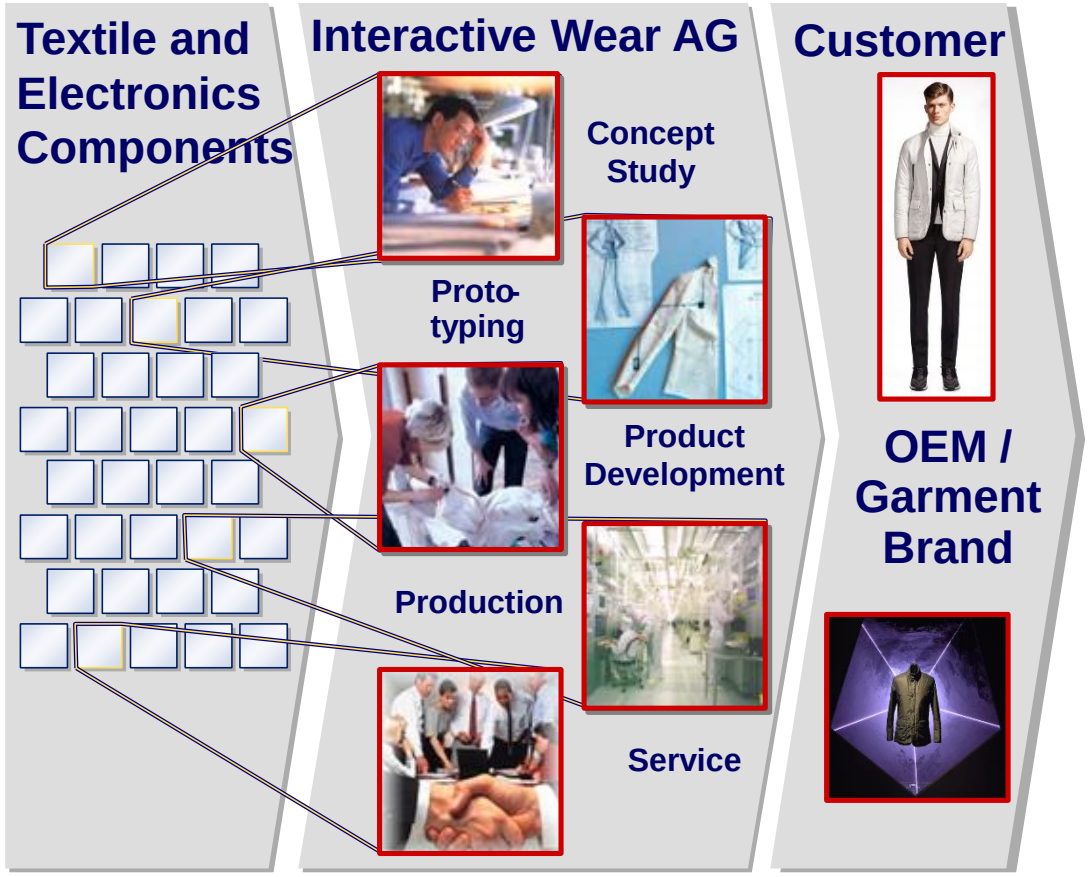
Just Wear IT

Company Overview

About Interactive Wear

- Development and integration of electronic components and systems into textile products
- Providing of-the-shelf and customized solutions
- Manufacturing of Wearable Electronics components like sensors and conductive ribbons
- Engineering and consulting services for Wearable Electronics projects



Background: >15 Years Experience in Wearable Electronics

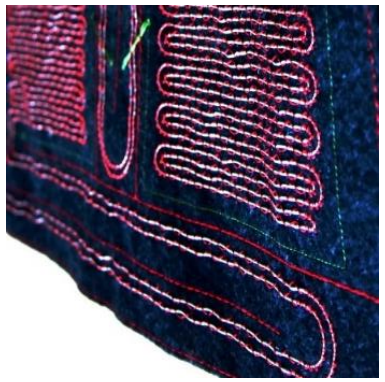
- The semiconductor company Infineon Technologies AG started in 2000 with R&D activities in the area of Wearable Electronics
- Infineon and O'Neill launched 2004 the first integrated MP3/Bluetooth jacket in the market
- Interactive Wear spun off from Infineon in 2005 and extended systematically the portfolio with new platforms and solutions in more than 130 commercial projects

