



Escuela Técnica Superior de Ingeniería del Diseño



UNIVERSITAT  
POLITÈCNICA  
DE VALÈNCIA

# Technology capabilities map from the Valencian Automotive Industry

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1. Major purpose
2. The automotive industry
  - 2.1 Introduction
  - 2.2 Processes and technologies
  - 2.3 Megatrends
3. Methodology
4. SWOT analysis
5. Results
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The major purpose of this Final Master Thesis is to identify the technological capabilities, which are potentially applicable to the automotive industry, in the SCIENCE, as well as, the Applied SCIENCE System and the business network.





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GENERALITAT  
VALENCIANA



SPANIA **GTA**



**AVIA**

Cluster de Automoci3n de la Comunitat Valenciana





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## **1. Assembly line and finished:**

- 1.1. Assembly line of assemblies and mechanisms.
- 1.2. Wiring and electrical & electronic connection.
- 1.3. Welding.
- 1.4. Adhesive unions.
- 1.5. Mechanical unions.
- 1.6. Painting.
- 1.7. Surface finish.
- 1.8. Chrome plated.
- 1.9. Others.

## **3. Processing of non-metallic materials:**

- 3.1. Plastic injection.
- 3.2. Blowing of plastics.
- 3.3. Extrusion of plastics.
- 3.4. Processing of rubbers.
- 3.5. Processing of textiles.
- 3.6. Processing of glasses.
- 3.7. Cold / hot stamping.
- 3.8. Composites.
- 3.9. Processing of other materials.
- 3.10. Others.

## **2. Transformation of metallic elements:**

- 2.1. Foundry.
- 2.2. Compression / Pressing.
- 2.3. Curved-bent.
- 2.4. Fine cut.
- 2.5. Conformed.
- 2.6. Forged.
- 2.7. Stamping.
- 2.8. Machining.
- 2.9. Superficial treatments.
- 2.10. Heat treatments.
- 2.11. Non-conventional processes.
- 2.12. Metal injection.
- 2.13. Powder metallurgy.
- 2.14. Others.





#### **4. Production goods:**

- 4.1. Manual operations equipment.
- 4.2. Tools.
- 4.3. Raw Materials.
- 4.4. Robots and automatism.
- 4.5. Parts transport systems.
- 4.6. Equipment for specific processes.
- 4.7. Molds and matrices.
- 4.8. Others.

#### **5. Services linked to production systems:**

- 5.1. Production management.
- 5.2. Maintenance of manufacturing lines.
- 5.3. Diagnosis of manufacturing systems.
- 5.4. Equipment calibration.
- 5.5. Process industrialization.
- 5.6. Logistics.
- 5.7. Others.

#### **6. Other services linked to the business structure:**

- 6.1. Supply management.
- 6.2. Waste management.
- 6.3. Purchases.
- 6.4. Commercial.
- 6.5. Corporate organization.
- 6.6. Documentary and knowledge management.
- 6.7. Training.
- 6.8. Information systems.
- 6.9. Marketing.
- 6.10. Prevention, safety and health.
- 6.11. Reworks and quality walls.
- 6.12. R + D + i activities.
- 6.13. Others.

