

# Partnering Opportunity

Profile status : Published

## Research Development Request

### Horizon Europe: Safe, Resilient Transport and Smart Mobility services for passengers and goods, consortium partners are sought to address the reduction in airborne infectious diseases via a research cooperation agreement

#### Summary

*UK based digital twin technology start up is looking to build a consortium to apply for the Horizon call (HORIZON-CL5-2021-D6-01) relating to controlling infections on large passenger ships. They are seeking R&D, technology partners; service providers and cruise ship operators to build on their technology that is patent pending to reduce the risks of exposure to airborne transmission of infectious diseases. They seek partners via a research cooperation agreement.*

Creation Date	16 August 2021
Last Update	18 August 2021
Expiration Date	17 September 2021
Reference	RDUK20210809001
Public Link	<a href="https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/d124f803-0865-4015-a5c7-815e4dfd28af">https://een.ec.europa.eu/tools/services/PRO/Profile/Detail/d124f803-0865-4015-a5c7-815e4dfd28af</a>

#### Details

##### Description

UK based technology company have developed digital twin based novel services to make workspaces safer and resilient against the airborne transmission of infectious aerosols.

Ref: RDUK20210809001

Their patent pending digital twin technology, at TRL5 for building spaces, has a leading role to play in introducing novel occupant centric services. The services not only make building spaces safer but also contributes towards improving health and wellbeing of its occupants. The technology also introduces continuous monitoring services for building spaces to bring better resource efficiency and help manage carbon footprint of the building space.

Collaboration is sought for the HORIZON Europe call titled: Controlling infection on large passenger ships (HORIZON-CL5-2021-D6-01-12). The collaboration aims to address challenges in relation to adapting developed digital twin technology for larger passenger ships and developing a Ship Management Plan (SMP) to control airborne communicable infection on-board.

To adapt the technology, collaboration is sought in understanding the airflow, thermal insights and the resultant infectious aerosol spread in the interior spaces of a cruise ship. The collaboration will work towards generating evidence base to establish mechanisms concerning the spread of airborne infection by:

- Developing airflow and thermal model of the interior spaces within cruise ships.
- Assessing the impact of HVAC (heating, ventilation and air conditioning) on the airflow and thermal characteristics within the interior spaces of a cruise ship.
- Developing aerosol dispersion model as governed by the airflow and thermal characteristics.
- To develop effective SMP's, collaboration is sought in developing evidence led prevention, mitigation, and the management plan of tackling airborne infection. The collaboration will work towards:
  - Assessing risks as evidenced by the dispersion model.
  - Establishing relevant safeguards to mitigate the assessed risks. Mitigation might consider altering airflow and/or thermal characteristics, placing screen guards at strategic locations, chaining occupancy rates, identifying potential isolation areas (e.g., isolation cabins) for the confirmed and possible cases.
  - Establishing relevant safeguards to prevent further spread of the airborne infection. Prevention might consider scheduling occupancy rates, nudging passengers to maintain respiratory etiquettes, recommending seating agreements in common social areas e.g. dining, identifying contaminated surfaces or zones.
- Aligning on-board management of airborne infection with the healthy gateways action. The management actions can align by identifying individuals at the high risk of exposure, evidencing relevant authorities the efficacy of implemented health measures, identifying contaminated surfaces or zones etc.

Finally, collaboration is sought in augmenting the SMP to tackle the spread of non-airborne communicable infection. Collaboration will broadly address:

- Technology or method to identify the spread of non-airborne infection. To augment/develop digital twin technology to tackle non-airborne infections.
- Developing and demonstrating solutions for managing the spread of non-airborne infection.

All collaborations are envisaged to be via a research cooperation agreement.

EOI deadline: 17 September 2021

Call Deadline: 19 October 2021

Duration of project: 156 weeks

## Advantages and innovations

Expertise is primarily in fluid dynamics and data-driven machine learning applications. It is this expertise coupled with the patent pending digital twin technology which is their Unique Selling Point. They also have demonstrable experience of delivering innovation-focused technology projects resulting in creating or adding innovation. They hold a patent pending digital twin technology to map indoor environment and track airborne transmission of infectious aerosols. The IP is at TRL5 for building spaces.