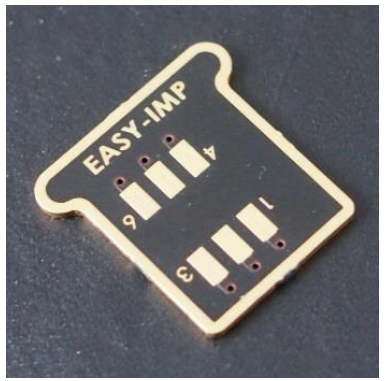
INTERACTIVE WEAR

Our Portfolio of Systems and Components

Communication – Light – Heat – Connectivity – Power – Sensing





Sensors Textile Bus Systems **Cloud** **Sensor Hub**

Snap-In **Heating Wire** **Connectivity** **Micro Controller**

Textile Cables **Sensors** Bluetooth® **Batteries** Integration

LEDs Docking **Feedback** **Washability** **Look&Feel**

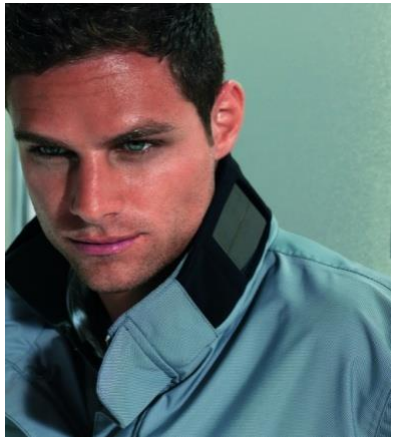
Customer from Fashion, Sports and Industry

O'NEILL

TRIUMPH

Ermenegildo Zegna

CONFORM'ABLE



Billabong
BILLABONG.COM

HALTI

EA7
EMPORIO ARMANI

PAUL & SHARK yachting

Triumph

rosner

BMW

DAIMLER

lafuma

NORTHWAVE

AERONAUTICA
MILITARE

TAO
TECHNICAL-WEAR

pierre cardin

BOGNER

Continental

EADS

KJUS

reusch
LOVE YOUR SPORT

IXS

Forster Rohner
Textile Innovations

GIBAUD

SLAM

DANE

DAINESE

adidas

Hartan

BDF
Beiersdorf

Research Partner and Projects

Fraunhofer

titv
Das Institut für Spezialtextilien
und flexible Materialien

RWTH AACHEN UNIVERSITY
ITA

cfaed CENTER FOR ADVANCING ELECTRONICS DRESDEN

German Research Center for Artificial Intelligence GmbH

FAU FRIEDRICH-ALEXANDER UNIVERSITÄT ERLANGEN-NÜRNBERG

Heizhandschuhe – Flexensys – Landmarke – Plug'N'Wear – Sinetra – SmartSensors A – TexBatt – Easy-IMP – Urban Sports – FaDruS – SAAM

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GEFÖRDERT VOM

Bundesministerium für Bildung und Forschung

ZIM Zentrales Innovationsprogramm Mittelstand

SEVENTH FRAMEWORK PROGRAMME

GRAPHENE FLAGSHIP

INTERACTIVE WEAR

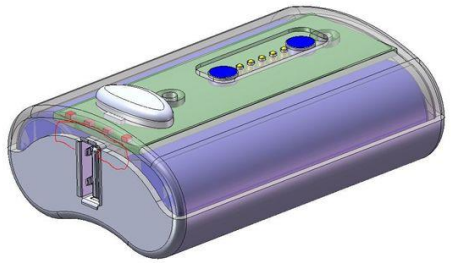
Platform iComX for Communication and Entertainment

