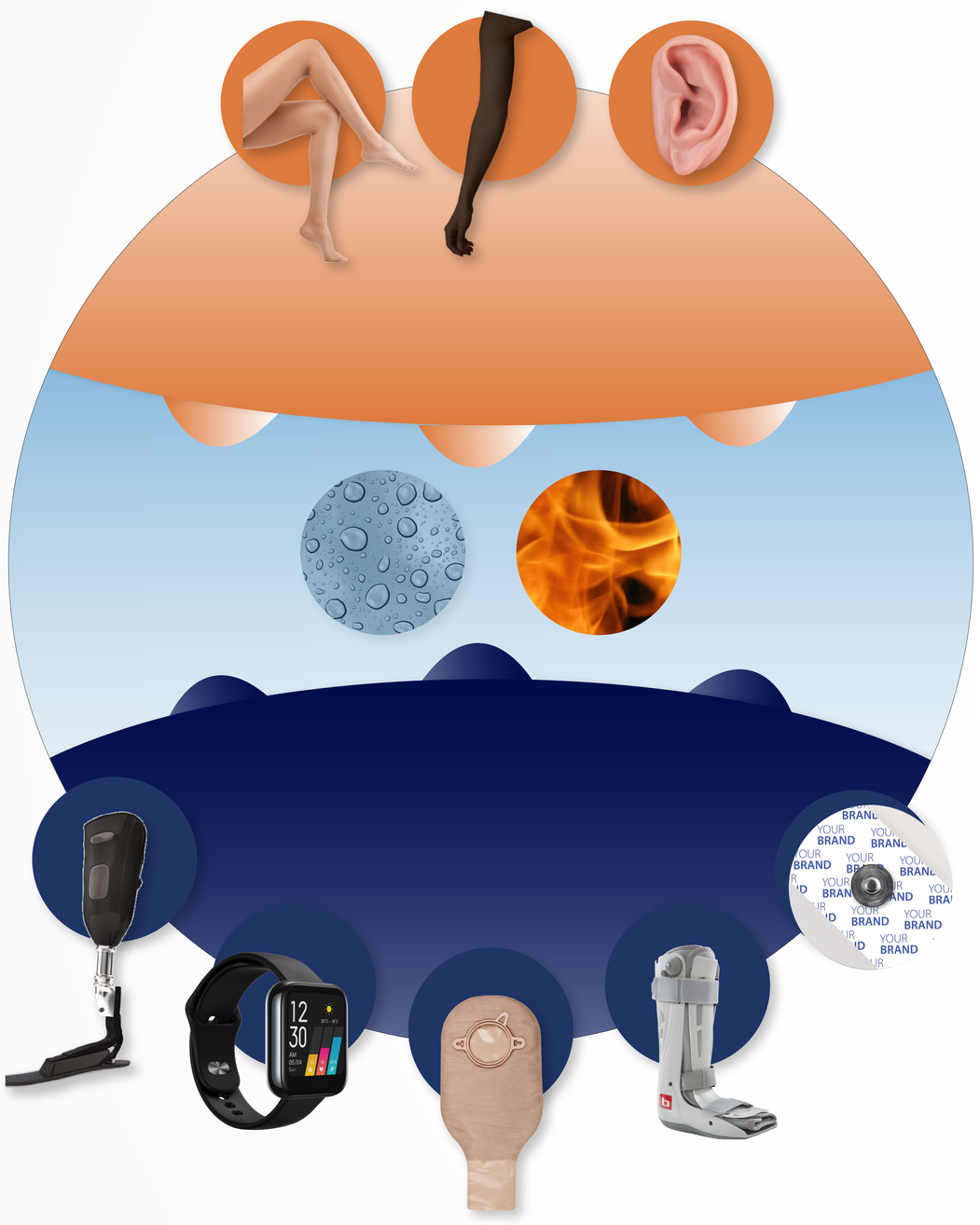
REGULATING MICROCLIMATES IN BIOMEDICAL PRODUCT INTERFACES BY SURFACE ENGINEERING

H. Reuvekamp, D.T.A. Matthews, E.E.G. Hekman & E. van der Heide

INNOVATIVENESS & GOAL

Engineer a surface functionality to regulate microclimates at biomedical product interfaces



BACKGROUND & RELEVANCE

- Growing number of personalised healthcare devices
- Microclimate present at interface affecting both apparatus and skin
- Functionality interface linked to surface properties
- Sustain healthy skin barrier by microclimate regulation

SKIN SIDE

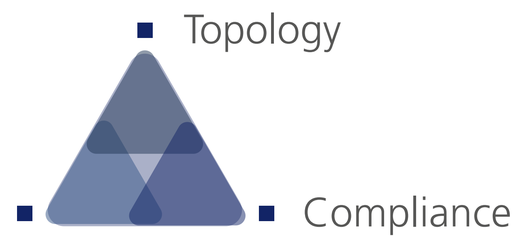
Characterised by

- Intrinsic factors
  age, anatomical site, gender
- Extrinsic factors
  ambient temperature, humidity, season

MICROCLIMATE REGION

The local, closed region between the device and the skin comprising the combined effects of temperature and humidity deviating from the surrounding ambiance

DEVICE SIDE



MULTIDISCIPLINARY APPROACH

SURFACE ENGINEERING

Development of surface (feature)s being able to regulate temperature and moisture

MICROCLIMATE SET-UP

Measurement chamber to simulate and regulate the microclimate

VALIDATION

Validation of microclimate regulation ability

OUTCOME

General design rules for product development in healthcare technology

Hanneke Reuvekamp
h.reuvekamp@utwente.nl

FUSED - Funtionalised Surface Design and Engineering

UNIVERSITY OF TWENTE.