



CACHET

Seminar

March 19th 2018



@cph_cachet





AGENDA

Time	Activity	Presenter(s)
12:30	Light Lunch	
13:00	Welcome	• Jakob E. Bardram , Director, CACHET: <i>"Status and update on CACHET"</i>
13:15	SIRI Commission recommendations	• Tanja Danner , Director Public & Healthcare, NNIT: <i>"SIRI commission recommendation on the future healthcare system"</i>
14:00	Break	
14:20	CACHET project presentations	• Tobias Andersen , Associate Professor, DTU Compute: <i>"Biometric Healthcare Research Platform (BHRP) project"</i> • • Jonas Bak , Research Assistant, CACHET, PMR-C, & Ulrik Borch , CEO InjuryMap: <i>"Development and test of rehabilitation app for ankle injuries" (CHS collaboration)</i> • • Niels de Fine Olivarius , Professor, Dept. of Public Health, UCPH: <i>"The Phy-Psy Trial. A cluster randomised, parallel-group, 5-year trial of coordinated, co-produced care to reduce the excess mortality of patients with severe mental illness by improving the treatment of their comorbid physical conditions"</i>
15:00	Break	
15:30	Presentations – Dementia	• Nanna Skriver , Head of Center, Health and Care Administration, City of Copenhagen: <i>"Challenges and perspectives on dementia in municipalities"</i> • • Ruth Frikke-Schmidt , Chief Physician, Rigshospitalet, Associate Professor, Deputy Head of Department, Dept. of Clinical Medicine, UCPH: <i>"Vascular and genetic risk factors for dementia"</i> • • TBD
16.30	Closing remarks	• Jakob E. Bardram , Director, CACHET





STATUS '18

- Timeline
- Research
- Training
- Innovation in Society
- Supporting Industry
- Figures



Welcome

The Copenhagen Centre for Health Technology (CACHET) is an interdisciplinary research center with a vision to promote and support healthy living, active ageing and chronic disease prevention and management through Personalised health technology. CACHET is inaugurated as a strategic partnership between the Capital Region of Denmark, the City of Copenhagen, the Faculty of Health and Medical Sciences at the University of Copenhagen and the Technical University of Denmark.

Excellent research
CACHET hosts and initiates a wide range of interdisciplinary research projects at the intersection of the technical and medical sciences, taking their outset in specific healthcare challenges in the Danish society. By coupling a user-centered research and innovation process with solid academic knowledge, the research focuses on application and impact.

Research training
The CACHET PhD programme funds and trains the health technology researchers of the future. Our competitive PhD programme is designed to foster problem-oriented, interdisciplinary and entrepreneurial research. Be it in academia, industry, society in general or in the clinic, these researchers will be the frontrunners in developing the technology-based healthcare model of the future.

Industrial innovation
Most of CACHET's research is done with our 23 industrial partners. There is a strong focus on translating research into new technologies and products for commercial growth in the Danish life science industry. The CACHET innovation programme helps companies to work with top-class researchers in a flexible and pragmatic way.

Societal and healthcare innovation
By addressing major health challenges in the Danish society, CACHET research starts and ends with societal innovation. CACHET works to translate research into new technologies and healthcare services for the benefit of patients and the Danish healthcare system.

This small book is made in order to provide an overview and status of the research, training and innovation of CACHET as it were at the end of 2017.

Enjoy the reading.

Jakob E. Bardram, MSc, PhD
Director, Professor

*CACHET will support
active ageing
and m
design, developm
of perso



2015

CACHET opening

October, 2015

Personal Health Technologies

Inaugural lecture

2016

CACHET RESEARCH SEMINAR 1

Research ideas

CACHET RESEARCH SEMINAR 2

Dementia, diabetes prevention

Training CACHET PHD SEMINAR

Seminar
Mobile mental health monitoring

Training
Empirical research in Interactive systems
PhD course

Exhibition
Medico bazar '16

2017

Report
Health cl...
the Dani...
technolo...
developr...