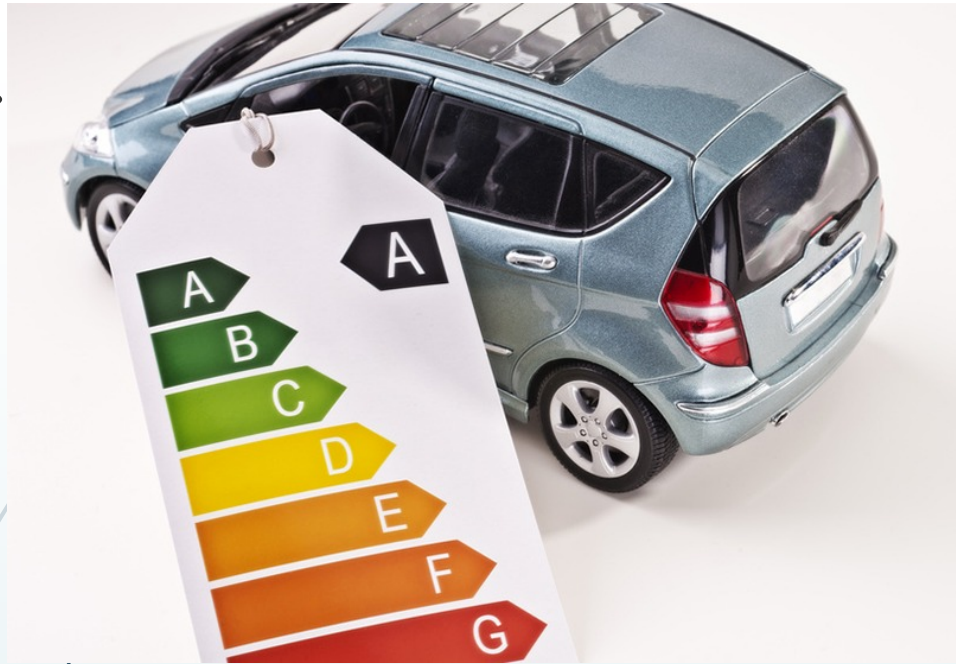


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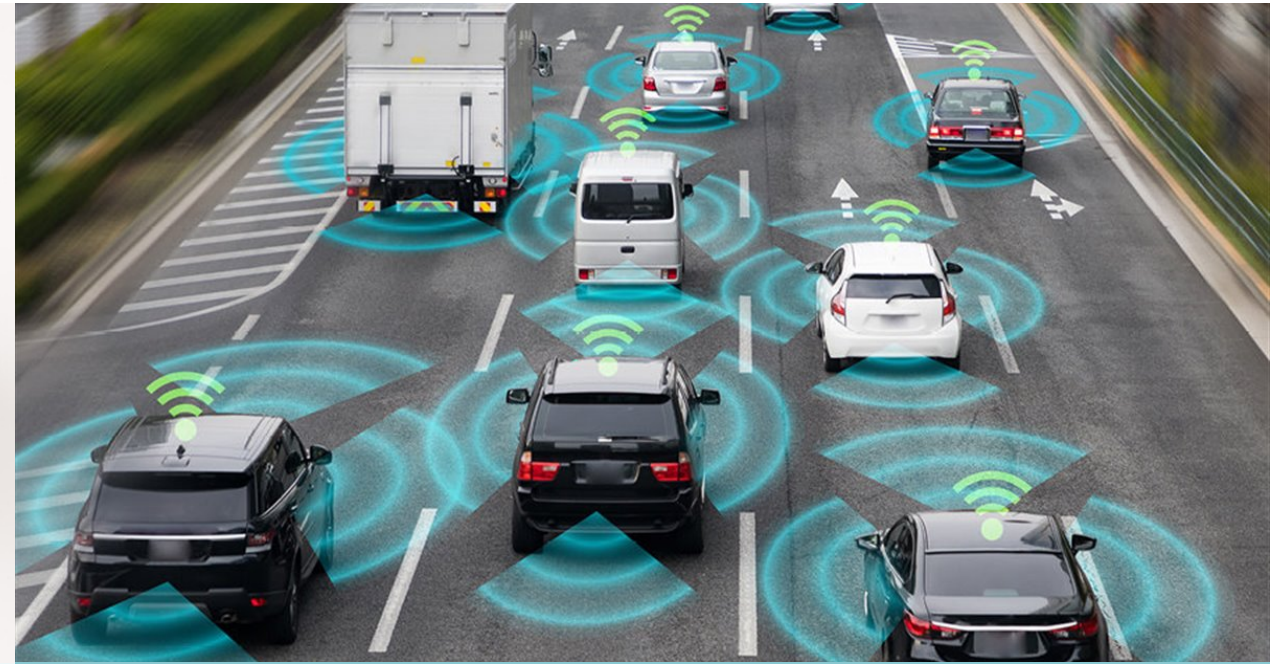


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# I. Efficiency



# II. Autonomy & connectivity



# III. Car Sharing





## **I. Efficiency**

- ✓ Hybrid, electric motors, biofuels.
- ✓ Energy storage technology (batteries and new materials).
- ✓ Structural component materials (weight reduction).
- ✓ Fast / slow recharging infrastructures.
- ✓ Alternative recharging systems.
- ✓ Regulations (charging points, Smart cities, emissions and sustainable mobility).
- ✓ Information and connectivity systems for sustainable mobility.
- ✓ New functionalities in plastic materials.
- ✓ Adhesion systems. Structural adhesives.
- ✓ Other materials with new functionalities.

## **II. Autonomy & connectivity**

- ✓ ADAS (cameras, sensors, infrared, mobile technology...).
- ✓ Software.
- ✓ Other electronic components.
- ✓ New interior architectures (materials, spaces).
- ✓ New technical textiles.
- ✓ 5G / Connectivity.
- ✓ Regulation for new mobility models.

## **III. Car sharing**

- ✓ Collaborative platforms.
- ✓ Real-time apps.
- ✓ New mobility models.



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Servicio de Promoción y Apoyo a la Investigación, Innovación y Transferencia



UNIVERSITAT POLITÈCNICA DE VALÈNCIA



Explora la oferta tecnológica de la Universitat Politècnica de València

Busca en la UPV



**AVI** AGÈNCIA VALENCIANA DE LA INNOVACIÓ

STOCK DE CAPACIDADES TECNOLÓGICAS EN LA C. VALENCIANA APLICABLES AL SECTOR AUTOMOCIÓN





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## **Strenghts:**

- ✓ The Valencia Industry has good logistical resources such as the good connections of the Port of Valencia or by road.
- ✓ The Valencian Community is a territory of industrial reference due to the Universities and the Training Centers which are located there. For instance, the Ford Training Center or the 5 public universities.
- ✓ The Valencian Community is a high competitive in another fields of the industry such as chemistry or textile.
- ✓ The density of the bussiness network which is located in Valencia is high focused in the automotive industry and it involves several little and medium companies.

## **Weaknesses:**

- ✓ There is a lack of teamwork among the automotive agents. As a few examples; there is a lack of a automotive reference centre, there is a low investment in I+D+i too.
- ✓ The decisions centers of the multinationals, which are located in Valencia, have its decisions centers out from our community.
- ✓ High productive costs (energetic costs, logistics costs, etc.) and the professional instability caused by the temporary work in the sector.





## Threats:

- ✓ Due to potential automotive industries in a near future as China and India, the automotive productive axe will shift to the atlantic ocean towards the pacific ocean.
- ✓ It's posible that Spain will loose strenght in the market if costs and demands decrease.
- ✓ Poor railway structure. For instance, the “Corredor Mediterráneo”. The improvement of the railway structrure could make easier the supply chain among OEM's and the suppliers(Tier's).

