

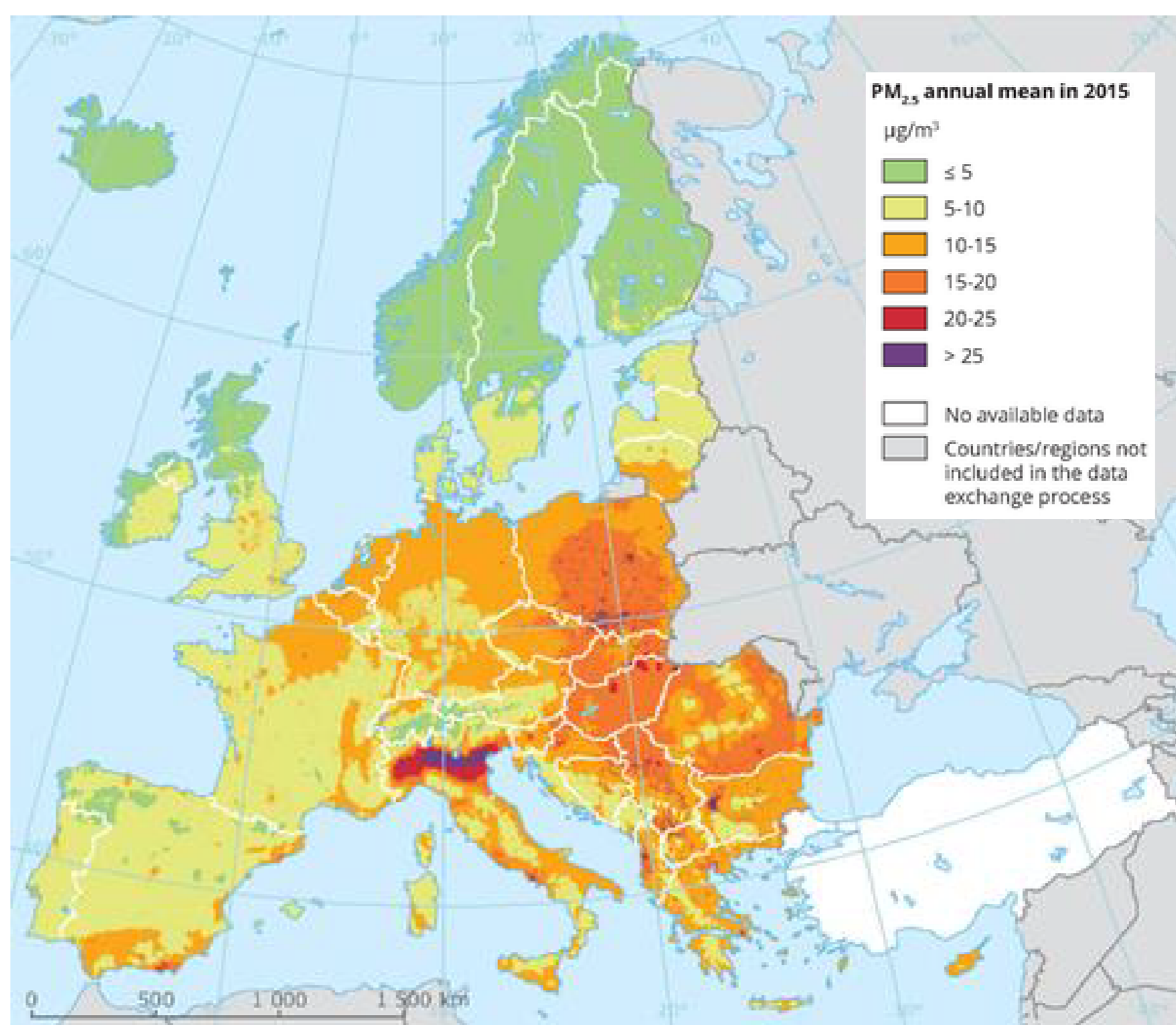
AeroToX: Measurements for mitigating adverse health effects from airborne particulate pollutants

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The Need:

In Western, Central and Eastern Europe long-term exposures to PM_{2.5} is related to

- 430,000 premature deaths;
- 7 million plus years of healthy life lost.
- Economic cost: \$1.6tn a year



The unmet question:

Which PM features (particle size, number) or components are the most important in terms of their toxicity?