TIMELINE OF ACTIVITIES 2015, 2016 AND 2017

CACHET RESEARCH PROJECTS

REACH

RADMIS

FUNDING PHD ROUND 1



FUNDING PHD ROUND 2



CHS

FUNDING PHD ROUND 3



TEAM

CANCER

REAFEL

BHRP

GO-ACTIVE

OUR VISION

"... to promote and support healthy living, active ageing, and chronic disease management through personalized health technology."



Healthcare Challenges



Chronic diseases management

Accounting for 2/3 of all healthcare spend worldwide – and increasing – chronic disease management is and will be the main focus of health.



Preventive and predictive health

Obesity, lack of physical activity and unhealthy lifestyle are the major factors for health problems and needs to be addressed early



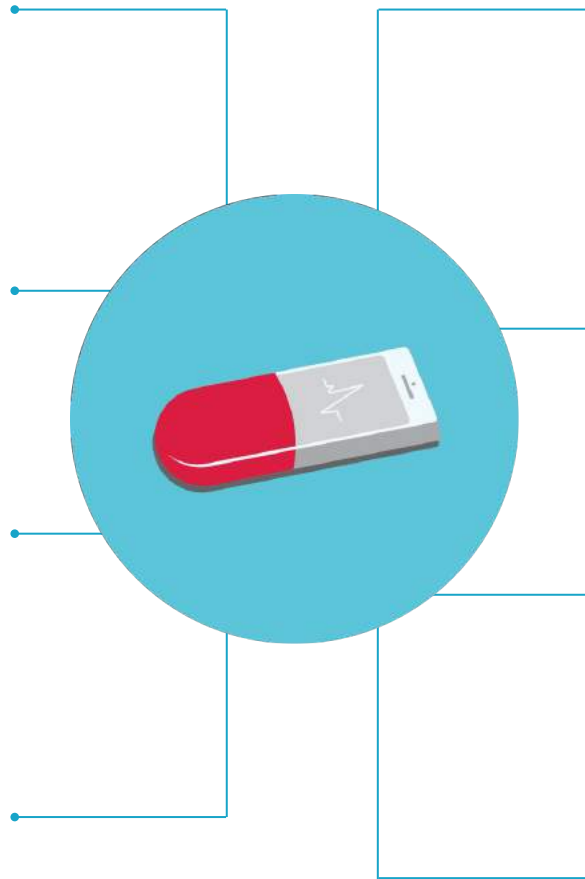
Regulatory

Legal and regulatory demands for protecting patient privacy, data, and safety will be enforced heavily as digital and personalized health emerge



Evidence & outcome-based health

New business models both for suppliers and vendors will be tied to clinical evidence and real-world patient outcome (efficiency)



Technology Opportunities



Personalized technology

Engaging, patient-centric, and participatory technology can deliver interventions tailored to the individual and sustain engagement “beyond-the-pill” outside traditional care settings.



Digitalization

The ubiquity of digital health and communication technology drive new models for virtual and semi-automated doctor-patient contact.



Health IoT

Pervasive, mobile and wearable technology for sensing and engaging with patients create a unique platform for personalized health delivery



Big data analytics

Computing power and advanced analytics and learning algorithms drive insight and prediction of patient behavior, treatment, and care costs

RESEARCH

Case: Detection of mortality after cancer surgery

Major elective cancer surgery in the abdomen is associated with substantial morbidity and mortality risk despite optimised anaesthesia and surgical techniques. This is due to late detection of severe complications and late treatment when the condition has progressed to the point of no return. Danish hospitals currently use an Early Warning system, where a number of physiological parameters are recorded once every 12 hours. However, no proven benefit of this approach has been shown.



