

Press release:

Large and multidisciplinary GIANT consortium will explore indoor aerosol phenomena

Finnish indoor air quality (IAQ) researchers in collaboration with forerunner companies, municipalities and cities, are launching a groundbreaking new co-innovation project titled GIANT (Global trends in IAQ: Novel technologies, Competence and Business). The project focuses on studying the indoor aerosol phenomena, aligning with the latest WHO global air quality guidelines, and advancing new markets for Finnish high-level technologies. The project is partly funded by Business Finland with an overall budget of 5,7 million euros. The project duration is three years.



The GIANT project focuses on understanding the role of new emerging pollutants, such as ultrafine particles, black carbon, volatile organic compounds, and secondary aerosols in indoor and outdoor spaces, and how the new WHO global air quality guidelines will transform the international markets by creating a need for advanced IAQ solutions.

Comprising a diverse consortium of five research institutes, municipalities, cities, and companies specializing in instrumental development, aerosol measurements, air purification, ventilation, and data visualization, the GIANT project forms a multidisciplinary approach. The overarching themes of the project include outdoor environments, building and construction technologies and design, as well as indoor environments. Strong international

collaboration further enriches the project, bringing top-level global expertise and infrastructures to the project.

"While outdoor air quality has already gained significant attention, the importance and global business potential of indoor air quality cannot be understated. The GIANT project seeks to bridge this gap by exploring novel technologies, strategies and business concepts for indoor air quality monitoring and exposure mitigation," said Chief Funding Adviser **Ilmari Absetz** from Business Finland.

As indoor air quality continues to be a growing concern, more research is needed to understand the role of different indoor and outdoor pollution sources in IAQ and their impact on human health. At the forefront of the GIANT research are the emerging pollutants and better understanding of their variation in indoor and outdoor environments. Simultaneously the GIANT increases the understanding of future regulations and existing recommendations, such as the latest WHO Air Quality Guidelines. An important aspect is the expected new global markets created by the emerging regulations that high-level technology and service providers can utilize as forerunners.

Multidisciplinary scientific expertise involved

"The strength of the GIANT consortium lies in its multidisciplinary expertise, which includes various research fields crucial for addressing the challenges posed by indoor air pollution. Together, we aim to lay the scientific groundwork necessary to meet the growing demands for advanced IAQ solutions," added **Topi Rönkkö**, professor of aerosol physics at Tampere University, leader of the research consortium.

Research activities within the GIANT project promise to drive innovation by aligning with the new WHO air quality guidelines. The market opportunities vary from air quality monitoring and management, energy-efficient ventilation, construction materials, to air purification, to name a few. By harnessing sustainable and environmentally friendly high-tech solutions, the project aims to revolutionize IAQ management through the integration of IoT, AI, and digitalization.

Research organizations involved in the project are Tampere University, Finnish Meteorological Institute, VTT Technical Research Centre of Finland Ltd, University of Helsinki, and University of Eastern Finland.

Companies involved in the project with parallel company projects are Air0 Oy, Airmodus Oy, Cervi Talotekniikka Oy, Gasera Oy, Pegasor Oy, Realin Oy and Velco Oy. Airyn Technologies Oy, the city of Helsinki, the city of Tampere, the city of Vantaa, Dekati Oy, Entos Oy, e-Group Oy, Halton Oy, Helsinki Region Environmental Services Authority HSY, Inspector Sec Oy (ISEC), and Lifa Air Oy are cooperation partners in the project. The project is coordinated by Tamlink Ltd.

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