

WORKSHOP ON SMART SYSTEMS FOR HEALTHCARE AND WELLNESS

RUUD VULLERS AND WALTER DE RAEDT

IMEC

Catrene Scientific Committee Working Group:



WORKING GROUP

SMART SYSTEMS FOR HEALTHCARE AND WELLNESS

W. De Raedt (imec) - Coordinator
L. Dussopt (CEA-Leti)
M. Funk (TUEindhoven)
P. Galvin (Tyndall)
A. Ionescu (EPFL)
M. John (Fraunhofer FOKUS, Berlin)

E. Jung (FhG IZM)
M. Opdebeeck (imec-cmst)
S. Pollin (KULeuven)
R. Vullers (Holst Centre/imec) - Coordinator
F. Yazicioglu (imec)

A. Corfa (CEA-Leti)
M. Belleville (CEA Leti)
A. Bertrand (KULeuven)
V. Berg (CEA-Leti)
E. Beyne (imec)
S. Bonnet (CEA Leti)
S. Bories (CEA-Leti)
F. Bossuyt (imec-CMST)
F. Bottausci (Leti-CEA)
R. Brederlow (Texas Instruments)
M. Cauwe (imec-CMST)
W. Chen (TU Eindhoven)
C. Delaveaud (CEA-Leti)
B. Denis (CEA-Leti)
R. D'Errico (CEA-Leti)
G. Dolmans (Holst Centre/Imec)
M. Fleischer (Siemens)
L. Feijs (TU Eindhoven)
O. Fuchs (CEA-Leti)

C. Hierold (ETH Zürich)
C. Kallmeyer (FhG-IZM)
S. Klose (Fraunhofer FOKUS, Berlin)
G. Kock (Fraunhofer FOKUS, Berlin)
S. Krüger (Reha-Zentrum Lübben, Lübben)
J. Liebach (Reha-Zentrum Lübben, Lübben)
T. Loeher (TU Berlin)
M. Maman (CEA-Leti)
G. Marchand (CEA-Leti)
S. Maubert (CEA-Leti)
E. Mercier (CEA-Leti)
C. Roman (ETH Zürich)
W. Serdijn (TU Delft)
B. Seewald (Fraunhofer Zentrale, Berlin)
G. Shorten (Col. of Health and Medicine, U. Cork)
T. Sterken (imec-CMST)
J. van den Brand (TNO)
J. Vanfleteren (imec-CMST)
M. Verhelst (KULeuven)

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 O. Fuchs (CEA-Leti)

C. Hieronimus (IMEC)
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 S. Klose (Fraunhofer FOKUS)
 G. Kock (Fraunhofer FOKUS)
 S. Krüger (Fraunhofer FOKUS)
 J. Liebmann (Fraunhofer FOKUS)
 T. Loehe (Fraunhofer FOKUS)
 M. Mammer (Fraunhofer FOKUS)
 G. Marc (Fraunhofer FOKUS)
 S. Maubach (Fraunhofer FOKUS)
 E. Mercier (Fraunhofer FOKUS)
 C. Roman (Fraunhofer FOKUS)
 W. Serdyuk (Fraunhofer FOKUS)
 B. Seewald (Fraunhofer FOKUS)
 G. Short (Fraunhofer FOKUS)
 T. Sterker (Fraunhofer FOKUS)
 J. van de (Fraunhofer FOKUS)
 J. Vanfleteren (imec)
 M. Verheest (imec)

Smart Systems for
 Healthcare
 and Wellness

Catrene Scientific Committee Working Group:
 Integrated power & energy efficiency



WORKSHOP OUTLINE

14:00-14:20: Welcome and Introduction (W. De Raedt, imec)

14:20-14:40: Application cases (P. Galvin, Tyndall)

14:40-15:00: A telemedical assisted rehabilitation system (M. John, FHG)

15:00-15:25: Wearable Sensors for medical applications (A. Bazigos, A. Ionescu, EPFL)

15:25-15:45: Sensor and transducer electronics (F. Yazicioglu, imec)

Break

16:15-16:35: Distributed signal processing for WBANs and high-density biosensor networks (A. Bertrand, KUL)

16:35-16:55: Integration and packaging (E. Jung, H. Pötter, FhG)

16:55-17:25: Wireless communication challenges and solutions (L. Dussopt, CEA-Leti)

17:25-17:45: User interfaces and user acceptance (M. Funk, TU Eindhoven)