Case: Improving treatment of comorbid physical conditions in patients with severe mental illness

In general, people with severe mental illness (SMI) die 10-20

The care model will positively impact on GPs', psychiatrists' and social workers' possibilities of improving the overall care of SMI patients. This will reduce patients' excess mortality, costs of medications, severe side effects of medications, re-admissions to psychiatric ward, and it will extend life expectancy, strengthen patients' participation in and adherence to treatment of comorbid physical diseases and improve quality of life.

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asso

90+
Researchers
affiliated with CACHET



27
PhD students
affiliated with CACHET



163
Publications
in 2016-17



S:

Professor, Dept. of Public Health,
Olivarius, Professor, Dept. of Public
ing Bro, Professor, Dept. of Public
ity. **Jakob E. Bardram**, Professor,
e Nordentoft, Professor, Mental
. Pia Kürstein Kjellberg, Head of
re of Applied Social Science, VIVE.
fessor, Dept. of Public Health, UCPH.
sen, Associate Professor, Dept. of
Mikkel Bring Christensen, Clinical
ept. of Clinical Pharmacology,
ksberg Hospital
isk Foundation



Research projects

GO-ACTIWE Motivating Physical Activity,
2013-2018 **Funding:** Trygfonden

MONARCA II Monitoring and Predicting Illness Activity in
Bipolar Disorder,
2015-2018 **Funding:** The Capital Region of Denmark

CHS Copenhagen Healthtech Solutions,
2016-2019 **Funding:** EU Regional Fund

GazeIT Accessibility by Gaze Tracking,
2016-2019 **Funding:** Bevica Foundation

REACH Responsive Engagement of the Elderly,
2016-2020 **Funding:** EU Horizon 2020

TEAM Technology Enabled Mental Health for Young People,
2016-2020 **Funding:** EU Horizon 2020

RADMIS Reducing the Rate and Duration of Readmission
Among Patients With Unipolar and Bipolar Disorder,
2016-2020 **Funding:** Innovation Fund Denmark

CANCER Detection of Mortality After Cancer Surgery,
2017-2020 **Funding:** The Danish Cancer Society,
The A.P. Møller Foundation

BHRP Biometric Healthcare Research Platform,
2017-2021 **Funding:** Innovation Fund Denmark

PACE Proactive Care for the Elderly with Dementia,
2017-2021 **Funding:** Innovation Fund Denmark

REAFEL Reaching the Frail Elderly,
2017-2021 **Funding:** Innovation Fund Denmark

Phy-Psy Trial A cluster randomised, parallel-group, 5-year
trial of coordinated, co-produced care to reduce the excess
mortality of patients with severe mental illness by improving
the treatment of their comorbid physical conditions,
2017-2024 **Funding:** Novo Nordisk Foundation

For more information about CACHET research projects
and opportunities or collaboration, please visit
www.cachet.dk

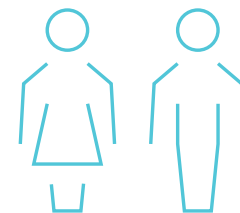
RESEARCH TRAINING



27

PhD students

affiliated with CACHET



16 at DTU

11 at UCPH

14

Funded

by CACHET



INNOVATION IN SOCIETY

Case: Developing personalised interventions to promote healthy behaviour for the elderly

Partners: Movesca, Dept. of Public Health (UCPH), Dragør Municipality and Copenhagen Healthtech Cluster

Funding: EU Regional Fund and the Capital Region of Denmark.

The collaboration between the company Movesca and researchers at CopenRehab at the Department of Public Health at UCPH aims to investigate how theories of motiva-



The "5 Motivational Types" model

Case: Monitoring physical activity

Partners: Dept. of Biomedical Sciences (UCPH) and DTU Compute **Funding:** Trygfonden

Physical activity is core to maintaining a healthy life style and to preventing and rehabilitating chronic diseases. Sustaining an active and healthy lifestyle in everyday routines is, however, challenging. Moreover, getting accurate insight into the level of activity of a person is technically challenging. This project has two purposes: (i) to accurately monitor physical activity during everyday life and (ii) to build and clinically verify a novel smartphone-based method for accurate estimation of energy expenditure.