A key challenge is to track aerosol spread within an enclosed space to identify and reduce risks related to the airborne transmission

A key challenge is to track aerosol spread within an enclosed space to identify and reduce risks related to the airborne transmission. This provides competitive advantage in addressing the challenge. The developed digital twin technology maps centimetre-by-centimetre the airflow and thermal insights within building spaces. It is this

expert mapping which helps in tracking aerosols spread and derive services to prevent, mitigate and manage the control of airborne communicable infections.

The technology can be a part of a solution to identify probable cases of airborne communicable infections. A probable case is defined as the person meeting one of the epidemiological links:  
It can map exposure routes of infectious aerosols dispersed by a confirmed case. The expert mapping enables identifying probable cases that perhaps fall beyond the stated physical distancing guidelines. The mapping also enables identifying isolation areas on-board for different case types probable, or confirmed of airborne communicable infections.

The technology can also map exposure routes of infectious aerosols dispersed by a confirmed case.

## Stage of development

Concept stage

## IPR Status

Patent(s) applied for but not yet granted

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## Keywords

### Technology

06001013	Medical Technology / Biomedical Engineering
06001018	Virus, Virology/Antibiotics/Bacteriology
10001002	Assessment of Environmental Risk and Impact

### Market

05001007	Other diagnostic
05007007	Other medical/health related (not elsewhere classified)

### NACE

M.72.1.9	Other research and experimental development on natural sciences and engin
M.72.2.0	Research and experimental development on social sciences and humanities
Q.86.9.0	Other human health activities

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## Network Contact

### Issuing Partner

ZACHODNIOPOMORSKI UNIWERSYTET TECHNOLOGICZNY W SZCZECINIE

### Contact Person

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**Open for EOI:**     **Yes**

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**Dissemination**

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**Relevant sector groups**

Healthcare

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**Client**

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**Type and Size of Organisation Behind the Profile**

Industry SME <= 10

**Year Established**

2017

**Turnover**

<1M

**Already Engaged in Trans-National Cooperation**

No

**Languages Spoken**

English

**Client Country**

United Kingdom

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**Partner Sought**

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## Type and Role of Partner Sought

The project would benefit partnerships from three activity areas: R&D, technology/service provider and a Cruise Ship Operator. Partners who worked in previous HORIZON calls pertaining to safety on large passenger ships are desirable.

The lead role for R&D activity to be carried out by a research organisation e.g., University, Research and Technology Organisation (RTO), R&D department of a company. The research expertise is expected to be in cruise ship interior design, cruise ship HVAC design, airborne and non-airborne communicable infection modelling in confined spaces, cruise ship health and safety management, Ship Management Plan etc. The organisation is also expected to regularly disseminate the project findings via seminars, journal papers etc.

The technology/service provider will aid in improving prevention, mitigation, and management of on-board infection. Consequently, the provider activity will focus on jointly developing and demonstrating evidence led solutions to control infection. The partners might be in on-board health & safety management organisation operating in a cruise ship industry, provider addressing non-airborne infection aspect of the project. It is mandatory for the service provider to have experience in projects related to on-board health & safety management.

A Cruise operator will be required to deploy the findings of the project. The operator is required to trial and test solutions while addressing the challenges in the project. The operator is expected to provide cruise ship interior layout, HVAC historical data, occupancy data etc. or any other project relevant data. It is advantageous to get an operator with expertise in on-board health and safety management.

The cooperation type will be via a research cooperation agreement

## Type and Size of Partner Sought

SME 11-50, University, R&D Institution, SME <10, 251-500, SME 51-250, >500

## Type of Partnership Considered

Research cooperation agreement

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## Program - Call

### Framework Program

H2020

**Call title and identifier**

Safe, Resilient Transport and Smart Mobility services for passengers and goods (HORIZON-CL5-2021-D6-01)

**Submission and evaluation scheme**

Single Stage

**Anticipated Project Budget**

£3m-£4m

**Coordinator required**

No

**Acronym**

Reduction in airborne infectious diseases on passenger cruise ships

**Duration**

156 days

**Deadline for EOI**

17 Sep 2021

**Deadline of the Call**

19 Oct 2021

**Weblink to the call**

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2021-d6-01-12;callCode=HORIZON-CL5-2021-D6-01>

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**Attachments**

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