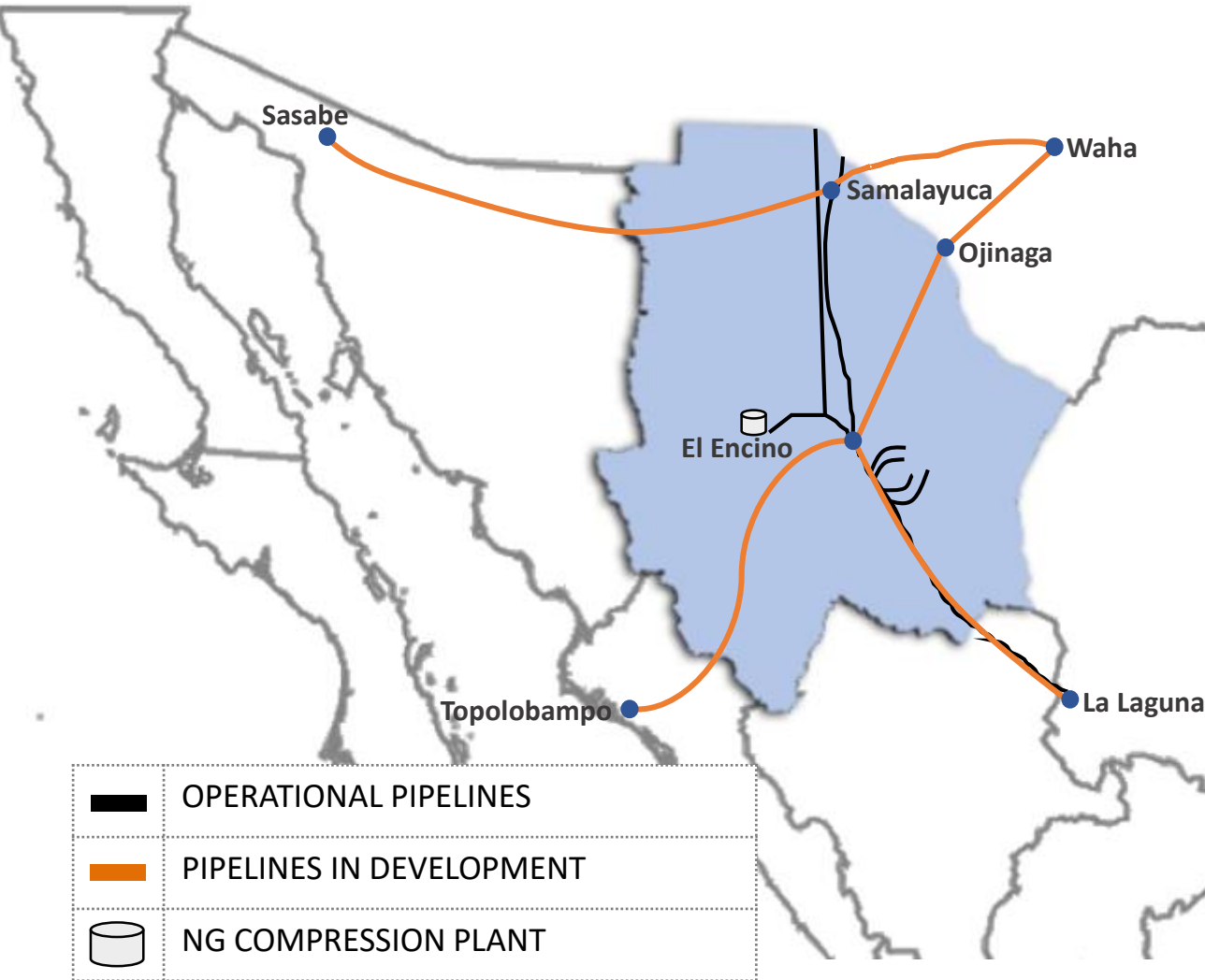
*The most efficient rail network  
for heavy load transportation to  
United States and Mexican ports.*