## Opportunities:

- ✓ We must look for new alliances in the supply chain by diversifying the market. So as to achieve this purpose, we must keep the sight focused in the market trends and any new business opportunities.
- ✓ Keep working in innovation, by investing in innovative projects such as the “Ciudad Politécnica de la Innovación” or the Applied Science Centers. All the innovative agents bring added value to the productive processes and its products. Keep in mind that the 80% of the spanish products are exported.

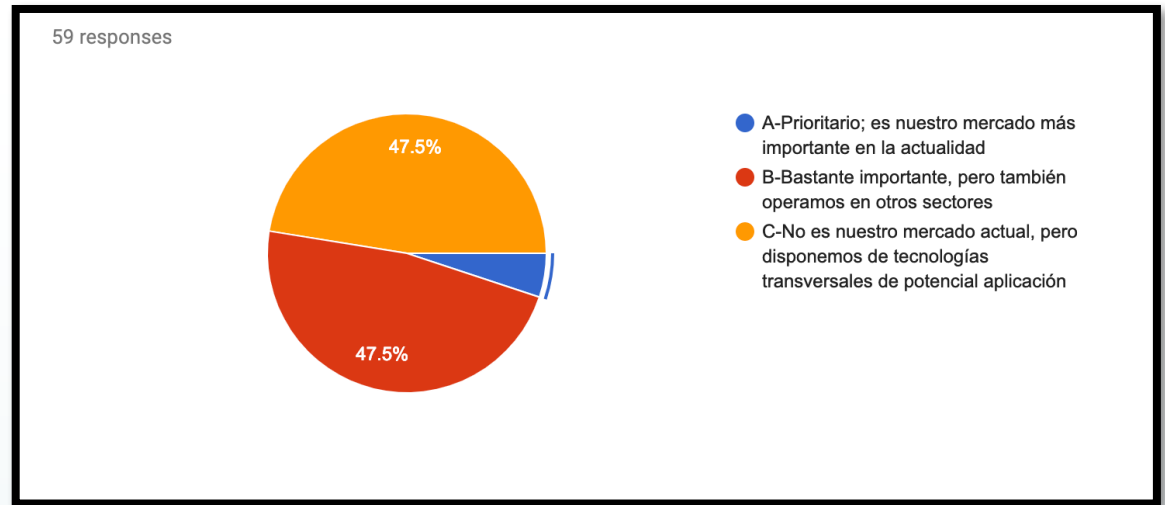


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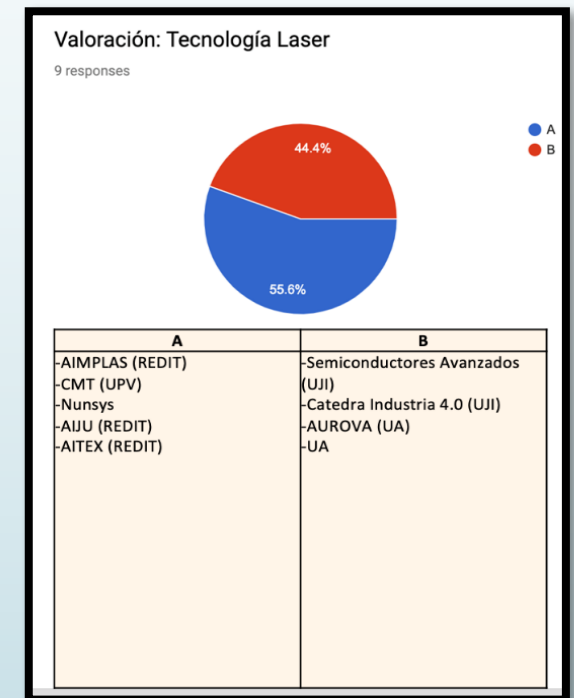
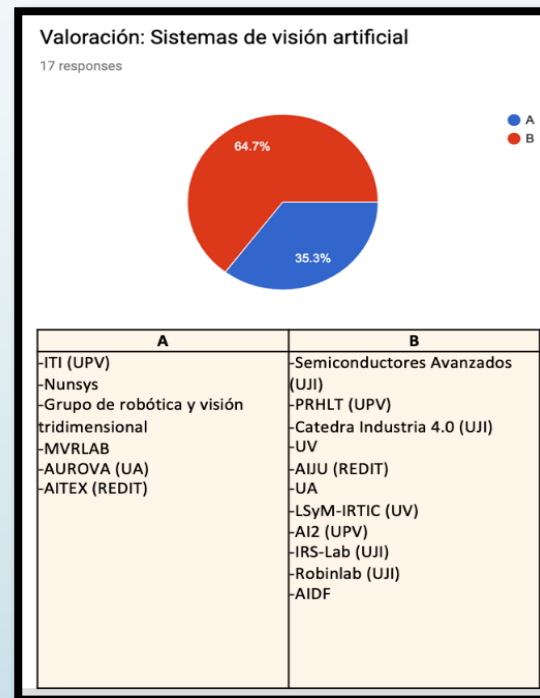
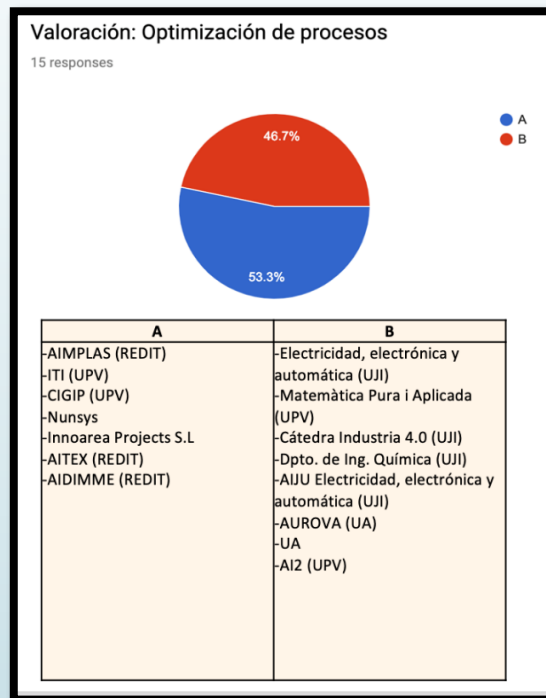


