

# Developing higher level skills for the industry

---

Jorge Gutiérrez de Velasco Rodríguez

President, Mexican Council of Aerospace Education (COMEA)

Secretary, Directive Council of State of Queretaro's Aerocluster C.A.

**EDUCACIÓN**

SECRETARÍA DE EDUCACIÓN PÚBLICA



# Agenda



EDUCACIÓN  
SECRETARÍA DE EDUCACIÓN PÚBLICA



1. The Strategic Agenda; initiative of higher education institutions

2. The aeronautical and space strategic agenda of higher education institutions

3. GAP Analysis

4. Strategic analysis



# Agenda



EDUCACIÓN  
SECRETARÍA DE EDUCACIÓN PÚBLICA



1. The Strategic Agenda; initiative of higher education institutions

2. The aeronautical and space strategic agenda of higher education institutions

3. GAP Analysis

4. Strategic analysis

## 2.1. The Strategic Agenda; initiative of higher education institutions



UANL

UNIVERSIDAD AUTÓNOMA DE NUEVO LEÓN



Universidad Politécnica Metropolitana de Hidalgo



31

Educational institutions



69

Experts



UACH  
UNIVERSIDAD AUTÓNOMA DE CHIHUAHUA

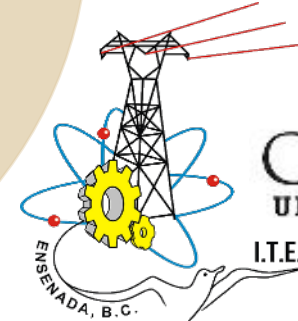


+120

Plenary and group meetings



MARISTAS.  
UNIVERSIDAD MARISTA DE GUADALAJARA



CETYS  
UNIVERSIDAD



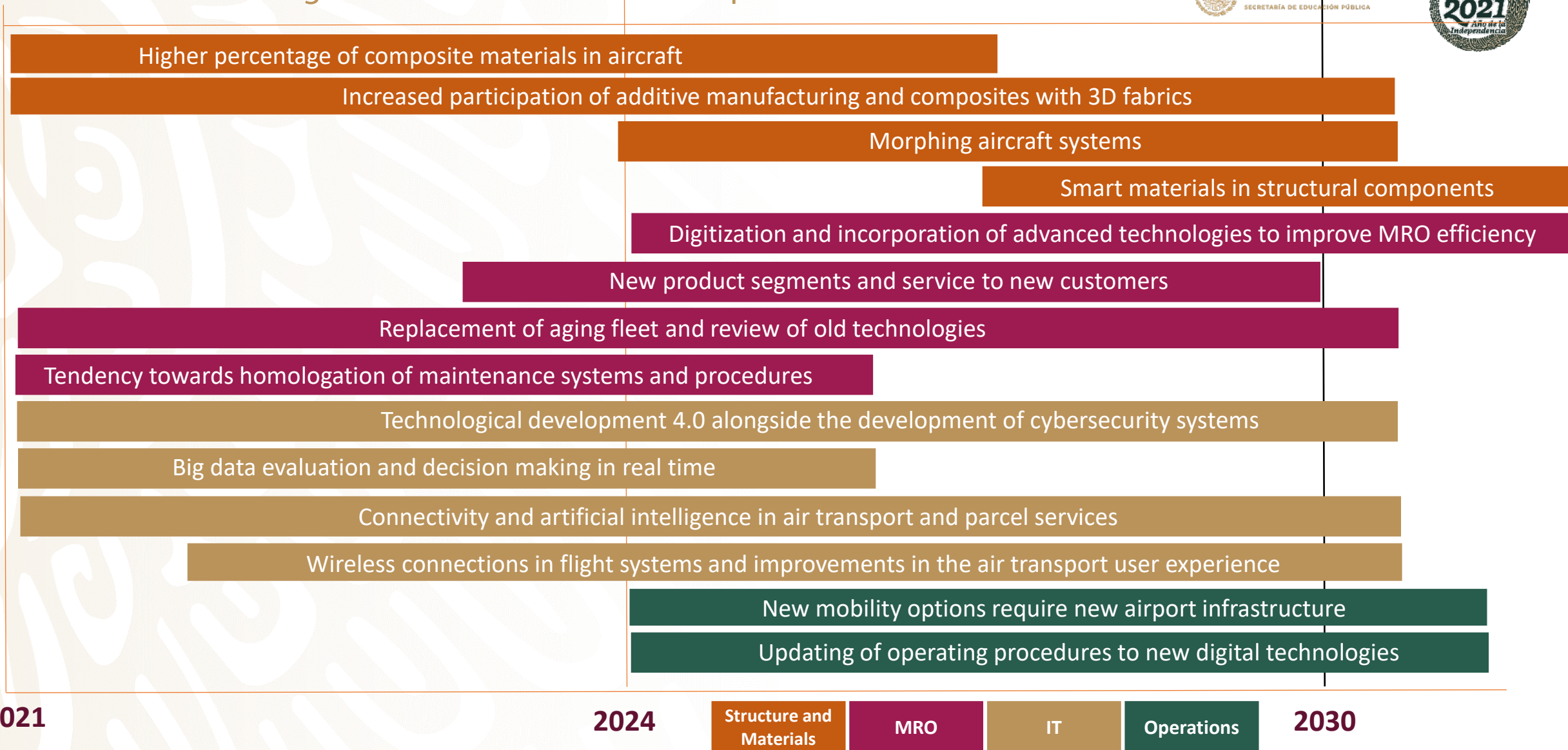
UNIVERSIDAD POLITÉCNICA DE APODACA NUEVO LEÓN