Chihuahua to:	Distance (kilometers)	Distance (miles)
Los Ángeles	1,657	1,030
Detroit	2,969	1,845
Los Mochis	651	405
Silao, Guanajuato	1,221	759
Veracruz	682	424





# PIPELINES IN CHIHUAHUA



**Waha ... MOST COMPETITIVE NATURAL  
GAS SOURCE IN THE WORLD ...**

## NATURAL GAS APPLICATIONS

### PARQUES PETROQUÍMICOS

- Resinas de PVC
- Fertilizantes: Urea; Amoniaco; Derivados; Metanol

### PARQUES ELÉCTRICOS

- Plantas de Ciclo Combinado
- Cogeneración
- Autoabasto
- Generación Distribuida

### PARQUES INDUSTRIALES

- Fundición a presión / Die Casting
- Cerámica
- Vidrio
- Forja y fundición de acero / Siderúrgicas
- Agroindustria (Proyectos agroindustriales, Invernaderos, etc.)

### PROYECTOS DE DISTRIBUCIÓN

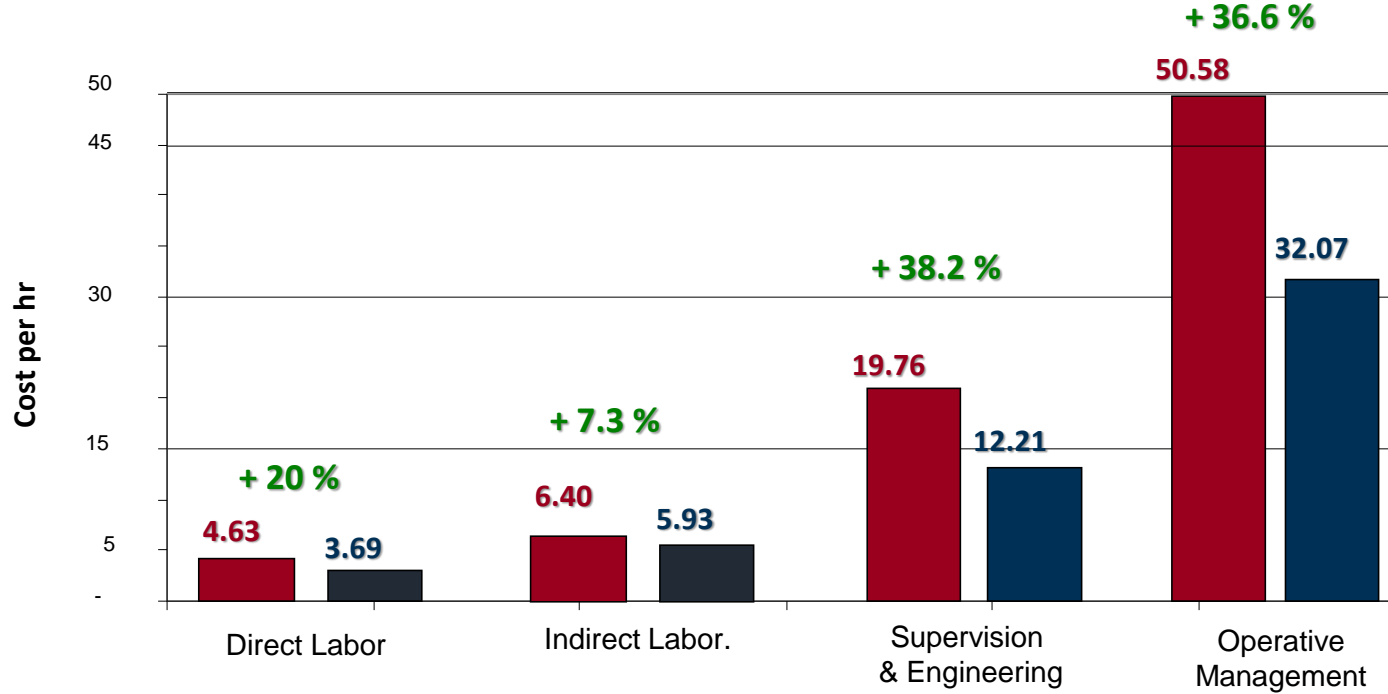
- Industrial
- Comercial
- Domestico
- Gas Natural Vehicular
- Generación Distribuida