Understanding weight loss behaviour

The project has subjected 130 randomised, physically inactive, overweight and obese women and men to either 6 months of habitual lifestyle, active commuting or leisure, time over



SUPPORTING INDUSTRY

Stages of the CHS programme – status of involved companies, December 2017:

The CHS programme aims to initiate 24 collaborations by Q3 2018 (stage 4)

Stage 1
Initial interest

... Selection

Stage 2
Match to
researchers

... Selection

Stage 3
Collaboration
planned

... Selection

Stage 4
Collaboration started

Case: Innovating patient adherence technology

Partners: Drugstars, DTU Compute and Copenhagen Health-tech Cluster. **Funding:** EU Regional Fund and the Capital Region of Denmark.

Lack of adherence to prescribed medication treatment is a significant problem in most medical treatment. This causes both poor treatment and quality of life for patients. The reasons for lack of patient adherence are many and complex. The Danish start-up company Drugstars has developed an app to improve medication adherence, and this project seeks to improve this app by studying how users with different

Evaluating usage patterns and feelings about medicine consumption

The project involves a longitudinal study of 955 people with type 1 and 2 diabetes using the Drugstars app and answering validated questions about the effects of treatments and related disease experience, attitudes and behaviours over a two-month period. Collected data are analysed by the company and involve researchers to determine correlations and intervention effects and are used for building predictive models.

Developing personalised treatment and interaction through data patterns

Analysing user behaviour could lead to application of statistical experimental design methodologies when developing



Partners

Research institutions



Gillberg Neuropsychiatry Centre
Sahlgrenska Academy



Psykatri



Organisations



COPENHAGEN
HEALTHTECH
CLUSTER



copenhagen
health
innovation

COPENHAGEN
EU OFFICE

DTU Business
Executive School of Business



MedTech
Innovation



Municipalities
and public sector



Dragør
KOMMUNE



HILLERØD
KOMMUNE



LYNGBY-TAARBÆK
KOMMUNE



/ihTek
/idencenter for hjælpemidler og
rehabilitations teknologi

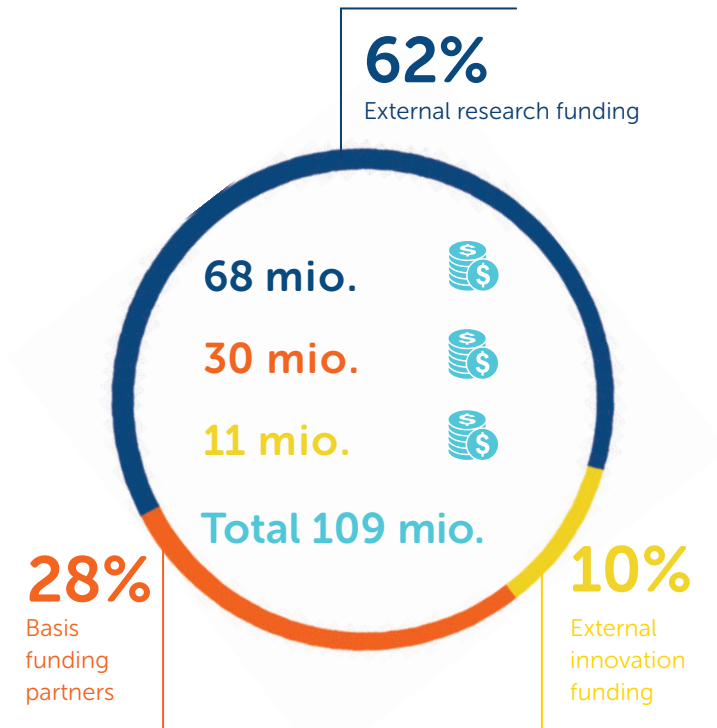
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Copenhagen
Center for
Health Technology



Project funding

CACHET research and innovation projects are funded by a variety of private, national and international foundations and initiatives.



novo nordisk fonden



TrygFonden



Danish Cancer Society

FWF

Der Wissenschaftsfonds.

