The challenges

Pollution exposure
Increased exposure to indoor air pollutants.

Health threats
Increased risk of early-life respiratory diseases.

Knowledge gap
Limited understanding of indoor air quality pollutant sources, concentrations and monitoring strategies.

Weak Legislative framework
Lack of standardised guidelines across European Union countries.

The EDIAQI response

Develop and deploy low cost/user-friendly indoor air quality monitoring solutions.

Collect data on and characterise indoor air pollutants.

Understand associations between indoor air pollution and early-life disease.

Support policymakers in reviewing standards and regulatory measures.

Provide science-based evidence to support the Zero-Pollution Action Plan of the European Green Deal.

4 pilots covering large test areas with big sample sizes to generate evidence for policy, recommendations and training:

Ferrara Pilot Collecting behavioral change data of experiences and perceptions on 4 building scenarios, together with the installation of low-cost multi-sensors indoor devices, and remote reference stations to obtain comprehensive information about indoor air pollutant concentrations.

Estonian Pilot Supporting a systemic change in the awareness of people by targeting multiple building scenarios with the installation of new sensors for monitoring IAQ and applying AI and Big Data Analytics for data analysis.

Zagreb Pilot Equipping patients with mobile spirometers and their bedrooms with stationary pollutant traps and low-cost sensorics for collecting house dust to be analysed for chemical and microbiome composition. Patient's peripheral blood and other biological samples will also be collected and analysed for certain clinical biomarkers.

Filtration Pilot The buildings in scope are provided with ventilation and air conditioning hardware systems, where the aim is to determine which indoor air pollutants are most effectively removed by the filtration system, providing cornerstones for further technological innovation.

4 measurement campaigns to generate insights into Indoor Air Quality and health risk assessment:

Evaluation of low-cost sensorics The campaign will focus on a comprehensive performance evaluation of multiple multi- and single-parameter consumer low cost grade sensors to detect, for example, particulate matter (PM2.5, PM10), CO2, NOX, TVOC, temperature, RH, etc.

Seville Pilot The pilot will focus on physical-chemical characterization of indoor air pollutants, as well as studying behavioural differences and ventilation habits in the main building scenarios for vulnerable people at schools, hospitals, residential areas, and public transport.

Vilnius Pilot The campaign will investigate how outdoor pollution from vehicular fleets influences IAQ by conducting measurements in downtown schools. School-children's exposure to outdoor/indoor air pollution will be also assessed through wearable low-cost sensors throughout the school hours.

Awareness campaigns The campaigns will target children and their families involved in all pilot studies, who will be given an ad-hoc questionnaire to investigate participants' knowledge of IAQ-related health issues and their level of awareness.

Impact

1. Raising information and awareness of policy-makers and regulators about environmental, socio-economic and occupational risk factors.
2. Better understanding of the public about complex environment and health issues and effective measures to address them.
3. Healthier, more inclusive and safer living environments in European cities and regions.
4. Protection and promotion of health and well-being of the most vulnerable populations.
5. Health threats and upstream determinants of disease - related to agricultural and industrial practices - are known, understood and reduced.
6. Impacting on overarching policy frameworks at European and Worldwide level.
7. Sustainable and evidence-based Environmental, occupational, social, economic, fiscal and health policies and practices at the European Union.
8. Increased competitiveness of European Union industrial sectors related to EDIAQI technologies before the year 2030.

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EDIAQI Evidence Driven Indoor Air Quality Improvement

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