# Binational manufacturing clusters



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## Labor weighted cost comparison (cost per hr)

**TIJUANA** **CHIHUAHUA**  
**+ 24.36 %**

SOURCE: A.I. Cost Model based on market Labor Surveys  
(Willis Towers Watson & Ruiz-Morales)



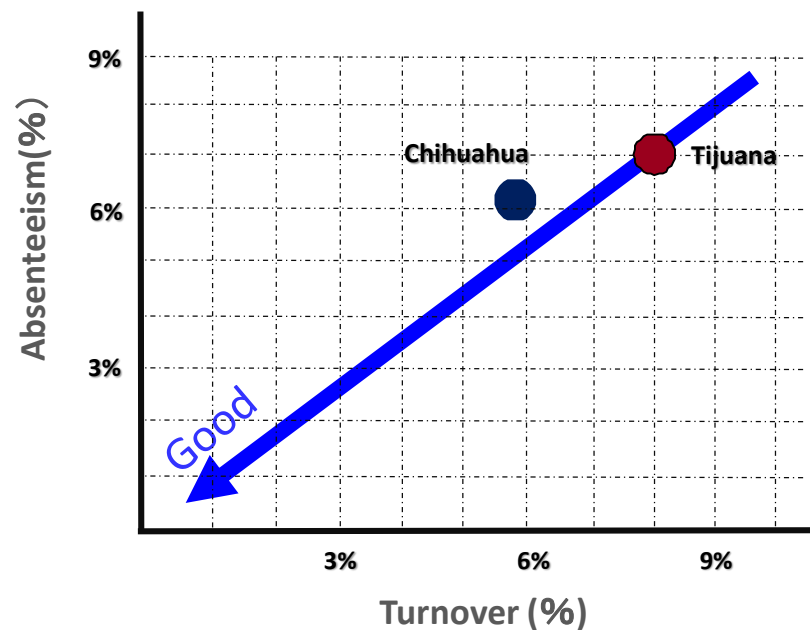
# Binational manufacturing clusters



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO

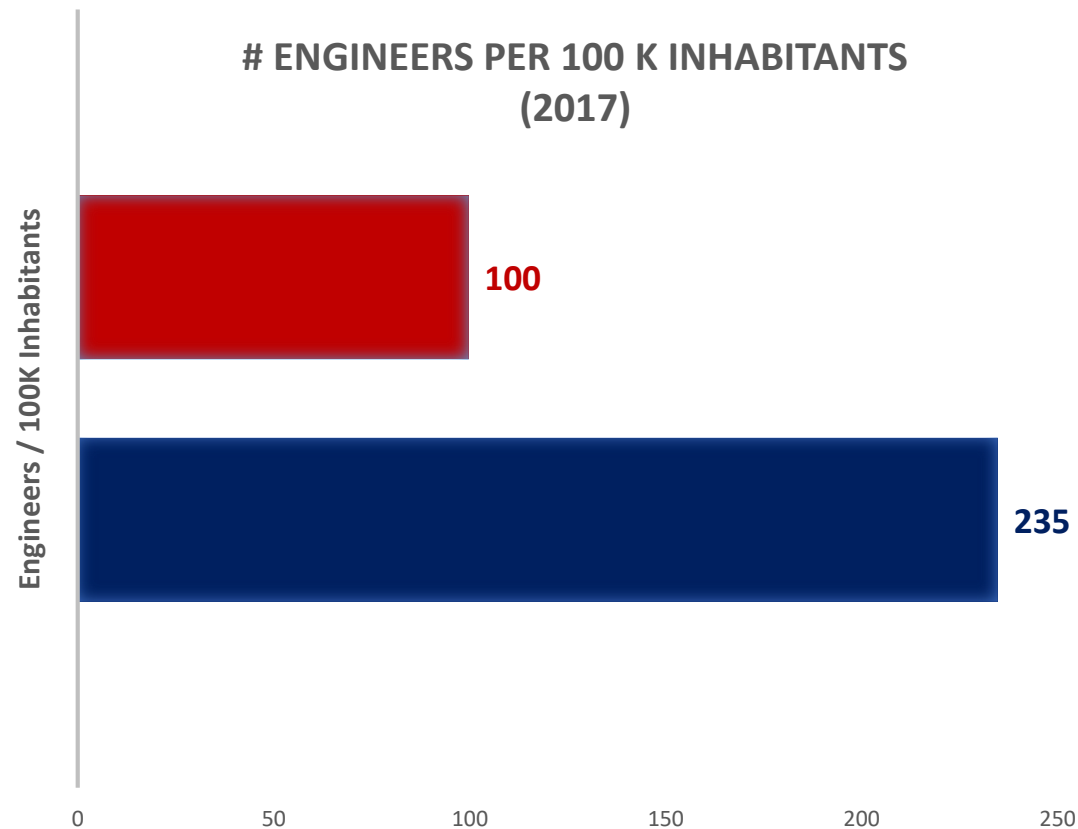


WORKFORCE STABILITY  
(2018 monthly average)



SOURCE: Chihuahua and Tijuana (INDEX & EDC).

# ENGINEERS PER 100 K INHABITANTS  
(2017)





# Binational manufacturing clusters



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



Location: Chihuahua	Project Population = 695 Building Size Sq.Ft. = 160,000		QTY	US \$	Sub-Total	Extended	Cost/Clock Hr	%
	Total							
Building	5	Building Rent	160,000	\$ 0.48	\$ 76,128.00	\$154,438	\$1.23	17%
