NATIONAL INSTITUTE OF CHEMISTRY

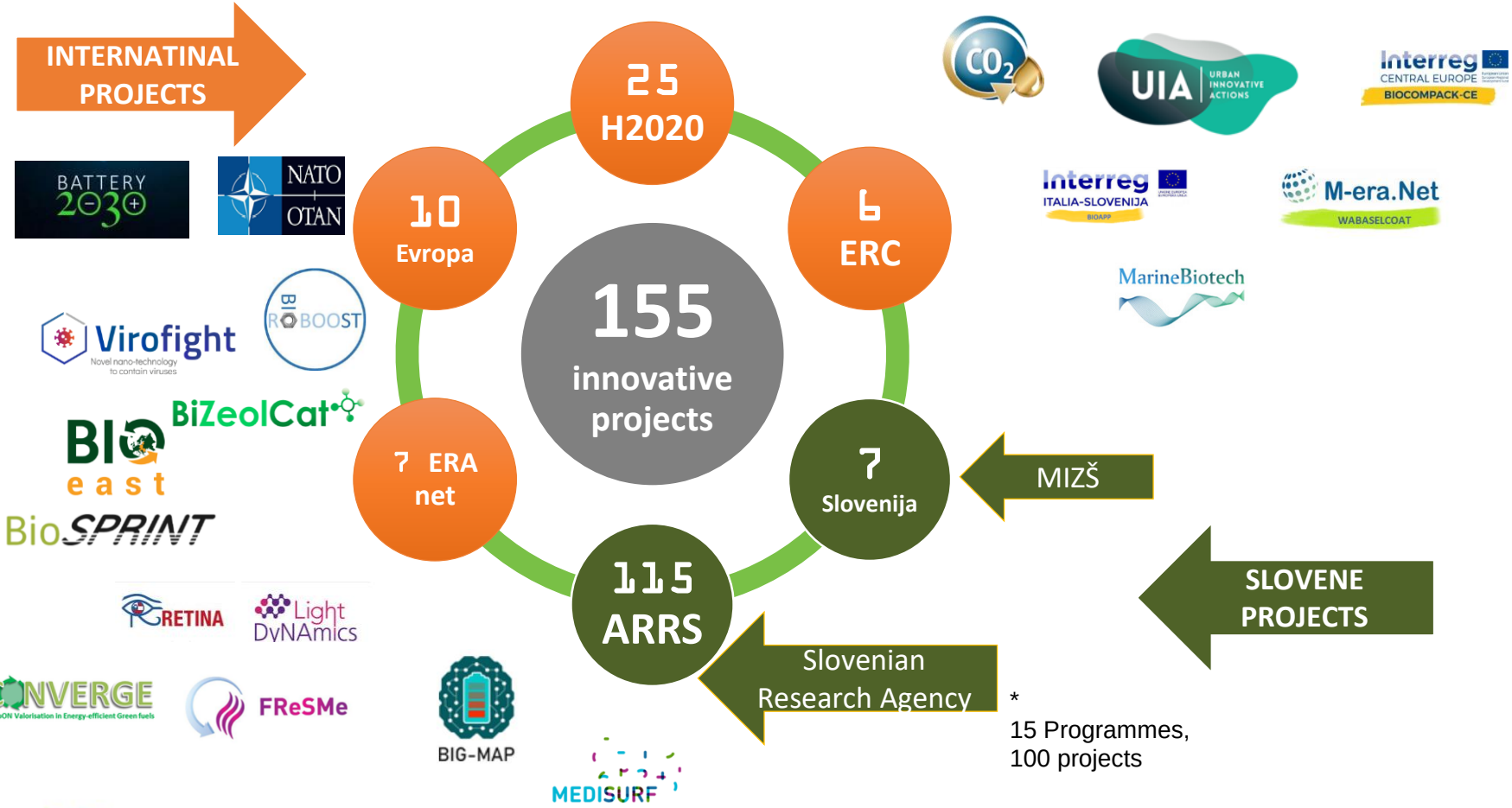
75 years

A scientifically excellent, established and breakthrough research institution based in Slovenia

HEALTH, ENVIRONMENTAL PROTECTION, CIRCULAR ECONOMY, SUSTAINABLE ENERGY, CLIMATE CHANGE, FOOD SAFETY

NATIONAL INSTITUTE OF CHEMISTRY AT A GLANCE

SUMMARY OF CURRENT PROJECTS: PORTFOLIO



https://www.ki.si/o-institutu/projektna-pisarna/tekoci-projekti/

HORIZON-CL2-2021-HERITAGE-01-01: Green technologies and materials for cultural heritage

National Institute of Chemistry (NIC) is contributing to the call with the methods to conserve, preserve and restore monuments and artefacts with respect to different materials in a sustainable, green way. Our specific expertise:

1. **Protective coatings for various metals/alloys for preservation of cultural heritage** (sol-gel, on the basis of various polymers (fluoropolymers, polyurethanes, epoxy, acrylates …).
2. **Smart coatings** (hydrophobic, oleophobic, antistatic, antifauling, self-replenising, flame retardant, **cool coatings for preservation of cultural heritage**).
3. **Organic synthesis of special bio-based additives** as cross linkers or bulk resin modifiers in order to improve hydrophobicity, enable self-replenishing function, improve flame retardant property, cooling effect (patent AT510371) resulted in prolonged longevity and reduced biofouling activity.
4. **Identification of materials**, **detection of structural changes** with Raman imaging and **determination of structural changes in protective coatings** during accelerated electrochemical exposure.

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5. Advanced gas sensors for preservation of cultural heritage: control of (micro)environment surrounding artistic artefacts.

- The presence of selected volatile organic compounds (VOCs) might imply on the commencement of artefacts' degradation/aging.
- Electrochemistry and associated electrochemical (bio)sensorics offer opportunities for creating a great variety of sensing approaches and tools.
- Electrochemical sensors and microsensor devices can operate individually or can be a part of more complex and integrated sensing systems.

Reference: NanoRestArt project

focused on **nanotechnologies** and **contemporary art**

National Institute of Chemistry

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