BEVICA
FONDEN

THE EUROPEAN UNION
The European Regional Development Fund



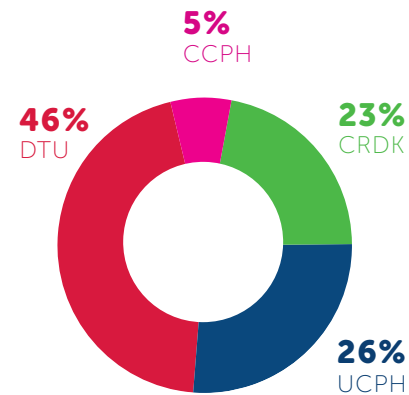
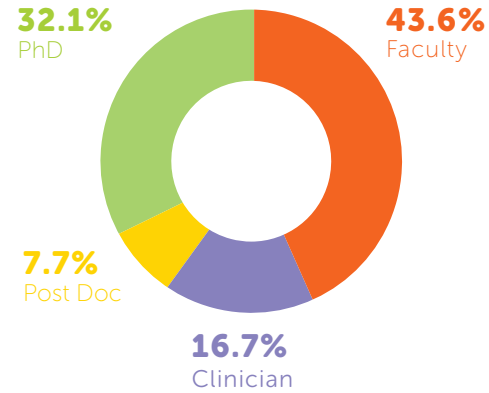
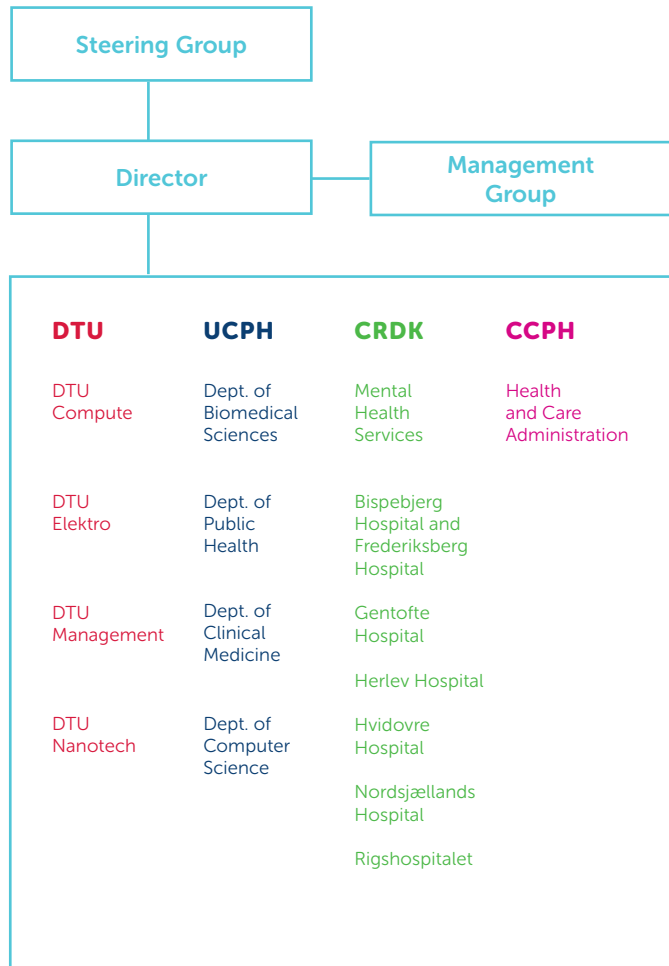
Investing in your future