	6	Building NNN	160,000	\$ 0.04	\$ 6,400.00			
	7	Park Fees	160,000	\$ 0.00	\$ 481.69			
	8	Building Utilities	160,000	\$ 0.16	\$ 25,743.78			
	9	Process Utilities	160,000	\$ 0.29	\$ 45,684.56			
Building	5	Building Rent	160,000	\$ 0.59	\$ 95,152.00	\$169,850	\$1.35	15%
	6	Building NNN	160,000	\$ 0.04	\$ 6,400.00			
	7	Park Fees	160,000	\$ 0.00	\$ 481.69			
	8	Building Utilities	160,000	\$ 0.12	\$ 18,816.00			
	9	Process Utilities	160,000	\$ 0.31	\$ 49,000.00			

- Building Area: 160 K ft2 (P1 112 K ft2 + P2 48 K ft2)
- Land Area: 407.8 K ft2 (P1 259.4 K ft2 + P2 148.4 K ft2)
- Construction Cost: P1 US\$ 44.55 ft2 / P2 US\$ 33 ft2
- 2.00% yearly escalator on every anniversary of the lease.
- 10 – Year Lease term.
- Lease rate on a triple net basis (NNN) plus Mexican VAT.
- Phase 2 will be delivered 12 months after Phase 1 final delivery.