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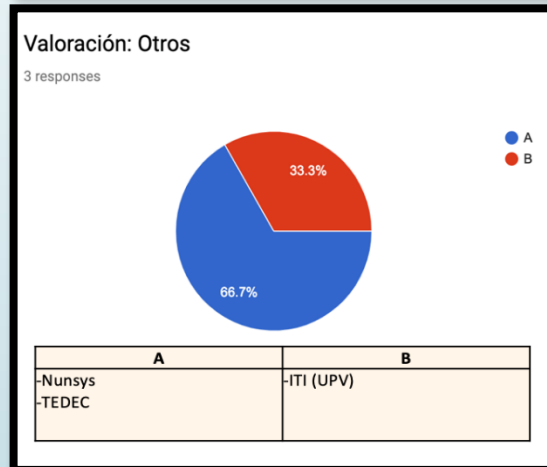
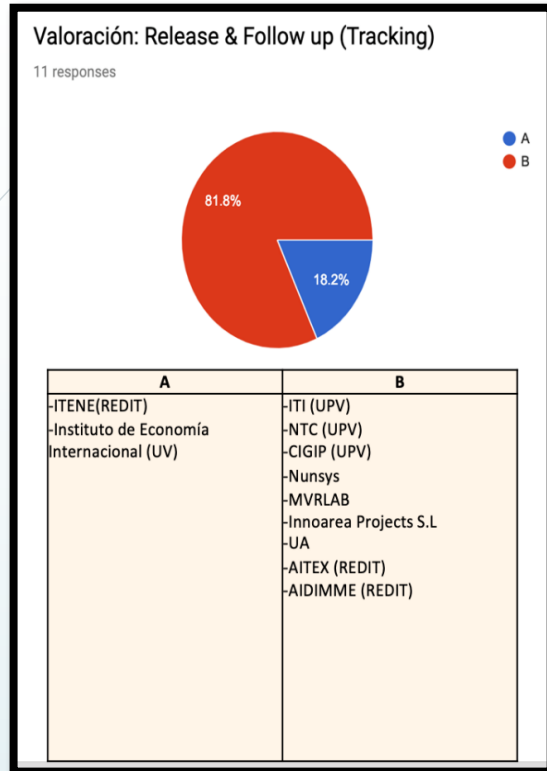
- How involved are the organizations in the automotive sector?



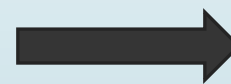
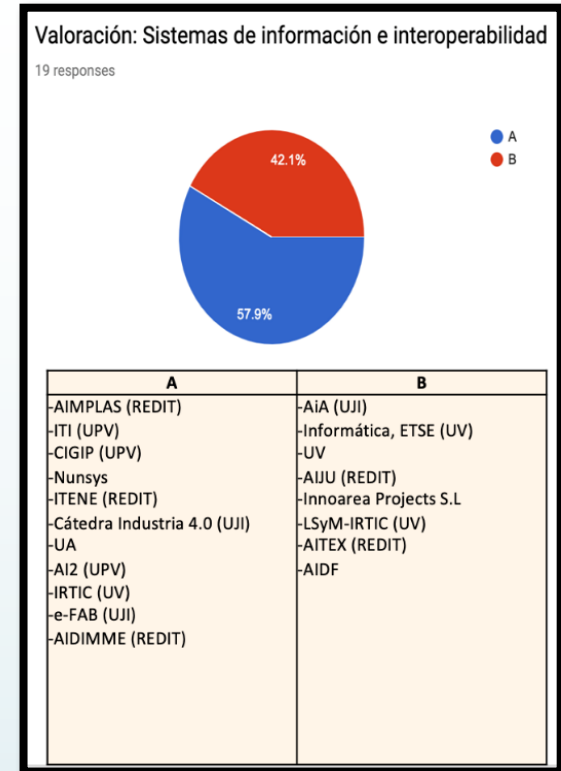
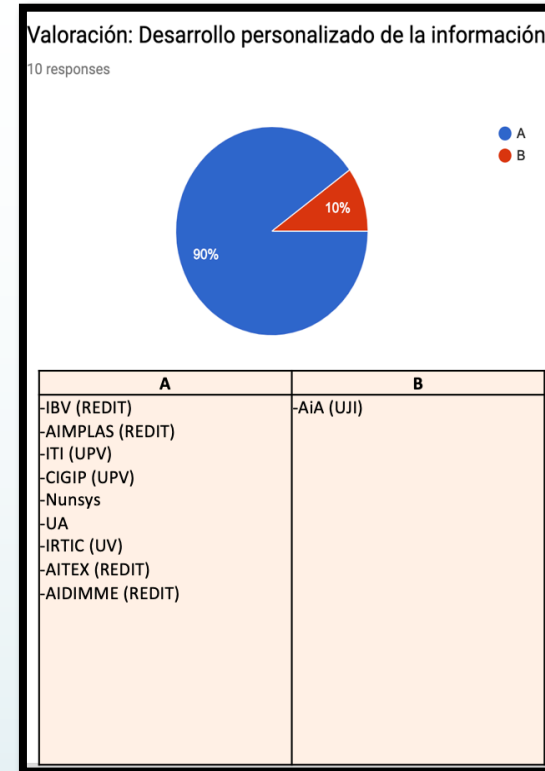
- Processes and production engineering



