

Micro-Cosmos Ltd is located in Nijmegen, the Netherlands and was founded in 2020. The Micro-Cosmos dome concept emerged from a Dutch Health Hackathon, a collaborative event at Radboud University Hospital where individuals from diverse backgrounds converge to collectively explore and address health-related problems. The founding team of Micro-Cosmos consists of Eef Lamers and Skip van de Kandelaar. They developed the Micro-Cosmos dome which aims to provide a calmer atmosphere for patients to aid with sleep.

Micro-Cosmos received funding from EIT Health, the European Institute of Innovation and Technology, in 2023 to introduce the dome to a new country. Micro-Cosmos chose Health Innovation Hub Ireland (HIHI) as their partner organisation to pilot the dome in Ireland.



Eef Lamers, Co-founder

## About Health Innovation Hub Ireland

Health Innovation Hub Ireland (HIHI) was established by the Department of Business, Enterprise and Innovation and the Department of Health and is supported by Enterprise Ireland (EI) and the Health Service Executive (HSE) to drive collaboration between the health service and enterprise. We offer companies the opportunity for pilot and clinical evaluation studies and we provide the health service access to innovative products, services and devices that they may not otherwise be exposed to.

HIHI is built on the recognition that collaboration with enterprise can benefit patient care, patient pathways

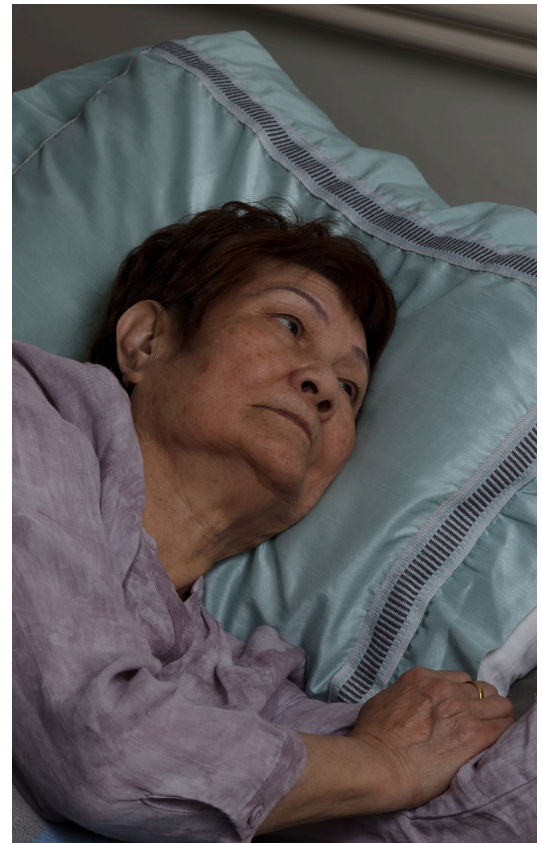
and outcomes. We assess all concepts for healthcare innovation from those on the frontline – from clinician to porter. We encourage healthcare professionals to get in touch with HIHI if they have an idea or solution to how something in your job might work better.



## The Healthcare Challenge

Restless nighttime sleep is a common problem both for those living at home and in residential care settings and especially for people with dementia. Poor sleep increases the risk of falling, sleeping during the day, as well as aggressive, agitated and vocally disruptive behaviour. People experiencing dementia are easily overstimulated and the brain is unable to process and filter stimuli. Therefore, they need a comfortable, low-stimulus environment.

Sleep also plays a vital role in recovery from surgery. Poor or disturbed sleep can impact a person's recovery including having an effect on mood, focus and pain. Poor sleep is a common problem for patients in hospitals. Research indicates that between 30% and 60% of patients in hospital experience sleep disturbances with patients sleep between 1.3 to 3.2 hours less than recommended.



# The Healthcare Solution



The Micro-Cosmos dome provides comfort and reduces external stimuli such as light and sound from medical equipment, roommates and nurses. The dome helps patients and residents in care facilities experience more rest and better sleep. The Micro-Cosmos dome ensures user privacy when they want it by introducing a canopy above them. It offers a secure environment and reduces unwanted stimuli such as sound and light from other people or equipment.

The inside of the domes is equipped with an image of nature which creates a tranquil environment for the user. The nature visual is chosen because of its scientifically proven positive effect on the comfort and wellbeing of people. The dome is simple installed by pulling the bed from the wall and moving the dome behind the bed. Move the bed back to the dome and it is ready to use.

## HIHI Role

HIHI supported pilots of the Micro-Cosmos dome in both an acute hospital in Galway and a residential care setting in County Cork. The domes were used by seven patients recovering from surgery in hospital and seven residents living in the dementia unit of a residential care setting.

HIHI supported this project by assisting the project team to engage with stakeholders, collecting and analysing feedback gathered from patients, residents, nurses and care staff. HIHI provided project management expertise during the project.



## Outcome Report

Overall, positive feedback was received from residents, patients and staff involved in the two pilots. All residents (100%) in the dementia unit reported improved sleep when using the dome, with one saying that the “*dome helps me sleep better, I am sleeping longer, I am feeling well, and my friends said my mood is very good.*” On average, residents rated their sleep at 48% before using the dome, increasing to 97% during its use. In the hospital, patients reported an average sleep score of 51% before the dome, rising to 72% after, with one noting, “*the last 2 nights with the dome are the best 2 night’s sleep in a very long time.*”

All residential care staff (100%) said residents were calmer during the pilot, with over 80% reporting fewer calls. All residents (100%) showed reduced agitation, with an average 40-point drop on the CMAI scale, a key cost predictor, suggesting a potential 20% annual cost saving per resident.

All staff (100%) found the Micro-Cosmos dome easy to use, rating overall performance at 79%. Over 90% of staff would use the dome with their residents / patients, if it were available to them.

## Testimonials

*“As a result of the pilots, Micro-Cosmos gained an evidence-based understanding of how the dome fits into daily clinical workflows in an Irish hospital and a nursing home. Beyond the immediate data, the study helped Micro-Cosmos strengthen its credibility and visibility in the Irish healthcare market.*

*From this collaboration, Micro-Cosmos emerged with enhanced market insights and valuable clinical endorsements, all of which will fuel continued development and commercialisation efforts in Ireland.*

*We are very grateful for our collaboration with HIHI!”*

Eef Lamers,  
Co-founder, Micro-Cosmos



HIHI (UCC) - HQ  
Western Gateway Building  
University College Cork  
info@hih.ie  
+353 (0)21 420 5560

HIHI (MTU)  
CREATE Building  
Munster Technological  
University, Cork  
+353 (0)21 432 6758

HIHI (UoG)  
Lambe Institute  
University of Galway  
Galway  
+353 (0)91 492 072

HIHI (TCD)  
H&H Building  
St James’s Hospital  
Dublin  
+353 (0)1 896 2573

HIHI (MMUH)  
The Pillar Centre  
Mater Misericordiae  
University Hospital, Dublin  
+353 (0)1 854 5181