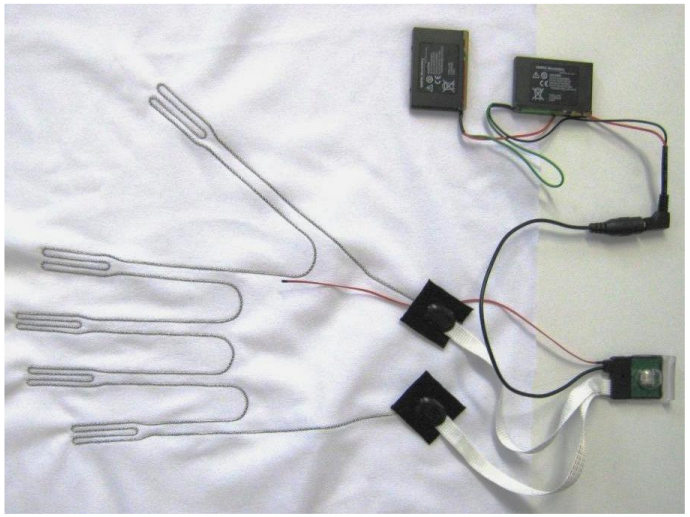
iComX Platform for Communication

Bluetooth®

iThermX – Platform for Heating System

- Platform for small & medium mobile heating applications
- Recommended for gloves, boots, pockets, kidney and neck heating systems
- Main features
  - 1-4 batteries, 3,7V-11,1V
  - Power from 2W to 25W
  - Temperature sensor option
  - Timer function
  - Power control
  - Detached capacitive LED switch
  - BLE compatible remote control with interfaces for app development





Status Heating Systems

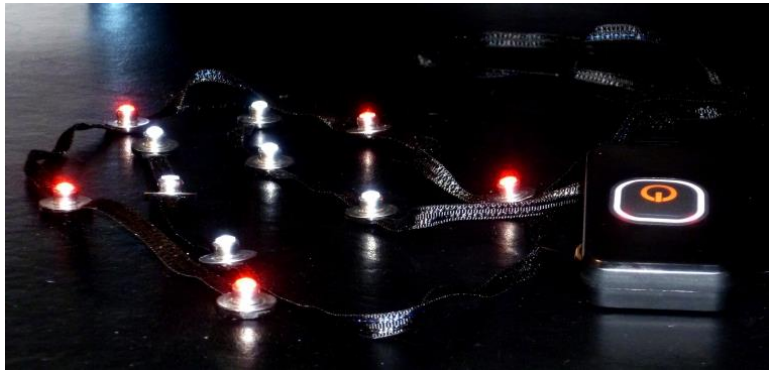
- Mature
  - Optimisation of efficiency by
    - Temperature sensing and control
    - Battery management
  - Heating material and contacts
  - Embroidery production process
- Research and development demand
  - Understanding physiological effects of active heating to the body
  - Smart power supply with temperature control
- Chances for innovation
  - Integration and construction of heated apparel
  - Development of products for specific applications

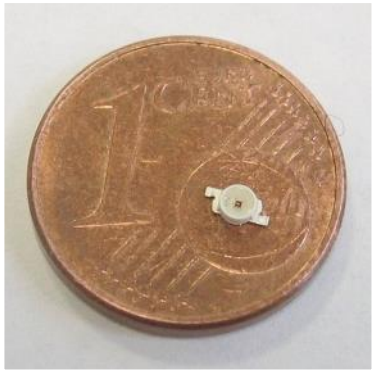
iSolarX – Solar Energy for Jacket or Bag Integration

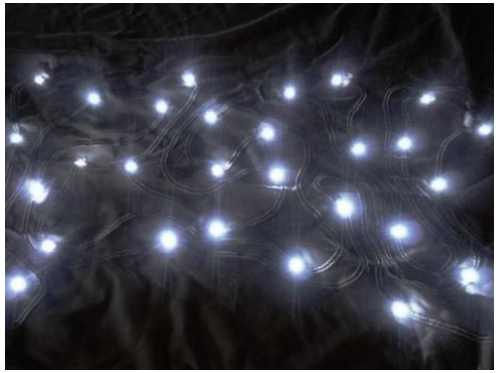
- Solar charging platform
  - Solar cells with typically 1W to 2W power
  - Suited for silicon (rigid) or semi-flexible cells
  - Energy harvesting box with Li-Ion battery
  - USB and adapters for various mobile phones
  - Charger for indoor charging

iLightX – Customer Specific Application Development

- Special LED mounting techniques
  - Snap button integration
  - Micro LEDs integration: embroidered, laminated, moulded
- Flexible and robust textile harness
- Power supplies options
  - Lithium-Ion
  - Combination with solar solutions
  - AA/AAA or coin cell batteries
- Various switch and sensor options
  - Magnetic switches
  - Light sensors
  - Motion sensors







