IMPACT SUCCESS STORIES

HNN 3.0
HEALTH-NCP-NET

MARKOPOLO investigates how traffic noise and air pollution, particularly fine and ultrafine particulate matter, affect brain and cardiovascular health. This involves the use of experimental and computational models alongside clinical, interventional and epidemiological studies.
Understanding the combined effects of noise and pollution is essential for protecting cardiovascular and cerebral health, informing policy, and reducing the burden on healthcare systems. Proposed translational "bench-to-bedside" methods promise to uncover disease mechanisms, identify biomarkers, and improve risk assessment and mitigation for vulnerable populations.

MARKOPOLO

Dr. Andreas Daiber
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1. Describe your project through key words/key phrases that identify it.

- Traffic noise and air pollution
- Fine and ultrafine particulate matter (PM/UFP)
- Brain-heart axis
- Cardiovascular and cerebral disease
- Disease-relevant biomarkers and computational models
- Translational "bench-to-bedside" research

2. In terms of impact, what will be the most tangible your project will achieve?

MARKOPOLO will deliver evidence and tools that can directly contribute to legislative and policy processes at the national and European level:
- More than 5 position and consensus papers published by leading cardiovascular societies, updating clinical guidelines and policy documents
- A first policy brief for the overarching ExposureHealthNet cluster, raising awareness of ultrafine particle health effects
- Evidence to enable more efficient regulation of dangerous particles in the future
- New web-based tools for assessing the health effects of air pollution
- Tools for tracking changes in typical biomarkers
- Methods for determining risk in vulnerable population groups

In short, the proj

In short, project aims to translate environmental health evidence into policies and tools that protect brain and cardiovascular health.

3. Please describe your project's overall impact, if applicable, at the European level.

By pioneering a "bench to life" approach to study the combined effects of noise and particulate matter, MARKOPOLO integrates diverse scientific disciplines to address both scientific and societal challenges:
- Scientific: Investigates the health impacts of noise and air pollution, emphasising vulnerable populations, improving FAIR data practices, and advocating for stricter UFP emission standards.
- Technological: Refines exposure-response functions and identifies key biomarkers to improve risk prediction, validate interventions, and leverage innovative tools.
- Socioeconomic: Supports regulatory efforts, raises awareness of environmental hazards, reduces healthcare costs, and aligns with the European Green Deal for a healthier, more sustainable environment.

Overall, MARKOPOLO aligns with EU priorities on environmental health, climate resilience, and evidence-based policymaking.

4. As an applicant, what advice would you have wanted in the Horizon project design process? What support did you receive from National Contact point (NCP) and your organisation, and what improvement of support would you benefit from?

Advice for applicants:
• Plan carefully for the lump sum funding model, particularly the number and structure of work packages, as this adds complexity in planning, budgeting and coherence.
• Anticipate that an additional cluster-activities work package may be added, with its own workload (annual meetings, monthly working group meetings, deliverables).

National Contact Point (NCP) provided extremely valuable feedback, with guidance for writing Part B that was clear and constructive. Our organisation also provided solid internal support in coordinating inputs and reviewing the proposal; additional practical guidance or examples on designing projects under the lump sum model would have been beneficial.

5. Please highlight aspects of your Horizon project's strengths that you consider important and that may constitute good practice for other applicants.

MARKOPOLO includes several elements that represent good practice for Horizon projects:
• Strong alignment between project objectives, expected impacts, and work package structure, with a coherent and logical flow avoiding fragmentation.
• Complementary consortium expertise across sectors, covering research, development, implementation, and dissemination.
• A core group with almost a decade of prior collaboration, joint projects and publications, and strong mutual knowledge of expertise.
• A two-step initial work programme using previous omics data and frozen tissue samples to bridge the first year before new data generation.
• Clear communication and a well-defined timeline throughout proposal writing.

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