- Logistics & Production Engineering:

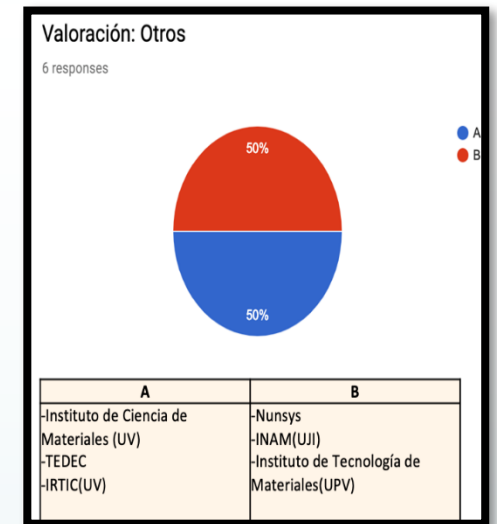
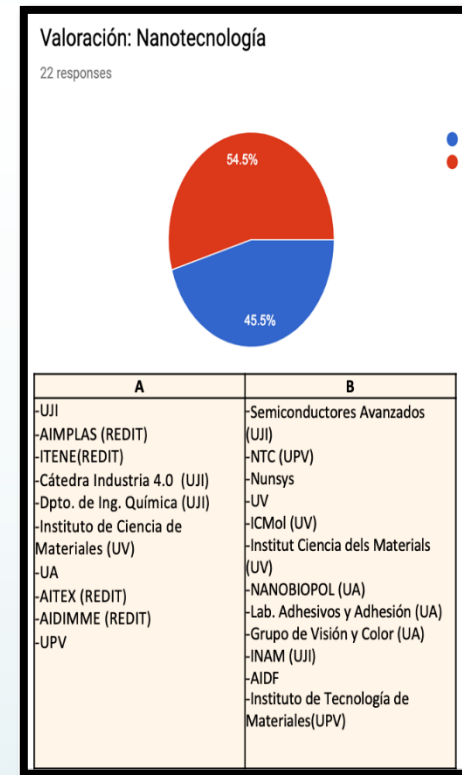
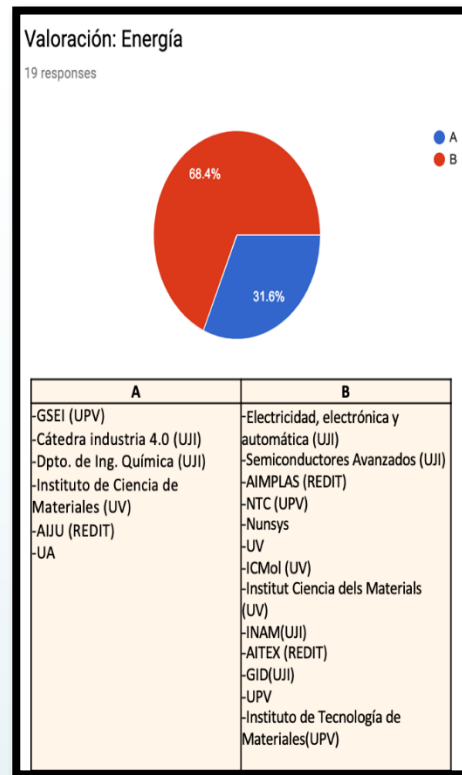
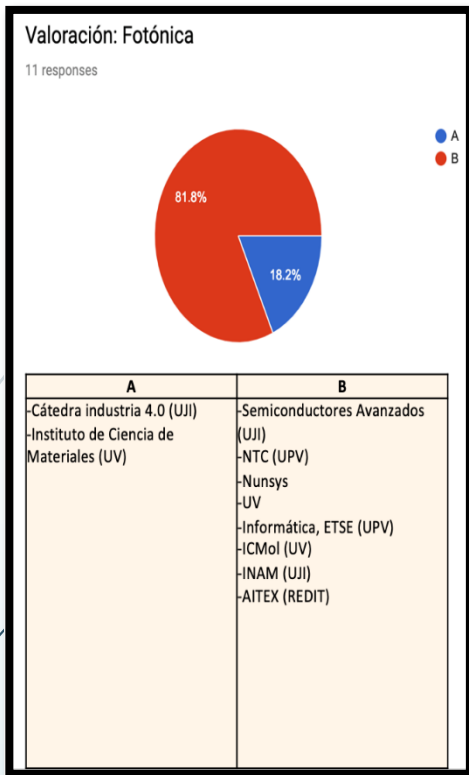


- Information Technology & Communication:



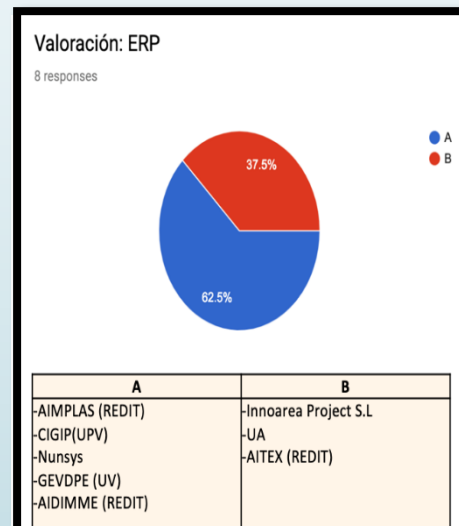
Analysis of the legal possibilities in car sharing and the autonomous car