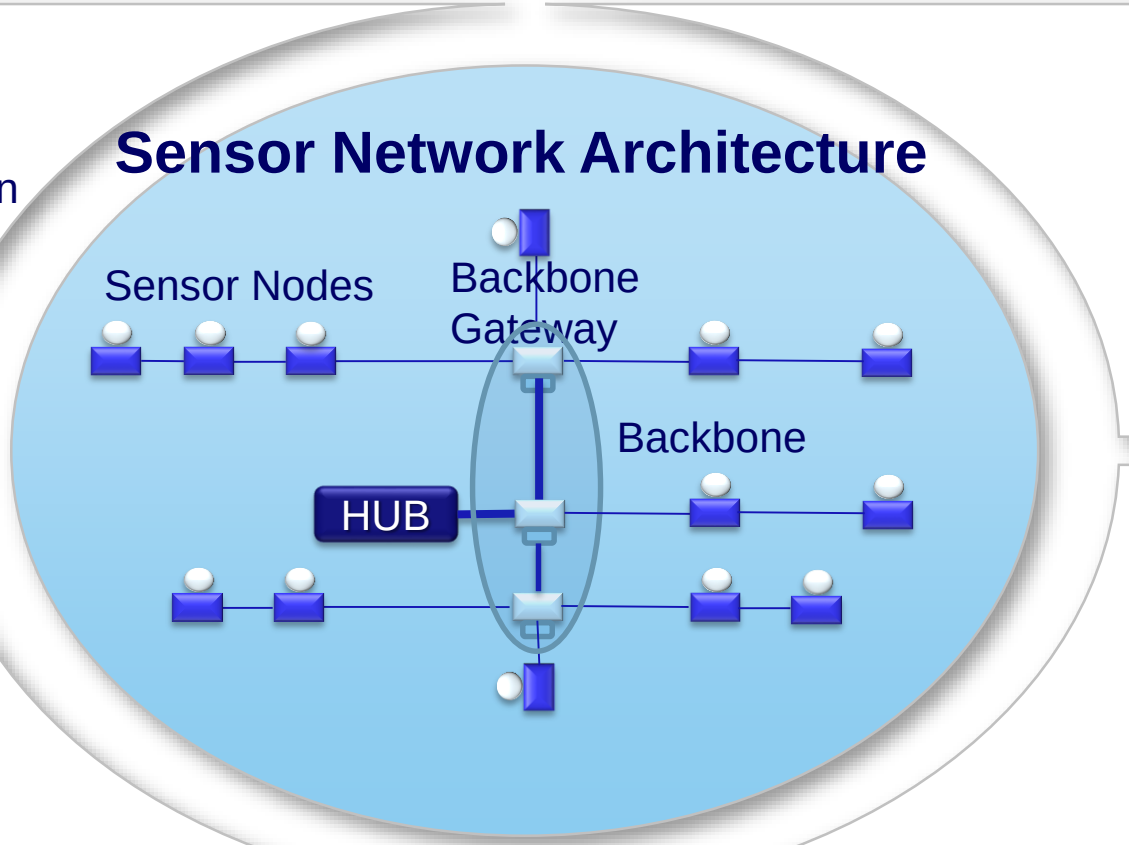
Platform iSenseX: Body Sense and Feedback Network Architecture

Performance

- Real time backbone bus system for synchronized data acquisition
- Synchroneous sensor protocol
- Support of high sampling and data rates

Key Applications

- Advanced motion tracking for:
  - Sports and fitness
  - Medical and healthcare
  - Outdoor gaming