cachet

Copenhagen 
Center for
Health Technology

About CACHET



Strategic Goals

#1 – VISIBILITY

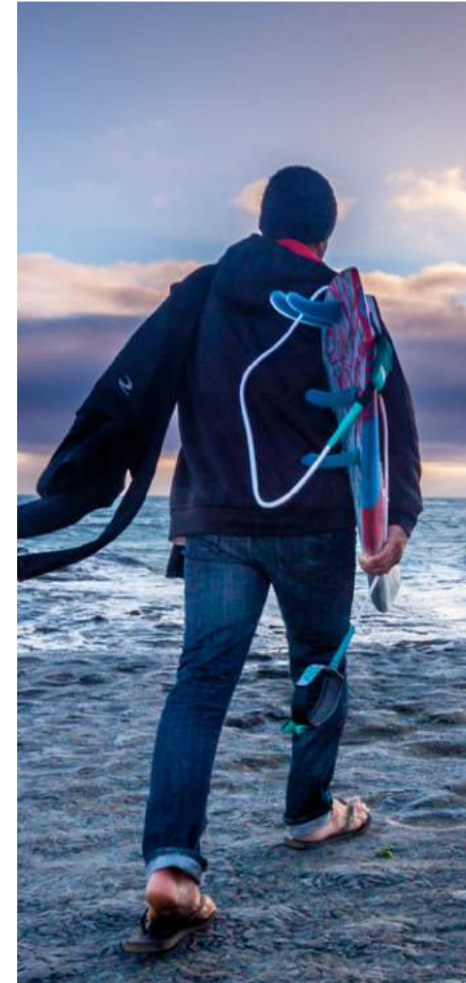
- increase visibility and impact of research in health technology in GCPH

#2 – RESEARCH

- initiate and host new research projects and initiatives across partners

#3 – GROWTH & INNOVATION

- fuel and support health innovation, entrepreneurship and commercial growth in GCPH





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SIRI commission recommendation on the future healthcare system

Tanja Danner

Director Public & Healthcare, NNIT



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Copenhagen
Center for
Health Technology



MARTS 2018



GLOBAL VÆKST — SUNDHEDSINDUSTRIENS EKSPORT ER REKORDHØJ

— *DI analyse*

Vækst for life science

Danmark som førende life science nation

æbles
ke

Tillid og sikkerhed
om data

Strategic Goals

#1 – VISIBILITY

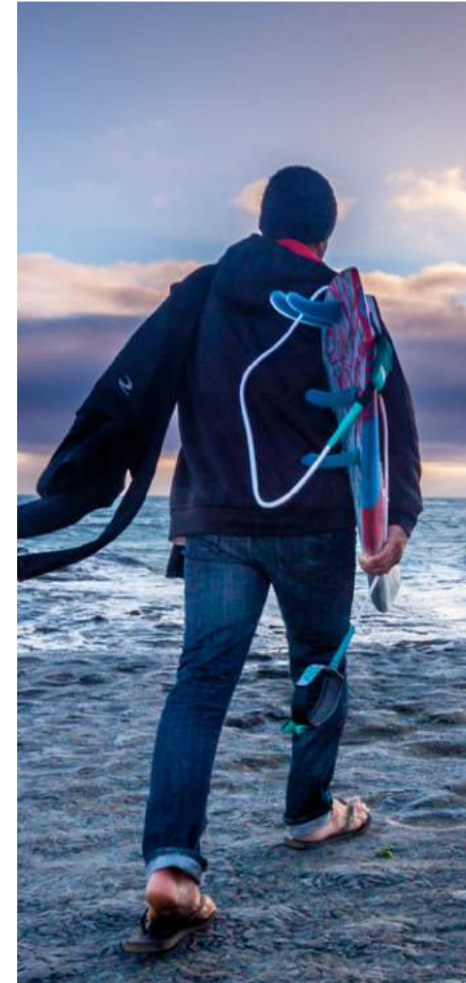
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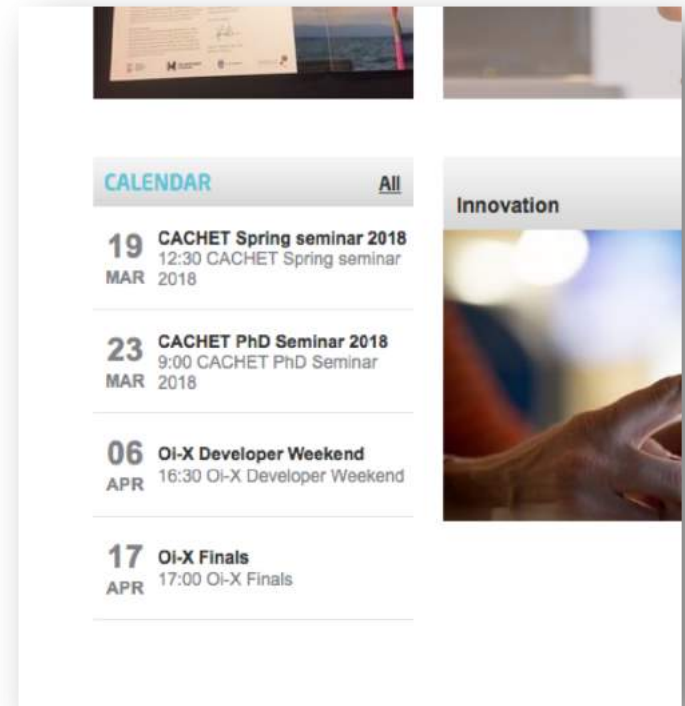