## Building costs comparison

■ TIJUANA ■ CHIHUAHUA  
+9.07 %



# Binational manufacturing clusters



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



Location: Chihuahua	Project Population = 695 Building Size Sq.Ft. = 160,000		QTY	US \$	Sub-Total	Extended	Cost/Clock Hr	%
							Total	
Logistics	10	Southbound freight	20	\$ 429.66	\$ 8,593.20	\$30,186	\$0.24	3%
	11	Northbound freight	20	\$ 429.66	\$ 8,593.20			
	12	Local Freights	0	\$ 100.00	\$ -			
	13	S. bound US/Mex broker fee	20	\$ 93.00	\$ 1,860.00			
	14	N. bound US/Mex broker fee	20	\$ 113.00	\$ 2,260.00			
	15	Virtual northbound (Mex broker fee only)	0	\$ 60.00	\$ -			
	16	S. bound Freight forwarding	20	\$ 222.00	\$ 4,440.00			
	17	N. bound Freight forwarding	20	\$ 222.00	\$ 4,440.00			
Logistics	10	Southbound freight	20	\$ 299.88	\$ 5,997.60	\$23,655	\$0.19	2%
	11	Northbound freight	20	\$ 299.88	\$ 5,997.60			
	12	Local Freights	0	\$ 100.00	\$ -			
	13	S. bound US/Mex broker fee	20	\$ 103.00	\$ 2,060.00			
	14	N. bound US/Mex broker fee	20	\$ 140.00	\$ 2,800.00			
	15	Virtual northbound (Mex broker fee only)	0	\$ 85.00	\$ -			
	16	S. bound Freight forwarding	20	\$ 170.00	\$ 3,400.00			
	17	N. bound Freight forwarding	20	\$ 170.00	\$ 3,400.00			

## Logistics costs comparison

(cost per month for 20 Southbond / 20 Northbond shipments)

■ TIJUANA ■ CHIHUAHUA

+ 21.6 %





# Binational manufacturing clusters



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



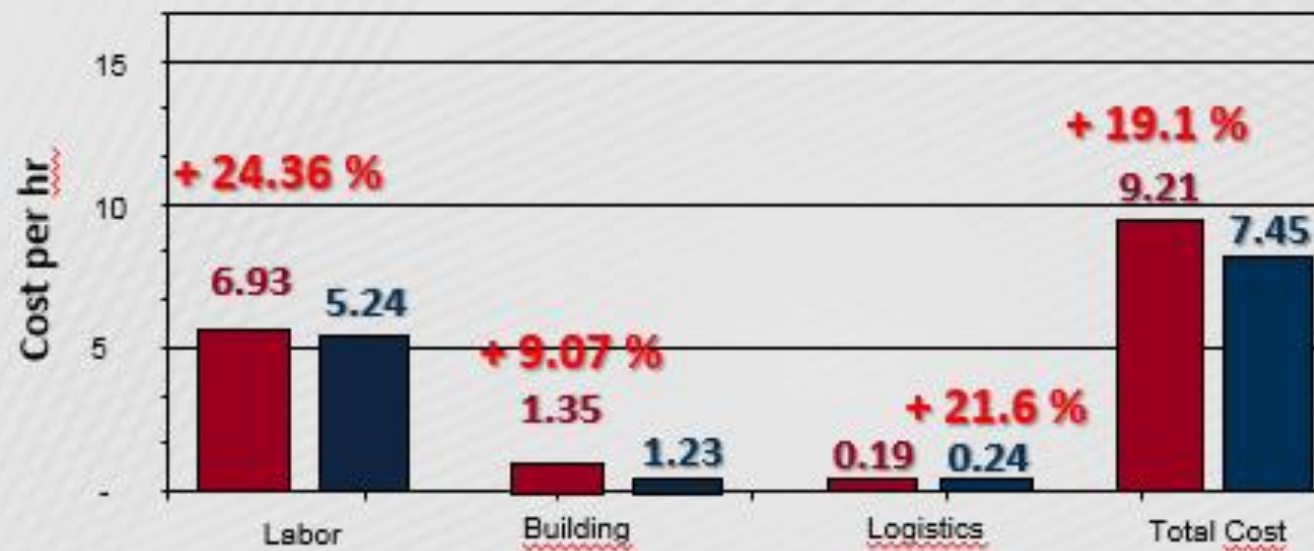
## Operations cost comparison

(cost per hour)

**TIJUANA**

**CHIHUAHUA**

**+ 19.1 %**





# Government support



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*The Chihuahua State Government is fully committed to support new investment projects with attractive and tailor made incentives.*