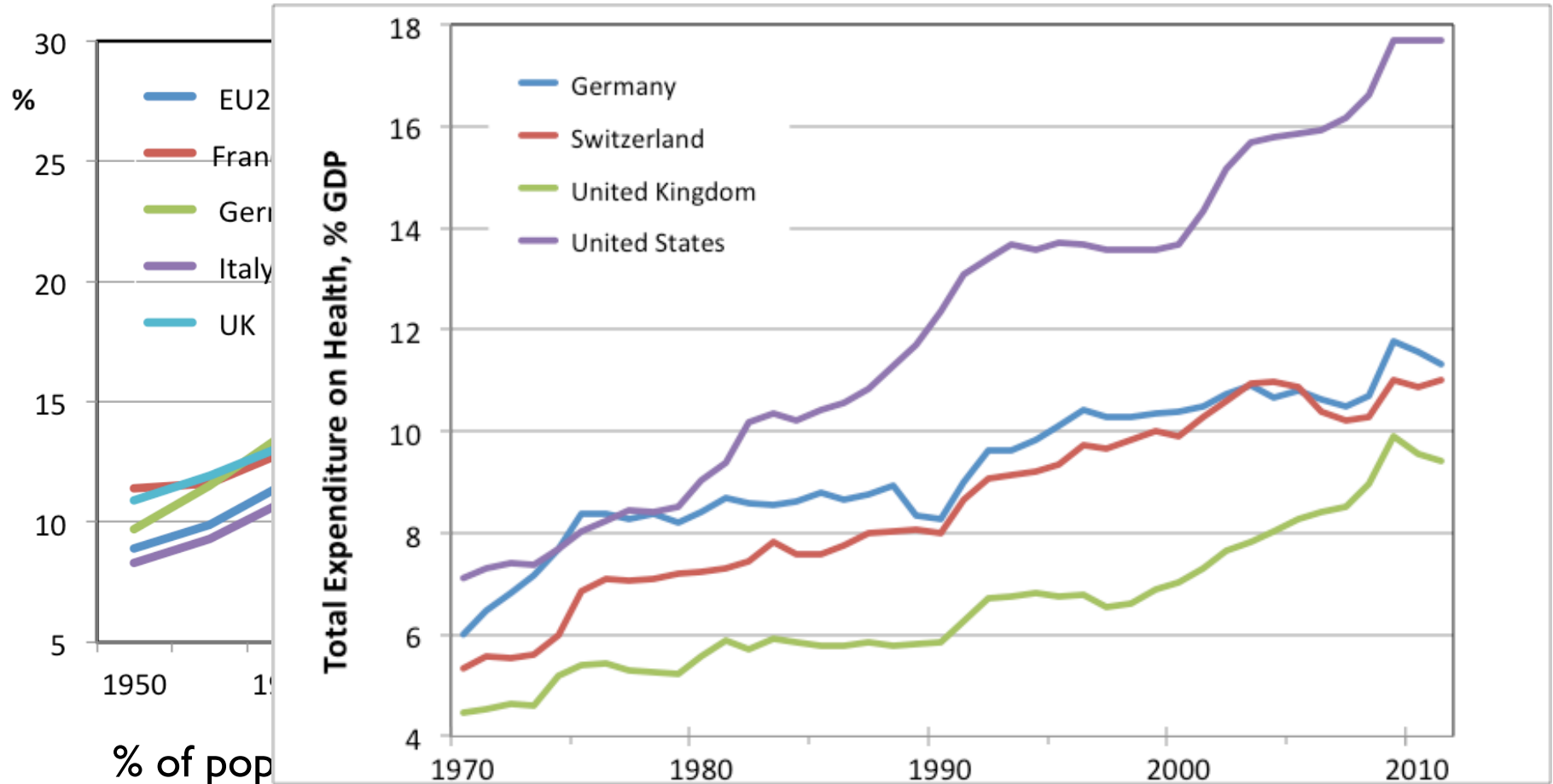
17:45-18:00: Closing

INTRODUCTION

Why are smart systems important for healthcare and wellness?

AN AGEING SOCIETY

WITH INCREASING HEALTHCARE COST



AND UNHEALTHY BEHAVIOUR

	Obese people (%)	Adult smokers(%)	Alcohol cons. (litres)
Denmark	45	20	13.4
France	37	26	13.7
Germany	50	22	12.8
Netherlands	46	28	10.1
UK	61	22	13.4

Overweight/Obese, Adult smokers and alcohol consumption for a few western countries (Sources: OECD; World Health Organisation (WHO))