... in summary ...

- You should all help **disseminate CACHET** (goal **#1**)
 - ... use the **logo** in presentations & posters
 - ... **acknowledge** CACHET in publications
 - ... mention **@cph_cachet** when (re-)tweeting
- We should help create **synergy** in research (goal **#2**)
 - ... interdisciplinary
 - ... application- and innovation-driven
- We should make an **impact** (goal **#3**)
 - ... patents, products, spin-out companies, jobs
 - ... innovative (disruptive?) health services

Important CACHET events ahead

- March 23 – CACHET PhD Seminar @DTU
- May 1 – CACHET PhD application deadline
- May 22 – Deakin University Conference
- April 6 – Oi-X Student Innovation
- June 6 – UCPH LOM Conference
- Aug. 14 – IFD Grans Solutions deadline
- Oct. 10 – DTU High Tech Summit '18
- Nov. 13 – 3C Conference



[Organisation](#)[Reports, papers and other resources](#)[CACHET team](#)[PhD Project Grants](#)[Sponsors and Partners](#)[CACHET Twitter](#)[Vacant Positions](#)[Design Guidelines](#)**APPLICATION MATERIAL**[> PhD Application Guidelines](#)[> PhD Application Form](#)

- DEMENTIA
- INCONTINENCE

CACHET PhD projects are characterized by being:

- Focused on the design, development, and evaluation of personalized health technology.
- Interdisciplinary across the health and technological sciences
- Application focused and grounded in end-user organizations (like private homes, municipalities, nursing homes or hospitals)
- Innovative by developing new solutions for the healthcare system and/or new products for companies

A PhD project should have both a medical and technical supervisor, with one being the main supervisor and project owner.

2018 Call

We welcome applications in all areas of personal health technology in a broad sense. However, in 2018 we are in particular looking for projects that – in [collaboration with the City of Copenhagen](#) – will address the challenges of (i) **dementia** and (ii) **incontinence**. Please see the detailed call text below.

[Eyvind](#)

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Connecting students and corporations



ABOUT

CHALLENGES

PROGRAMME

SPONSORS

CALENDAR

STORIES

SIGN-UP



Oi-X
Connecting students and corporations

Oi-X Health

Join us for
HEALTH
A developer weekend @ DTU Skylab

OPEN INNOVATION X - WORK WITH SOCIETAL AND INDUSTRIAL CHALLENGES

1 / 6

DEEP DIVE

SPRINT

FINALS

INCUBATION



OUR VISION

"... to promote and support healthy living, active ageing, and chronic disease management through personalized health technology."

