



CAPE Grand Challenge: Systems and Devices for Healthcare

Call for Expressions of Interest

The CAPE Grand Challenge: Systems and Devices for Healthcare is a competition for project outlines aligned with the strategic research theme proposed by CAPE partner Haleon (formerly GSK Consumer Healthcare). The primary intent of this call is to support a body of work aligned to technology for consumer health. The winning submissions will be developed into full CAPE project proposals in collaboration with Haleon (which may involve other CAPE Partners), leading to a seed project. Priority will be given to smaller research proposals that lay the groundwork for larger, future investigations. We also support cross-disciplinary collaboration and strongly encourage applications that involve participation from the School of Clinical Medicine.

Up to £80k funding is available in this round. We expect to fund a couple of proposals for short term seed projects with budget in range £5k-£50k. Projects should be completed by March 31, 2024

The competition is open to researchers and academics in the University of Cambridge.

Objective

Haleon is in the business of supporting the 'everyday health' of the public. Our aim is to create new products, devices and services that can be used, in a social and domestic setting, to improve all our lives. We are interested in understanding health and condition diagnosis in order to deliver better and earlier interventions and technology solutions that may lead to a health benefit. Within CAPE, we have a focus on science and technology that helps us improve our understanding of human health and the ways it can be positively influenced.

We seek to exploit technology approaches that can be readily available to enable solutions in two main areas:

- Measure and monitoring the physiology, the biological functions and wellness of the human body
- Understand and interpret complex measurement data (using AI and algorithms) to create actionable insights linked to health interventions.

Research Topics

Haleon currently has a particular interest in the following areas:

- **Measurement of everyday healthcare data** either via existing off the shelf technology (sensors with mobile connectivity) or low-cost disposable electronic solutions that enable data insights and are environmentally sustainable.
- **Physiological and psychological biomarkers** targets include:
 - Women's health, specifically menopause and PCOS.
 - Mental resilience with a particular emphasis on gut brain interactions
 - Stress, changes in mood
 - Gut microbiome
 - Pain and respiratory health



- Insights to oral health as a gateway to systemic health (surrogate markers) and how systemic health may affect oral health.
- A key target for any technology solution is to be able to measure key **local microbiome identifiers** (oral, vaginal, skin, stool).
- The solutions we seek may be **software that exploits an existing connected sensor platform** with enhancements.
 - To enable future investigations the solution should be a fully connected (detection through to App and backend) that can accept different sensor types that can then be data scaled.
- or it may be any new **ultra-low or zero power scavenger solution** (environmentally sustainable) with digital connectivity to match the following needs:
 - Scalable design and manufacturing methods from small, to medium, to large-scale supply.
 - Small low-cost production capabilities to enable testing and initial investigations that can then be scaled quickly.
 - Fully realised complete solutions need to be manufacturable at high volume in the sub £1 region per test/use case.

Haleon will also welcome opportunities outside these areas that relate to other aspects of general consumer healthcare, considering the above targets.

Proposals for research will be assessed on their merits and against the four following criteria (An individual proposal does not have to address all of the following elements):

- The opportunity is new, different and could provide novel insights on human health.
- There is a clear route from the concept through development to industrialisation and consumer use that is realistic and achievable.
- The opportunity has a Data, Intellectual Property, Human aspect that is applicable to the consumer business.
- The research gives added benefits aligned to sustainability for the consumer market.

Haleon recognises the value of research throughout the maturation of technologies e.g.

- Edge Research – Entirely new science
- Maturation – Engineering at cost, improved reliability, efficiency and clear routes to commercialisation
- Demonstration – Integration of technologies that demonstrate, provide evidence of new capabilities that can be applied to enhance consumer health.

We encourage proposals to be clear on what stage of maturity the research is expecting to address.

Importantly, please capture in the proposal the potential long-term applications you believe could be possible for the technology or concept in the Consumer Healthcare market e.g. new technologies that enable low cost approaches for consumer health applications.



Award

£1,000 bonus will be awarded to the submitter of a Grand Challenge proposal that is developed into a project with a CAPE Partner. CAPE reserves the right not to issue an award if the criteria for the project are not fulfilled and there is no guarantee that the project proposal will be funded.

All research project proposals resulting from the CAPE Grand Challenge between the winner and partner/s will follow standard CAPE project approval procedures and will operate under the terms of the CAPE Partnership Agreement. Contact CAPE office for details of the governance, IP and confidentiality terms.

Eligibility

The competition is open to researchers and academics in the University of Cambridge. Each submission must include one applicant (i.e. the submitter or a co-investigator) who is eligible for PI status within the University.

CAPE is committed to equality of opportunity and to a proactive and inclusive approach to equality, which promotes an inclusive culture, and values diversity. We actively encourage applications from all under-represented groups.

Criteria

Expressions of Interest will initially be evaluated by Haleon, and they will indicate which proposal(s) most closely meet their needs and have the potential to form the basis of a full CAPE project proposal which they would support. In collaboration with Haleon a full project proposal will be submitted to the CAPE Steering Committee following the established CAPE process.

Timeline

18 September	Deadline for Expression of Interest
October	Submission of full project proposals
	Announcement of Awards

How to apply

Please complete an Expression of Interest Form ([here](#)) and return to cape-office@eng.cam.ac.uk by **September 18th 2023**.

Pre application discussions

If you have an idea for a proposal, Haleon would be happy to discuss it with you ahead of submission. Please contact cape-office@eng.cam.ac.uk to arrange an online meeting.

Further Information

The CAPE Advanced Technology Lecture 'Research to Industrialisation' on Wednesday April 5 presented more information about the objectives of the call and Haleon's research interests: you can view the talk on our YouTube channel by following this [link](#).



If you have any queries, please contact Ms Denisa Demko (CAPE Coordinator) or Dr Mark Leadbeater, CAPE Office, 9 JJ Thomson Avenue, Cambridge, CB3 0FA.

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What are we interested in?