INNOVATIONS NEEDED

MANAGE
ILLNESS

MANAGE
HEALTH



INNOVATIONS NEEDED

MANAGE
ILLNESS

MANAGE
HEALTH

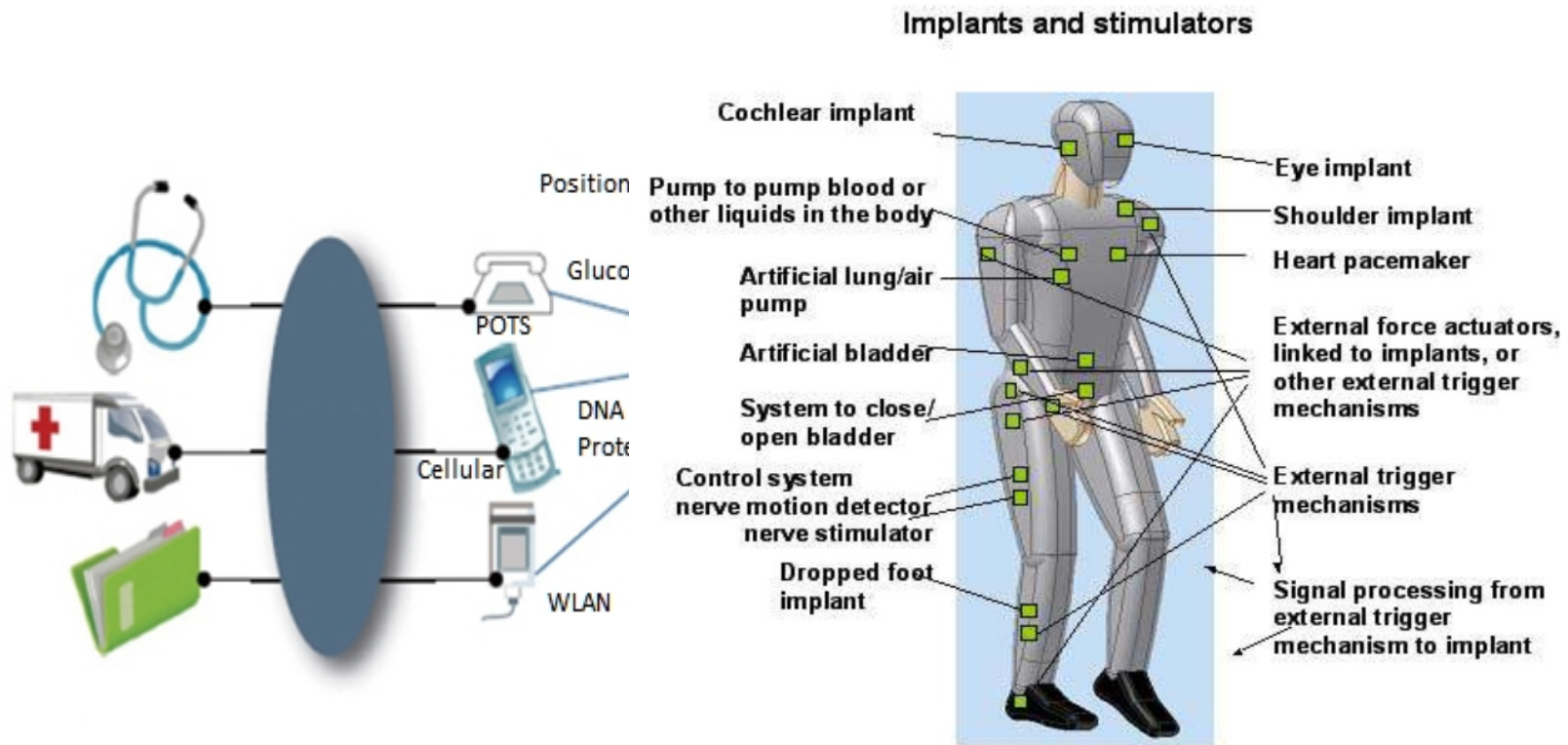
#1

More efficient &
Lower cost care

#2

Disease prevention
& value creation

SMART SYSTEMS IN BODY AREA NETWORKS AND IMPLANTS





QUALITY
OF DATA

A medical monitor displaying various vital signs and waveforms. The screen shows a heart rate of 76, a large number 100, and a temperature of 23. There are also smaller numbers like 70 and 36.5. The monitor is white and has several buttons and a dial on the left side.



DESIRABLE
FORMFACTOR

A close-up of a person's hands and forearms. They are wearing a red wristband sensor. The person is holding a small white object, possibly a sensor or a piece of equipment, in their hands. The background is slightly blurred, showing a person's legs and a shoe.

**RADICAL
SENSOR, CIRCUIT, SYSTEM,
INTEGRATION, ALGORITHM
INNOVATIONS**



LOW
COST

A small, rectangular sensor component is shown on a white card. The sensor has a red strip on one side and some text on it. The card is placed on a white surface.



LOW
POWER

A glowing green sensor component is shown. It has a bright green light emanating from it, and it is mounted on a dark surface.

THIS IS A STRONGLY MULTI DISCIPLINARY ARENA

Technology

Mental health

Heterogeneous System integration

Life sciences

Clinical research

Big Data

Smart Algorithms

Positive Behaviour Stimulation

Challenge = Fuse research in these fields
and **Opportunity** towards innovative solutions

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