IABA Strategic Plan (2025–2028) – Executive Summary

IABA (Accelerator-Based Applications Infrastructure) is a distributed Singular Scientific and Technical Infrastructure (ICTS), formed of the **Centro Nacional de Aceleradores (CNA)** and the **Centro de Micro-Análisis de Materiales (CMAM)**.

Its mission is to foster multidisciplinary research based on particle accelerators and ion beams, providing open access to unique facilities for both the scientific community and the industrial sector.

Vision and Mission

IABA's vision is to **maintain and strengthen its role as a national and international reference infrastructure in accelerator-based research**, enhancing the quality of its facilities, its scientific impact, and its interaction with society.

Its mission focuses on:

- Facilitating cutting-edge research in nuclear physics, materials science, environment, cultural heritage, radiobiology, fusion energy, and health.
- Providing competitive, transparent, and high-quality access to its facilities.
- Promoting the training of students, technicians, and researchers.
- Promoting knowledge and technology transfer to industry.

Strategic Objectives 2025–2028

The new plan defines **ten common strategic objectives**, among which the following stand out:

1. **Consolidating the integrated CNA–CMAM structure**, continuing current activities in various scientific areas (particularly materials analysis and modification with different applications), strengthening synergies and complementarities.
2. **Increasing internationalization**, particularly through European infrastructures and projects.
3. **Fully implementing common open data** and FAIR access policy.
4. **Developing remote access** to selected experiments.
5. **Promoting specialized technical training** through joint programs.

6. **Strengthening collaboration with industry** and technology transfer.
7. **Turning IABA into a strategic hub for research in proton therapy and radiobiology**, in the context of new Spanish hospital centers.
8. **Providing key support for fusion energy research**, including IFMIF-DONES.
9. **Becoming a national reference in experimental nuclear physics and neutron experiments.**
10. **Developing a coordinated program for scientific outreach and education**.

Node-Specific Objectives

CNA

CNA will strengthen its reference role in:

- **Accelerator Mass Spectrometry (AMS)** and **^{14}C** dating.
- **Irradiation with particles, neutrons, and gamma radiation**, including aerospace applications.
- **Molecular imaging (PET/CT)** applied to health, cultural heritage, and other non-medical fields.
- **Research in proton therapy and medical physics**, including FLASH conditions.

CMAM

CMAM will focus on:

- **Advanced exploitation of ion–laser synergy**, unique in Spain.
- **Development of new experimental techniques**, particularly in magnetic materials and radiation.
- **Strengthening research in radiobiology and proton therapy**.

Expected Impact

During the 2025–2028 period, IABA aims to:

- Increase the number of national and international users.
- Enhance scientific output and industrial collaborations.
- Make a decisive contribution to major Spanish strategic initiatives.
- Strengthen its role as an open, modern infrastructure oriented toward societal challenges.