

SAFERA mid-term report template for projects

Please send your mid-term report to the SAFERA Call Secretariat, call-secretariat@safera.eu.

Background information

Date of reporting:	15/09/2020
Person reporting: (project coordinator)	Nicolas Winkler Dr. Patrick Neumann (project coordinator) BAM/Germany Henna Veijalainen FIOH/Finland
Project title:	Robot-assisted Environmental Monitoring for Air Quality Assessment in Industrial Scenarios (RASEM)
Project period (start-end):	01/04/2019 – 31/03/2022
Project website URL:	https://projects.safera.eu/project/20
Project coordinator and country:	BAM/Germany
Project partners and countries:	BAM/Germany FIOH/Finland Örebro University/Sweden (associate partner) Outokumpu Oyj/Finland (industrial partner) Tallink Silja Oy/Finland (industrial partner)
SAFERA funding: Project funding organization/s (national) and funding amount/s:	Funding organization (BAM) EUR: 240.000 € Percentage of total budget: 48 % Funding organization (FWEF) EUR: 129.000 € Percentage of total budget: 26 % Funding organization (FIOH) EUR: 120.200 € Percentage of total budget: 24 %
Other outside funding (outside SAFERA and project partners' own organizations):	BAM (additional travel budget granted by BAM) EUR: 10.000 € Percentage of total budget: 2 %
Project total budget (all outside funding and own input together; <i>i.e.</i> final realized spending):	EUR: 499.200 € (originally 489.200 €)

Project progress and results

1. Summary of the project progress and current status at the moment of the mid-term report

<p>1.1a What was intended to be achieved during the reporting period (list briefly with bullet points)? How well these milestones have been met? Any significant changes to the project work plan or objectives? Note if changes, why and do these have impact on the planned final objectives.</p>	
<ul style="list-style-type: none"> • Requirements of all participating partners were defined during the first six months. • The sensing nodes, that will form the stationary sensor networks at the industry sites, were developed, based on low-cost and commercial off-the-shelf sensors and microcontroller technology. This work could be finished with minor delays by late spring/early summer of 2020. Unfortunately, calibration of the low-cost sensors cannot be finished before late summer (due to supply difficulties of calibration gases due to COVID19 and technical fault in the gas calibration laboratory). • The set-up of the sensor networks at the industry sites in Finland was scheduled for May 2020. This target could not be met, because of COVID-19 restrictions and the mentioned calibration issues. It is now planned to set up the sensor network in late 2020. This means that at least half a year of measurement data (and experience) that should have been the basis for the algorithm development, will be available much later (winter 2020 / spring 2021). • However, we are progressing along the initially planned trajectory (where possible) and plan towards alternative goals (where needed). 	
<p>1.1b Has the project progressed as planned and are the outcomes as expected, evaluate on 1-5 scale (1= poor– 5 = excellent)</p>	<p>1 = Poor 2 = Fair 3 = Good 4 = Very Good 5 = Excellent</p>
<p>1.2a List briefly what are the outcomes of the project at the mid-term. What are the next steps? Any foreseeable risks in the near future that may hinder achieving the final project objectives?</p>	
<p>Outcomes:</p> <ul style="list-style-type: none"> • New insights and experience with commercial off-the-shelf sensors were gained. • First long-term measurement data of prototypes will give insights on the influence of the sensing node's ventilation fan (to suck in surrounding air). As this is relevant for following scientific projects, further investigations are planned. <p>Next steps:</p> <ul style="list-style-type: none"> • Set-up of stationary sensor network until end of 2020. • Integration of sensors on mobile platforms until autumn 2020. • Development of simulation environment to minimize dependence on experimental data. • First occupational hygienic measurement campaigns for validation of the system late 2020/early 2021. • Measurement campaign with mobile platforms in summer 2021. <p>Risks:</p> <ul style="list-style-type: none"> • The non-feasibility of the measurement campaign in summer 2021 because of persistent/resumed travel restrictions is seen as a moderate-high risk. Simulation-based data will be given more weight and eventually a measurement campaign on the BAM Test Site for Technical Safety (TTS) will be planned. 	

1.2b Could any of these outcomes available now be disseminated to a wider audience at mid-term stage? Please briefly identify which outcomes and note whether you already have plans for disseminating these results.

At this stage, RASEM results are disseminated on conferences (poster, presentation, conference proceeding, and journal), internal/external workshops, and brochures, e.g.:

- N. Winkler, P. Neumann, A. Säämänen, E. Schaffernicht, A. Lilienthal, High-quality meets low-cost: Approaches for hybrid-mobility sensor networks, Materials Today: Proceedings, 2020
- N. Winkler, Boosting a Low-Cost Sensor Network with Mobile High-Quality Sensors, 36th Danubia Adria Symposium, Pilsen, Czech Republic, 2019
- Student Competition Award, 36th Danubia Adria Symposium, Pilsen, Czech Republic, 2019

Dissemination objectives for 2021 are to attend fairs (when Covid-19 situation relaxes), conferences (IEEE SENSORS), symposia (ISOEN), and workshops, and to publish at least one paper in an international journal.

1.3 Have there been changes in project partners or key personnel during the reporting period? How well have the project partners co-operated towards the project implementation?

Outokumpu Oyj and Tallink Silja Oy are both industrial partners that joined the consortium shortly after the kick-off meeting. There have been no changes in key personnel.

All partners are harmonizing well, and an excellent cooperation was established since the beginning to achieve the overall project goals.

2. Do you and the project partners feel that the SAF€RA context has provided added value (i.e. something additional to what would not have been available otherwise) to your project work and outcomes?

1 = yes	0 = no
Describe briefly what is the added value of SAF€RA type collaboration? New partners, new types of activities and outcomes, wider impact of outcomes, etc.?	
Yes, the SAF€RA context allowed to broaden the existing network on an international base. Furthermore, FIOH worked as a multiplier enabling a cooperation with promising Finnish industrial companies.	

3. Any other comments to SAF€RA consortium and/or call organizers? Comments on the call process and the contractual process, etc.?