Flexibility

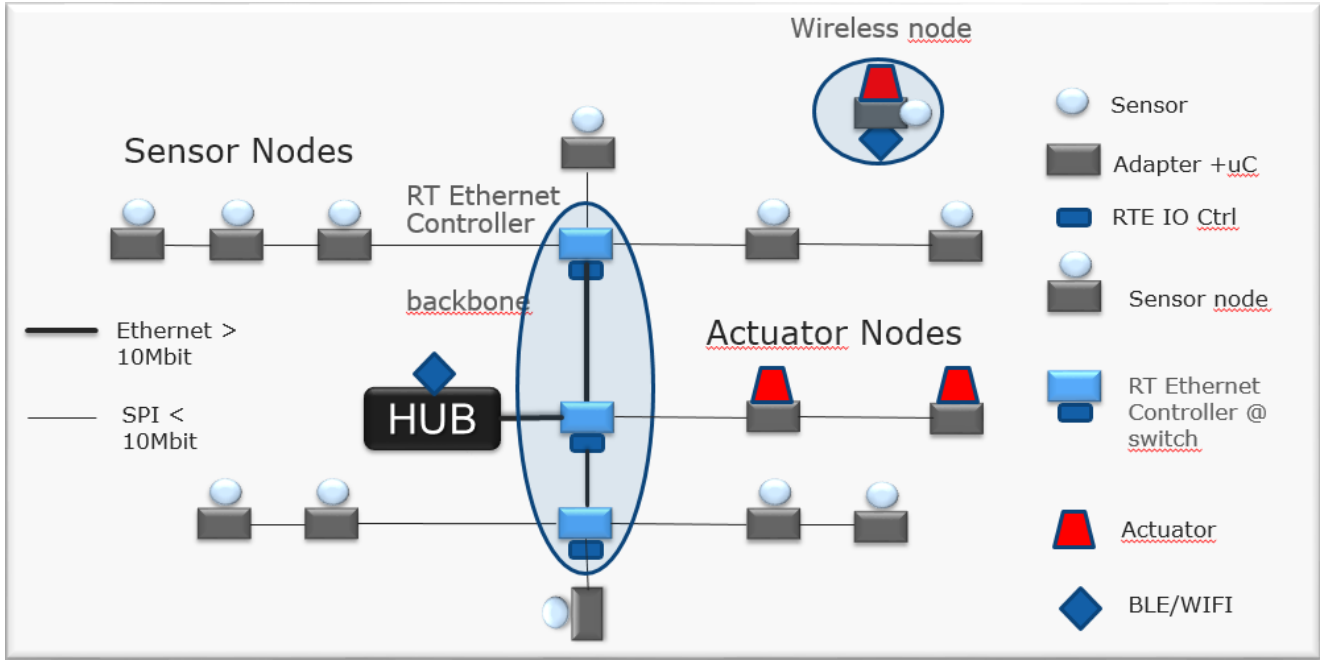
- Lightweight, flexible and comfortable textile cables
- Support of different types of digital sensors
- Common interface

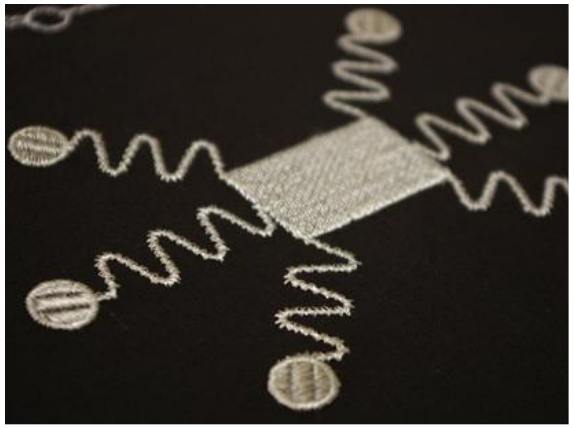
Costs

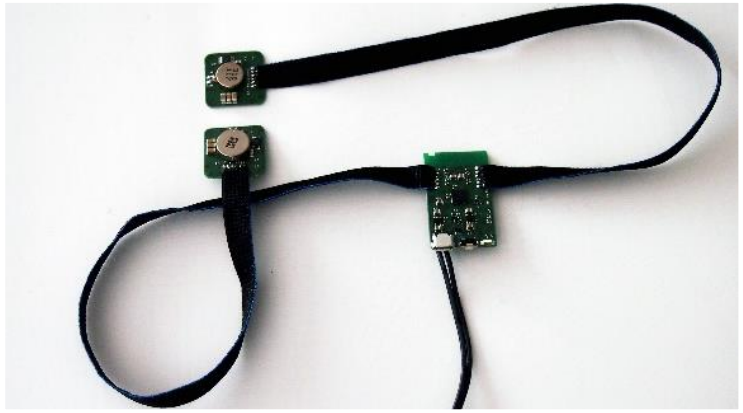
- Low cost textile bus and robust adapter system
- Sensors can be easily attached and replaced