Scientific objectives to address this question:

1. **WP1:** Production of compositionally-defined synthetic ambient aerosols.
2. **WP2a:** Improved cell models to achieve in vitro-in vivo correlation for particle testing.
3. **WP2b:** Improved aerosol delivery to cell models that mimic the natural inhalation.
4. **WP3:** Development of quantitative, high-resolution imaging to investigate particle uptake and toxicologically relevant endpoints.
5. **WP4:** Provison of new reference material and methodologies to the scientific community. Engagement with policy makers and clear engagement with European citizens.

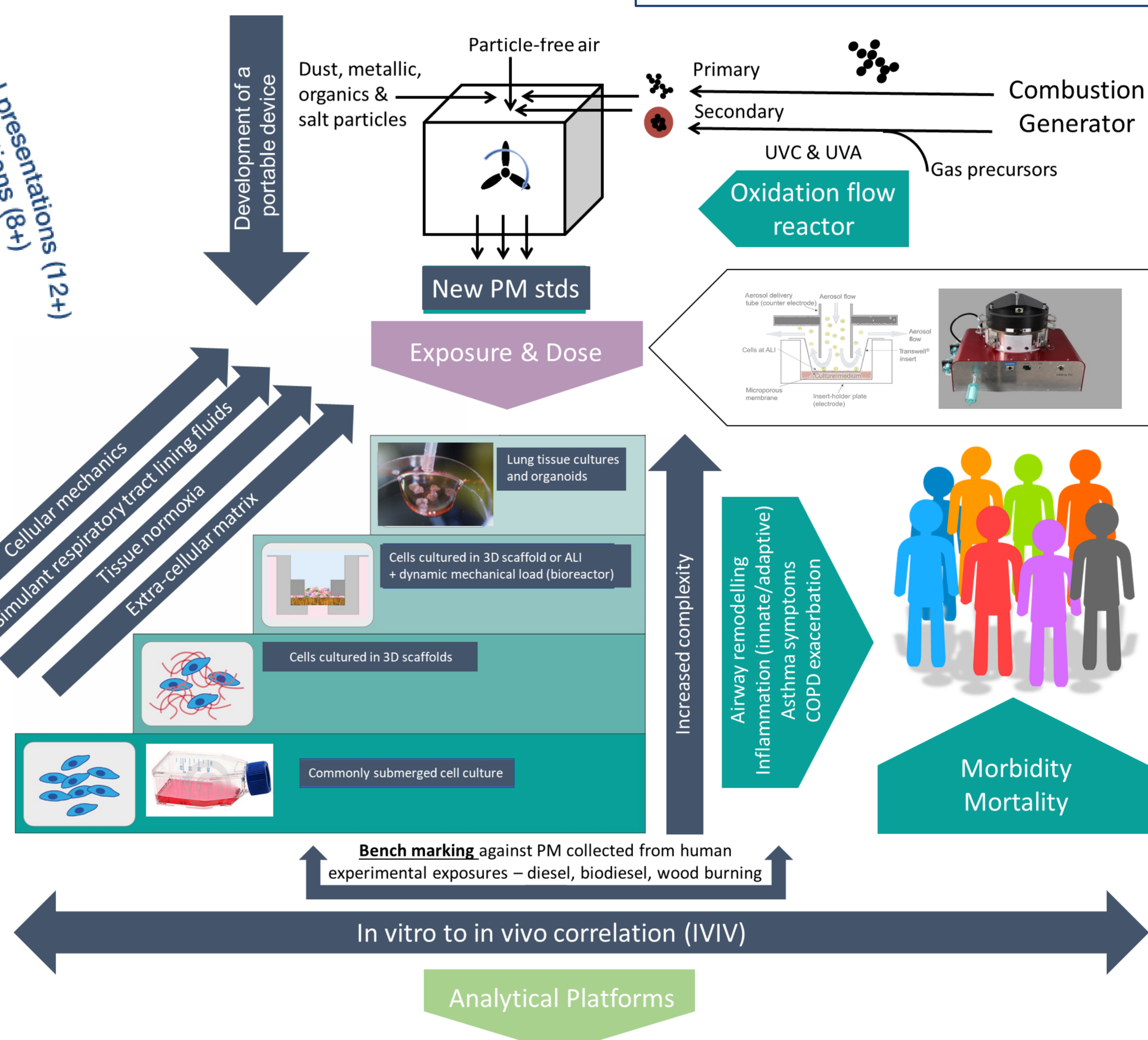