*We ask you to provide quantitative data to make an analysis of your projects & define State support.*

- ✓ Investment Amount
- ✓ Payroll Quality
- ✓ Strategic Sectors
- ✓ Local Procurement
- ✓ Intellectual property development
- ✓ Geographic Location

Up to 10%  
of Capital  
Expenditure  
(CAPEX)

Payroll tax

Worker training

Real Estate



# Quality of Life



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



*Extensive leisure options: golf, shopping malls and museums.*



*Diversity of international gastronomy and regional wines.*



*Excellent bilingual schools.*



*World-class hospitals.*



*Low traffic and reduced transportation times.*



# What else does Chihuahua has to offer?



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## *CHEPE Train and Copper Canyon*



*You can travel by CHEPE Train, the only passenger train in Mexico.*

*Enjoy the sight of Copper Canyon, 4 times larger than the Colorado Canyon.*

*Visit Basaseachi Waterfall, the tallest permanent waterfall in Mexico.*





# What else does Chihuahua has to offer?



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## *Pueblos Mágicos (Magic Towns)*

*Casas Grandes (Paquimé), with an amazing archeological zone.*

*Creel, where you can breathe the pure air of the forest.*

*Batopilas, with beautiful antique buildings and tropical climate.*





# What else does Chihuahua has to offer?



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## *Samalayuca*



*Enjoy adventure sports in Samalayuca desert, such as:*

- *Sand boarding.*
- *ATVs.*
- *Motocross.*



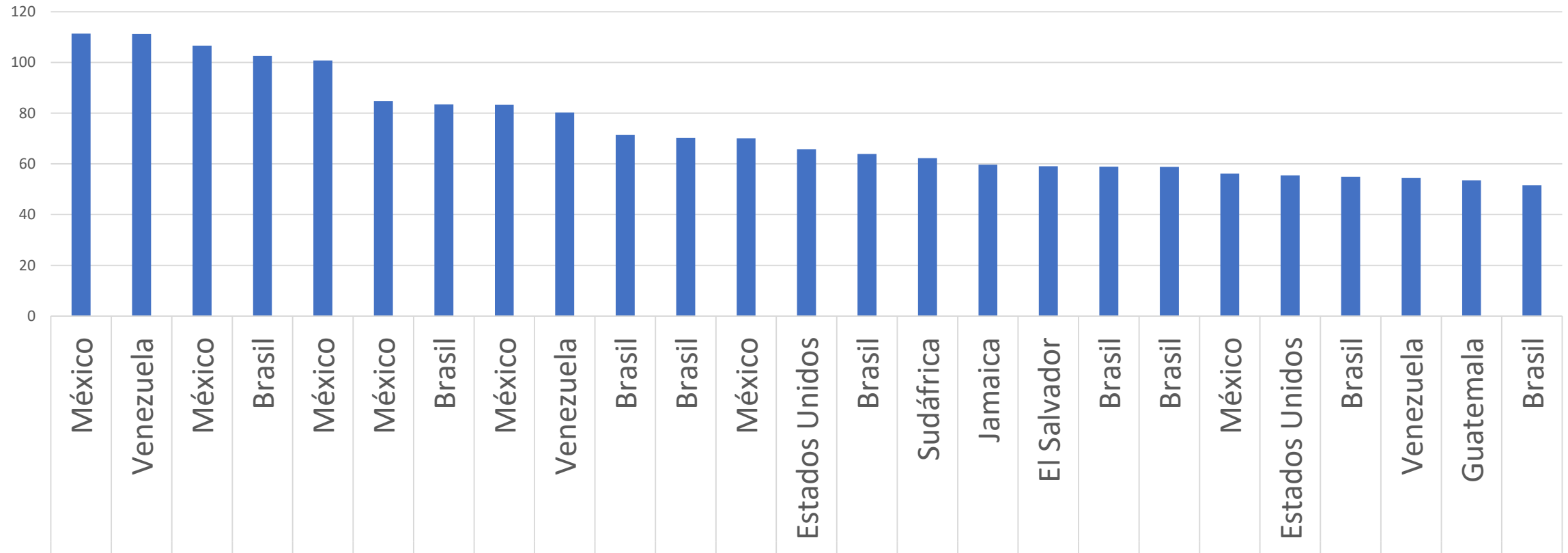
# Safety?