UNIVERSIDAD POLITÉCNICA DE YUCATÁN BIS

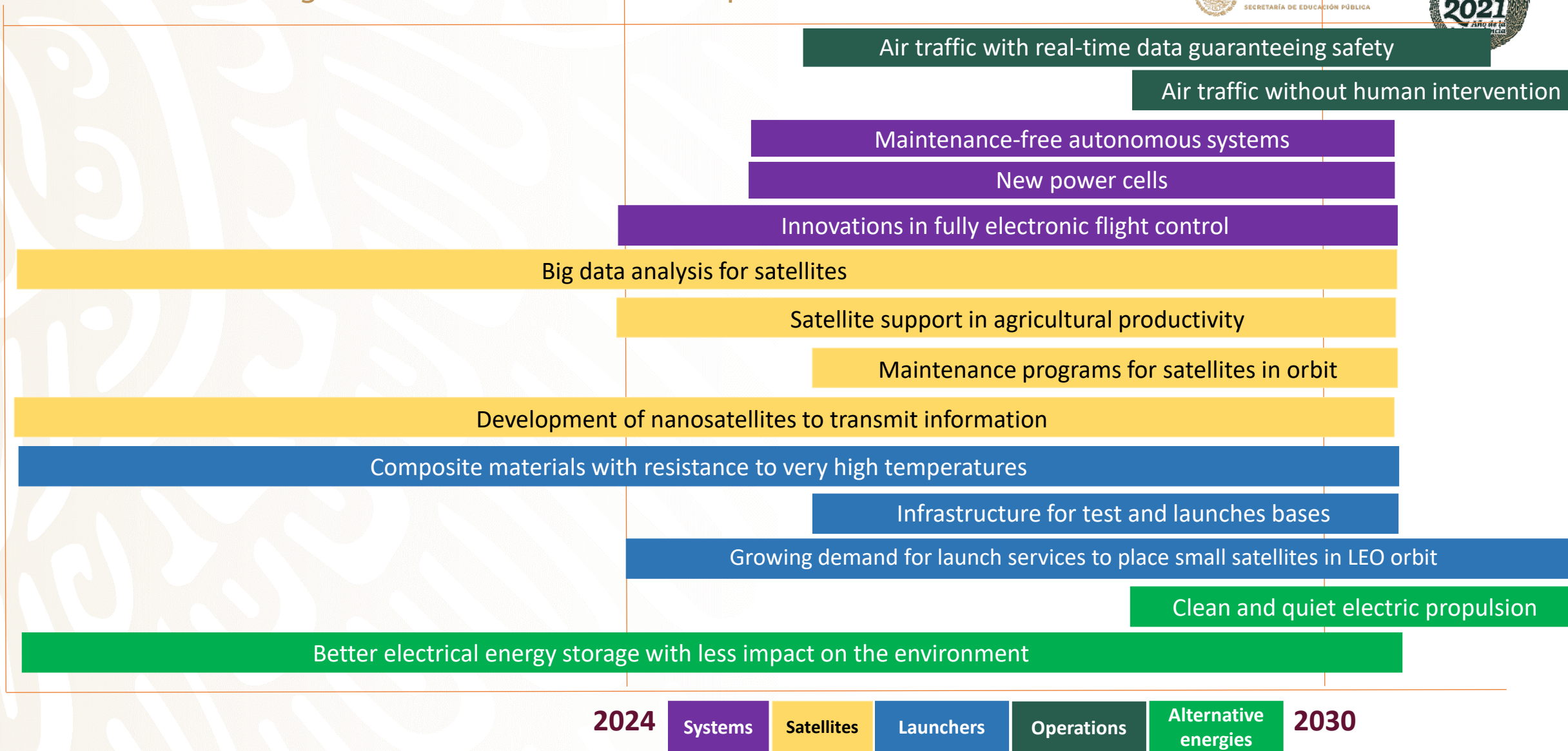


## 2.2. Technological trends<sup>1</sup> that will impact Mexico – Part 1



Nota 1. Resumen de tendencias más significativas.  