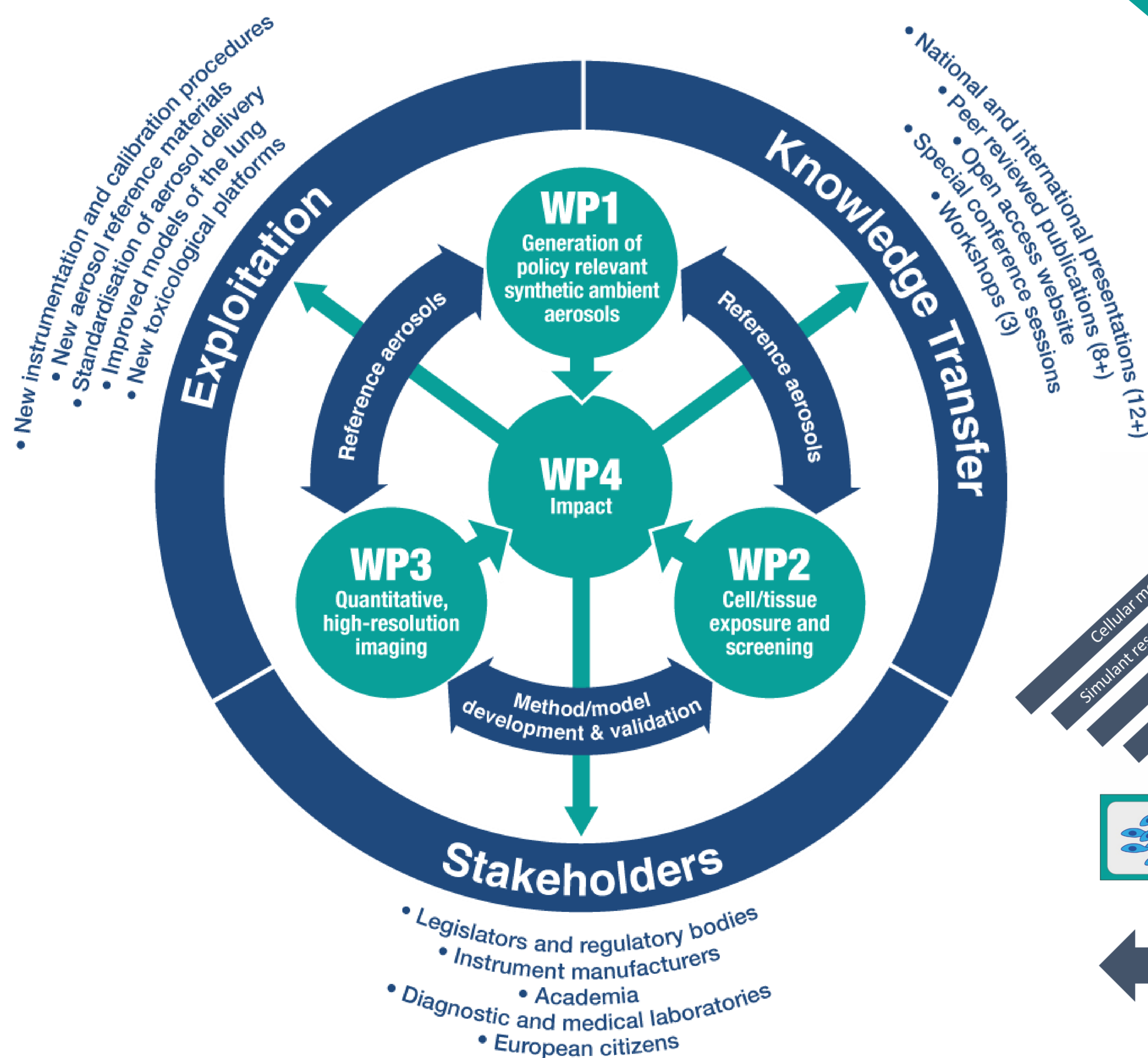
Why the lack of progress?

1. PM reference standards that have little relevance to the current European airshed.
2. Reductive toxicity strategies using compositionally complex real-world samples.
3. Little standardisation of toxicological methods.
4. Significant shortcomings in current cells and tissue models that fail to replicate in vivo reality.
5. An inadequate focus on in vitro to in vivo correlation.

Partners



Stakeholders



Impact:

1. Improved evidence-based AQ legislation
2. Better health and productivity for European citizens
3. Reduced economic costs
4. Technology innovation and dissemination of best-practice