# • New Materials & Technologies:

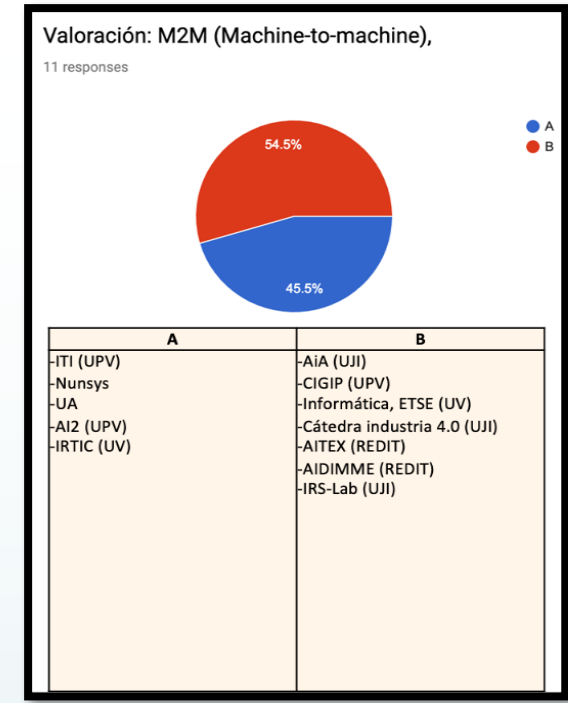
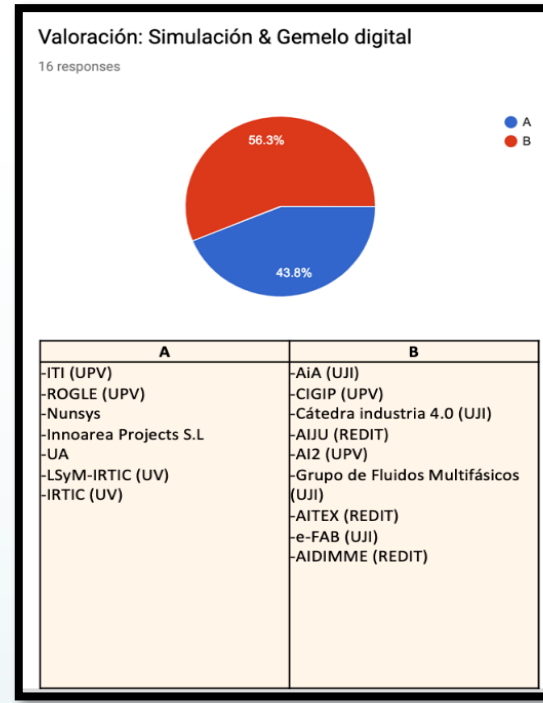
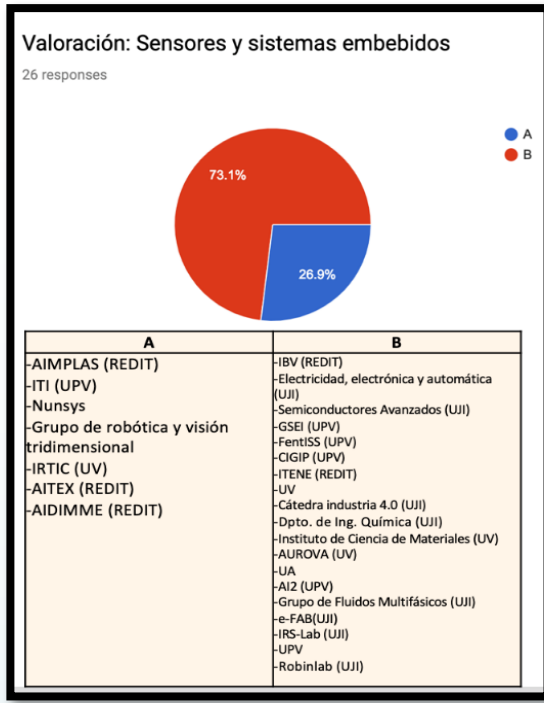


Chemical characterization, photoemission (XPS), chemical oxidation states

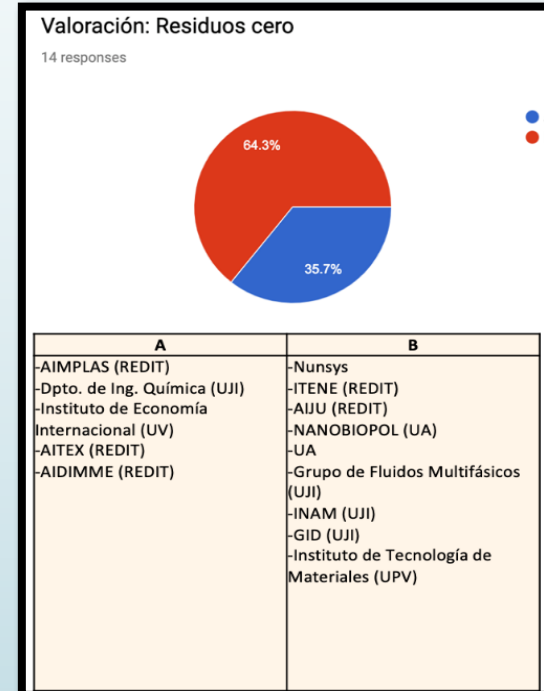
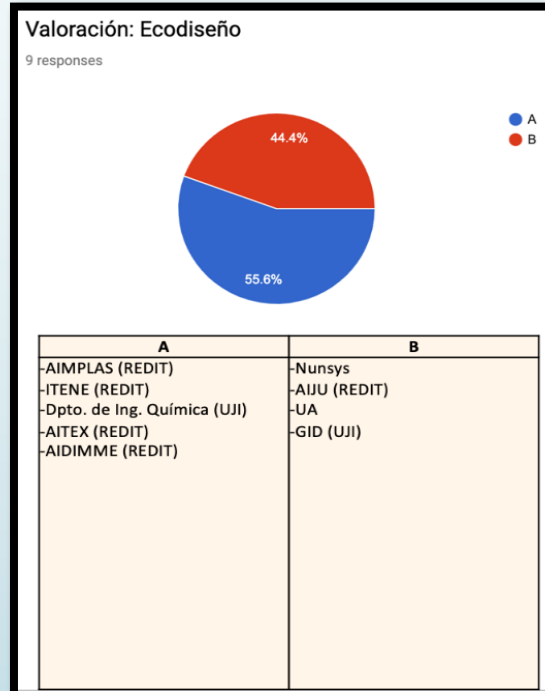
# • Consulting & Organization:



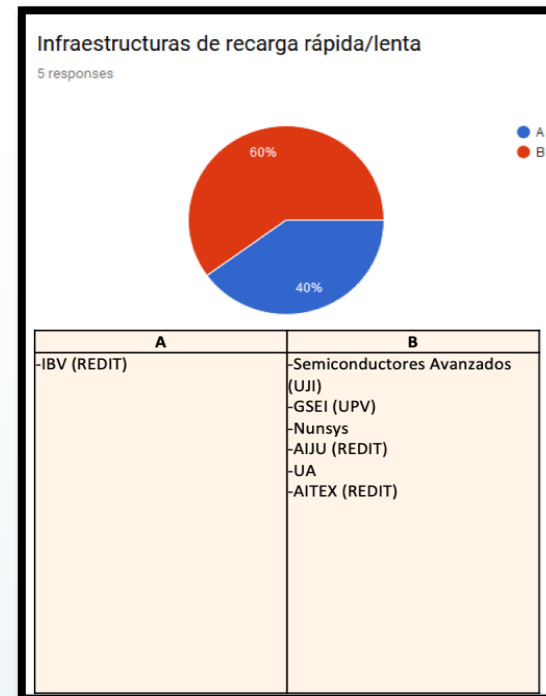
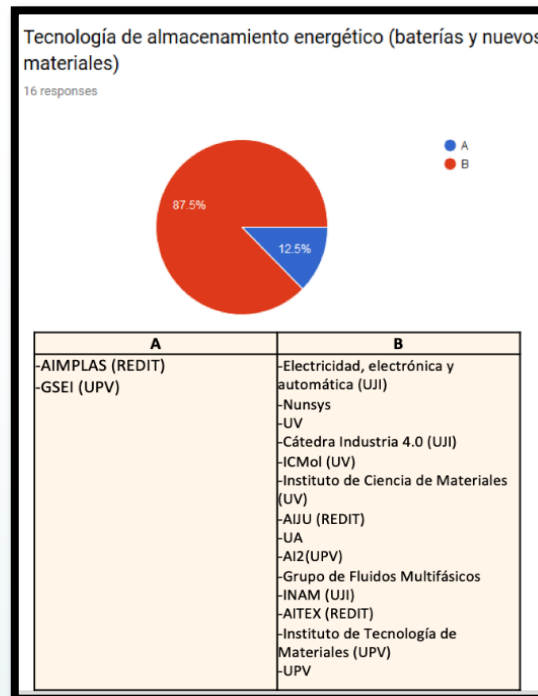
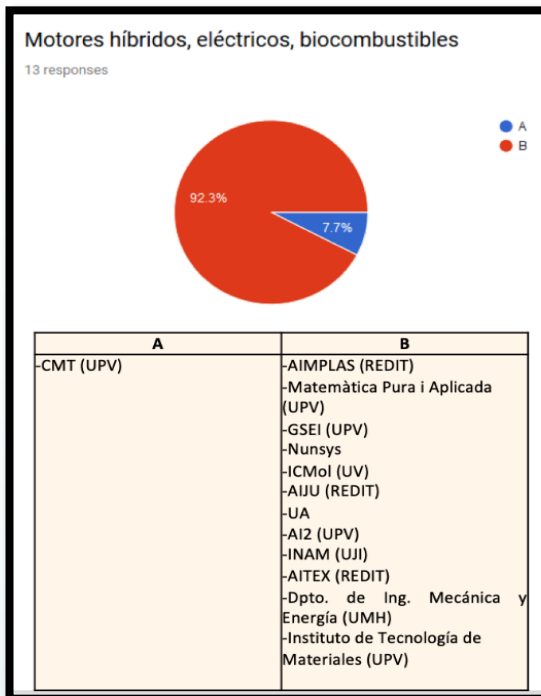
- Industria 4.0:



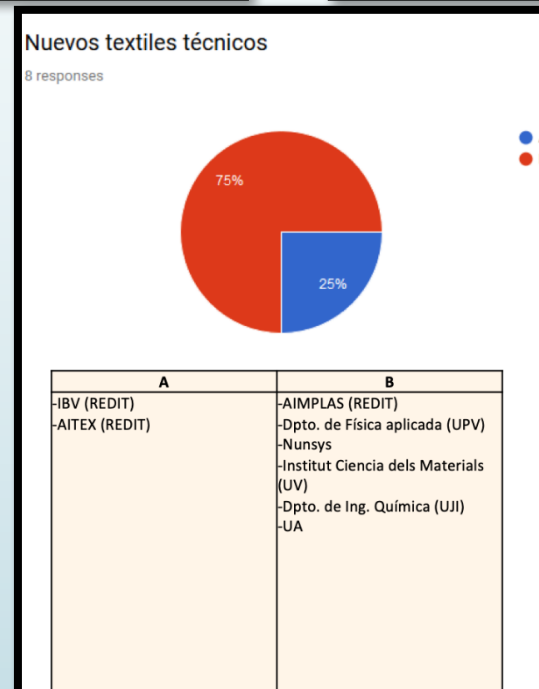
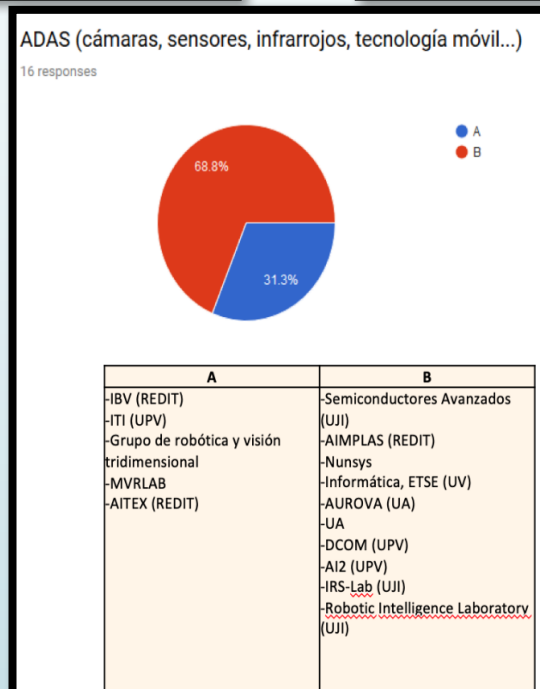
- Economía Circular:



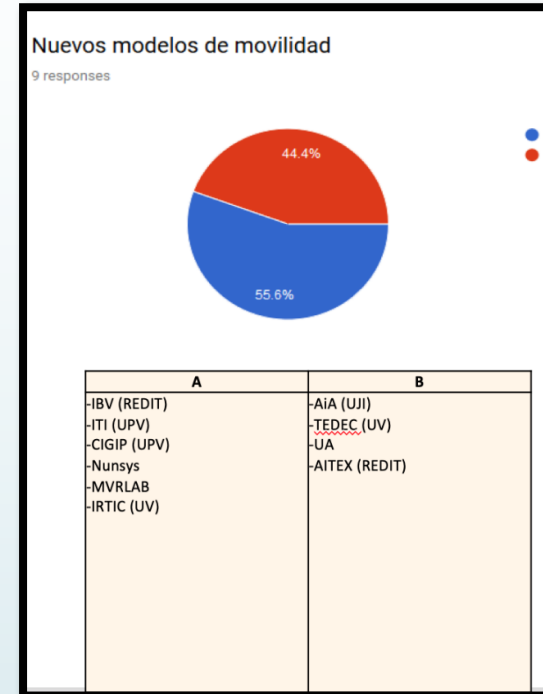
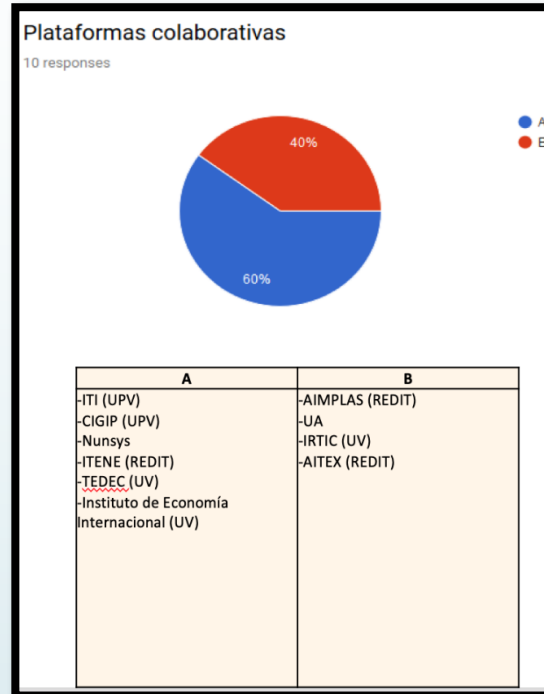
- Megatrend: Efficiency



- Megatrend: Autonomous & Connectivity



- Megatrend: Car sharing








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- 
- ✓ The **technology capabilities** which are available in the Valencian Community are quite **wide**, as we can see in the results part.
  - ✓ The Valencian Community is ready to satisfy all the current and future requirements of the automotive industry.
  - ✓ There is an **improvement possibility in the knowledge transference** system from the SCIENCE and Applied SCIENCE system towards the bussiness network.
  - ✓ The creation of an **Automotive HUB** will be helpful to boost the knowledge transference from the education system to the bussiness.
  - ✓ Support all the **investments in technology**.
  - ✓ Keep the sight focused in getting **new alliances in the global automotive supply chain**.
  - ✓ Trace the **Megatrends** noted.

Every once in a while, a new technology, and old problema, and a big idea turn into an innovation.

*Dean Kamen*

The history of innovation is the history of ideas that seemed dumb at the time.

*Andy Dunn*

Innovation is the new competitive advantage.

*Julie Sweet*

THANK YOU TO  
EVERYONE  
ATTENDING!