Fuente: Agenda Estratégica Aeronáutica y Espacial de las IES 2030

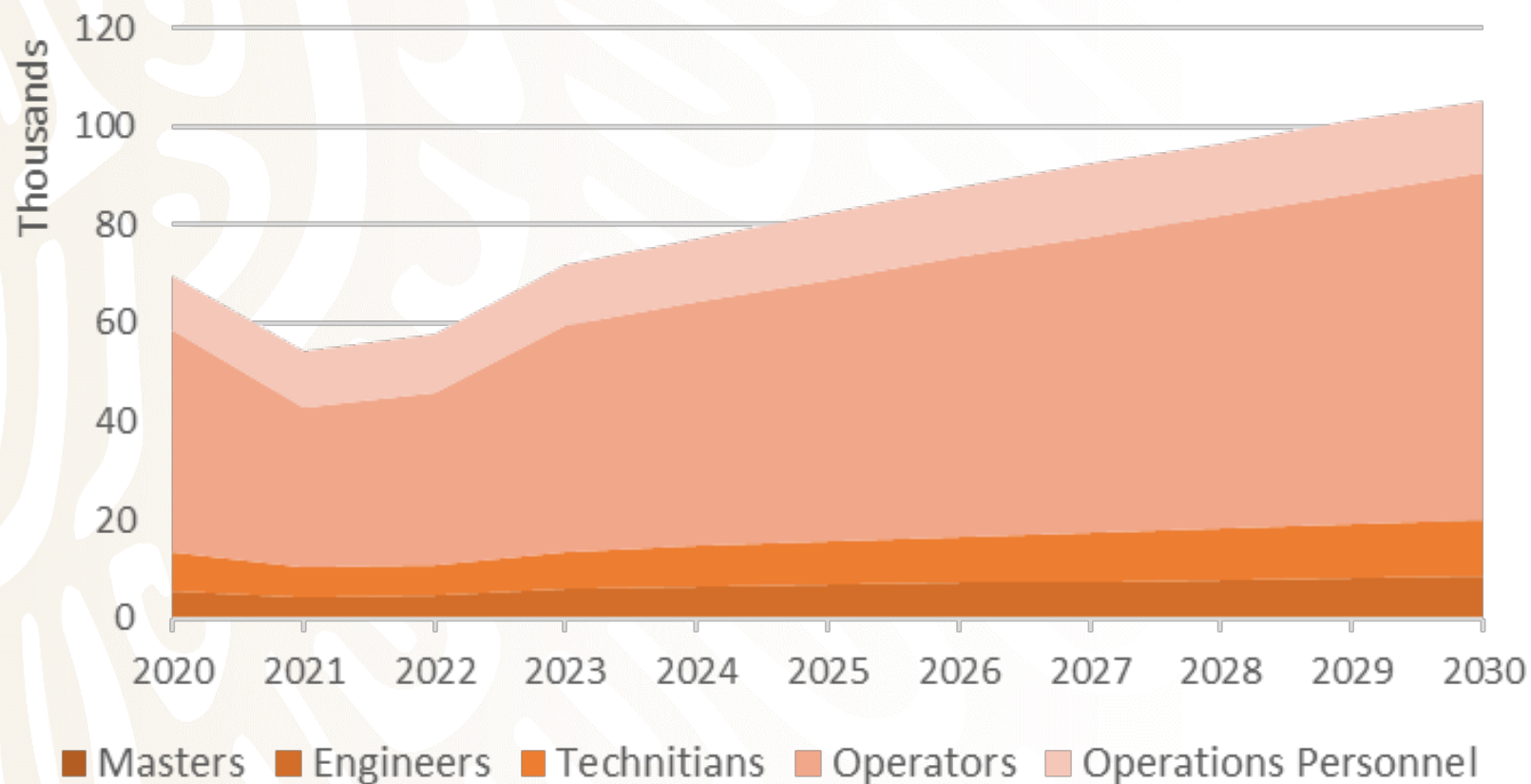
## 2.2. Technological trends<sup>1</sup> that will impact Mexico – Part 2