Status Body Monitoring and Feedback

- Mature
  - Digital sensors
  - Textile electrodes
- Research and development demand
  - Real-time sensor networks
  - Mechanical integration
  - Development of algorithms for complex motion detection
  - Interaction mechanism
- Chances for innovation
  - Sensor fusion and networks
  - Body sense and feedback systems
  - New Materials (e.g. pressure sensors)

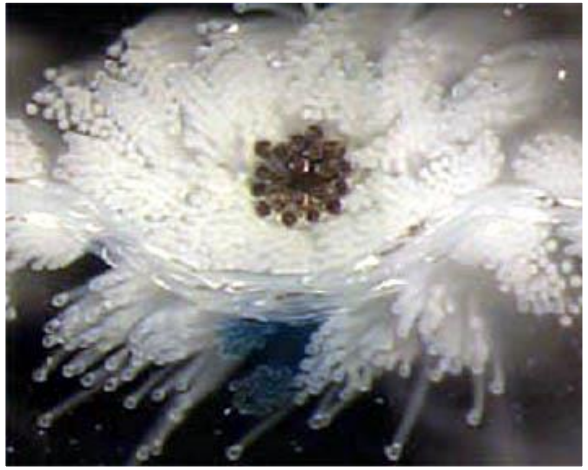


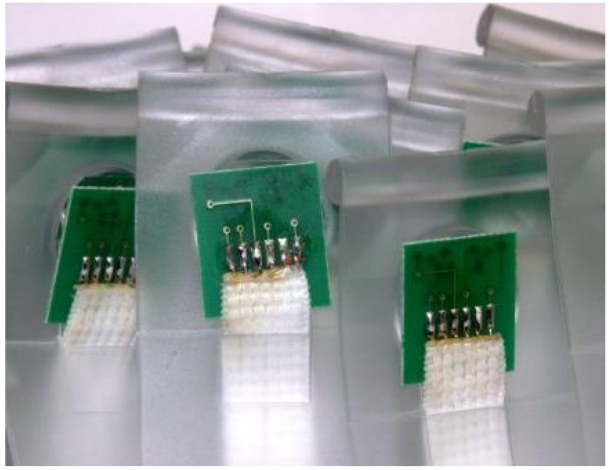


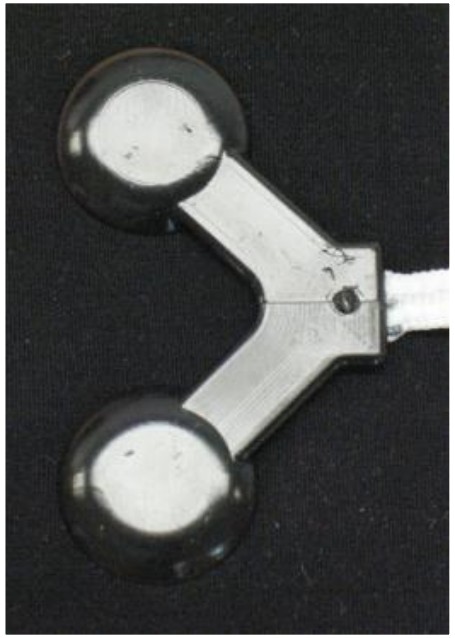


Components

- Textile Cables for Flexible and Robust Connectivity
  - Textile Cables with 2/4/6 Strands
  - Available with Custom Specific Connectors
- Switches and Keypads
  - Mechanical Switches with Optical Feedback
  - Printed Sensors
- Flexible Heat Pads
  - Embroidered Heat Pads
  - Knitted Heat Pads
  - Woven Heat Pads
  - Non-woven Coated Heat Pads