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## Worldwide Homicide per 1000 inhabitants





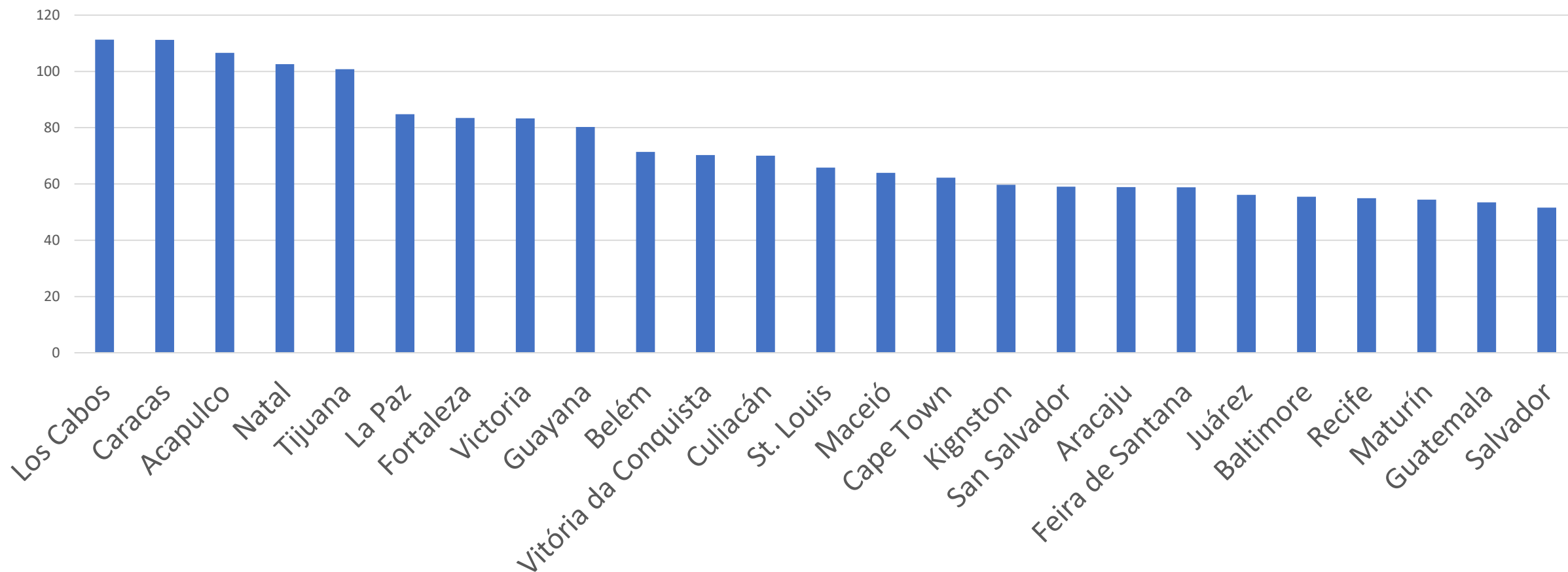
# Safety?



SECRETARÍA  
DE INNOVACIÓN  
Y DESARROLLO ECONÓMICO



## Worldwide Homicide per 1000 inhabitants







## Secretariat of Innovation and Economic Development

**Alejandra de la Vega**  
Secretary

**Fabián Santana**  
Head of Investment Promotion  
[fabian.santana@chihuahua.com.mx](mailto:fabian.santana@chihuahua.com.mx)  
Ph.+52 (614) 442-3302