Note 1. Summary of most significant trends  
Fuente: Strategic Aeronautical and Space Agenda of HEI 2030

## 2.3. Human capital needs

Personnel required by 2030



BY 2030 MORE THAN  
**105,000**  
specialized professionals  
WILL BE REQUIRED

**19%**  
must have a  
higher level

Mexico's vocation will continue  
to be manufacturing and labor  
intensive:

**67%**  
Will be operators



# Agenda



EDUCACIÓN  
SECRETARÍA DE EDUCACIÓN PÚBLICA



1. The Strategic Agenda; initiative of higher education institutions

2. The aeronautical and space strategic agenda of higher education institutions

3. GAP Analysis

4. Strategic analysis

## 3.1. Radiography of infrastructure for education

**Only**  
**13%** of Higher Education Institutions  
have the minimum infrastructure  
for aeronautical education

**67%** of Higher  
Education  
Institutions do not  
have laboratory  
aircraft

**31** minimum capacities were defined to cover  
the needs of teaching in aeronautics and **18** in  
space

Only **6** of the **31** HEIs  
have infrastructure for  
teaching in space

## 3.2. The HEIs with aeronautical and space educational offer in figures

**70%**  
of educational  
programs are NOT  
accredited<sup>1</sup>

ONLY  
**One**  
PhD program and  
THREE Master's  
are offered

**51%**  
of the teachers DO  
NOT have a  
postgraduate degree



1. CACEI, FIMPES, CIEES or PNPC certifications. None have ABET certification.

# Agenda



EDUCACIÓN  
SECRETARÍA DE EDUCACIÓN PÚBLICA



1. The Strategic Agenda; initiative of higher education institutions

2. The aeronautical and space strategic agenda of higher education institutions

3. GAP Analysis

4. Strategic analysis

# S

## Strengths

- Presence in industrial corridors.
- Close relationship with the aeronautical authority.
- Teaching specialties at a technical level.
- Low costs of academic training.
- Existence of a network of laboratories for the sector.
- Qualified teaching staff and researchers for current technologies.
- Existence of mobility and international relations.

# O

## Opportunities

- To be business partners of the largest manufacturer in the world.
- Creation of national and international collaboration networks.
- Great need for the production of aero parts in Mexico.
- Export of continuing education.
- National engineering development.
- Double degree programs.
- Projects with the industry.
- Employer requirements.
- Links with national and foreign universities.

# W

## Weaknesses

- Low budget assigned to R + D + i.
- There is no specific link.
- Low salaries of professionals in the sector.
- The equipment is not adequate.
- Weak links between IES and industry.
- Lack of certifications in aeronautical standards.
- Lack of updating of study programs.
- Lack of clarity in triple helix linkage.
- Non-oriented research or poorly defined lines.
- Stagnation in academic development.

# T

## Threats

- Pandemic.
- High cost of components.
- Industry migration.
- High speed of technological changes.
- Financial crisis.
- Other regions ahead of Mexico.
- Lag in workshops and laboratories of HEIs.
- Contraction of the global aeronautical sector
- .Decrease in foreign investment.
- Research austerity.



# Strategic programs and projects

## 8 Programs and 18 Projects

Current situation of HEIs

1. Technological and human strengthening program for teachers

Sustainable infrastructure creation and availability program

3. Program for linking with the sector and society

4. Research, technological development and innovation program

5. Relevant and agile academic offer program

6. Comprehensive educational quality management program

7. Digital transformation program

8. Relevant budget allocation program

Future vision

GAP

## Conclusions

Higher education institutions must go one step ahead of the necessities of the sector; the opportunity: collective high-impact strategic exercises

Many thanks!

Jorge Gutiérrez de Velasco

rectoria@ unaq.m x

**EDUCACIÓN**

SECRETARÍA DE EDUCACIÓN PÚBLICA