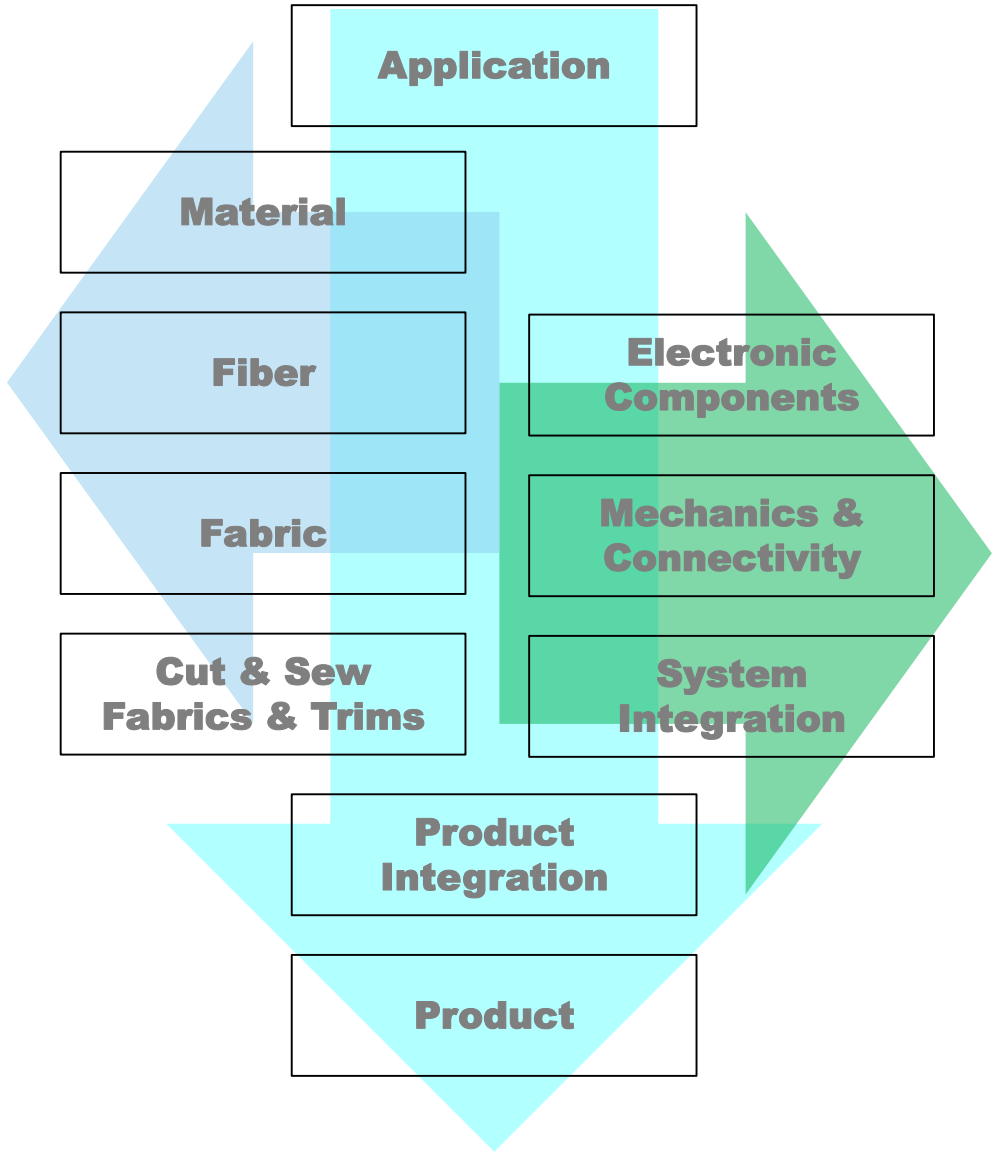






Collaborative Development in Smart Textiles

- Knowhow of
  - Domain and application
  - Textile and apparel design
  - Electronics
  - Integration
- Clear processes
  - System development
  - Process development
- Benefit from platform (adaptable) components (Meta-Products)
- Cooperation with experienced and reliable partners



Ways to Start Implementing Wearable Electronics

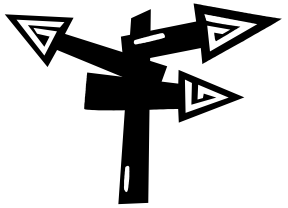
Fast Entry Workshop: Knowledge Boost

Knowledge and Preparation

If Wearable Electronics is new to your organisation

If you want to provide a fast access to Wearable Electronics and implementation expertise

Feasibility Study: Right Choice



Choice and Transparency

If you aim to integrate new components or use new integration methods

If your past project failed or the product is not meeting user or cost requirements

Project for Customized Solutions

Reliable Implementation

If you aim to develop or integrate new functions based on your specification

If components and production methods are proven and reliable

Order Components or Products

Proven Components

If you are experienced in Wearables Electronics

If you aim to build and integrate your solution within your organization

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