Metatronics

For smarter electronic solutions

User Interface in distributed and wearable devices

UID 2015

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Metatronics

- Development of smart electronics solution
- HQ in Eindhoven, The Netherlands
- Team of 21 engineers
- High tech engineering firm
- Founded in 2003
- Strong IP and knowledge base in smart devices
- Full service provider (concept →production)

Brainport REGION Eindhoven

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Metatronics technology library

UI in distributed and wearable devices

Portable, remote and wearable devices are the next big thing, however the UI for these devices is challenging.

How can you interact with a device that is worn under your clothes, or that is placed in a remote location?

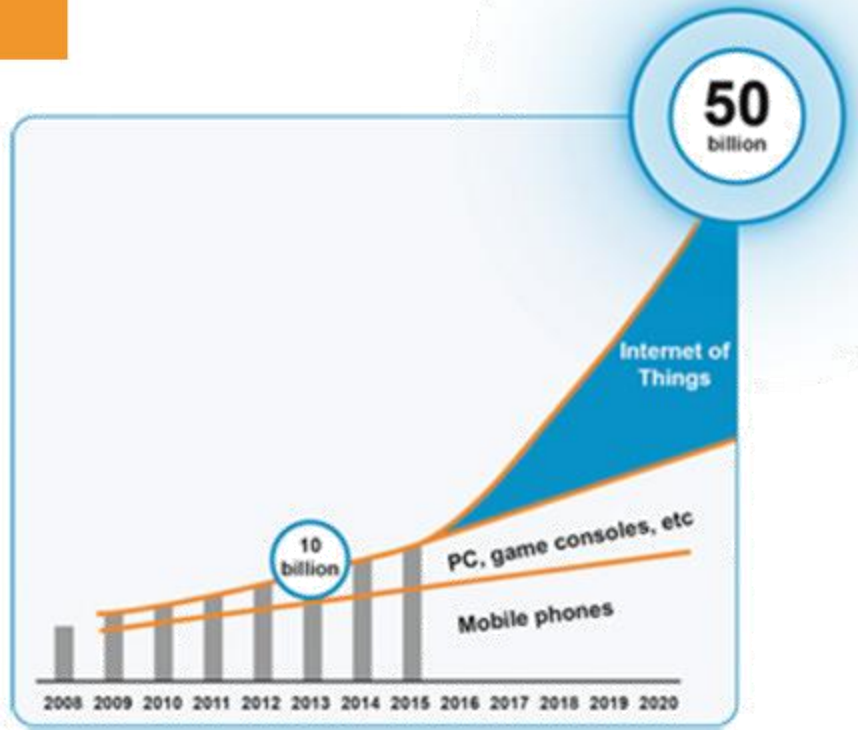
Also there is separation of function between the device itself and other platforms (phone and or cloud) and sometimes multiple devices together form one function.

Trend

- Devices become self sufficient and self aware
- UI on devices decreases
- UI outside devices increases
- Complexity multiplies (also in development)

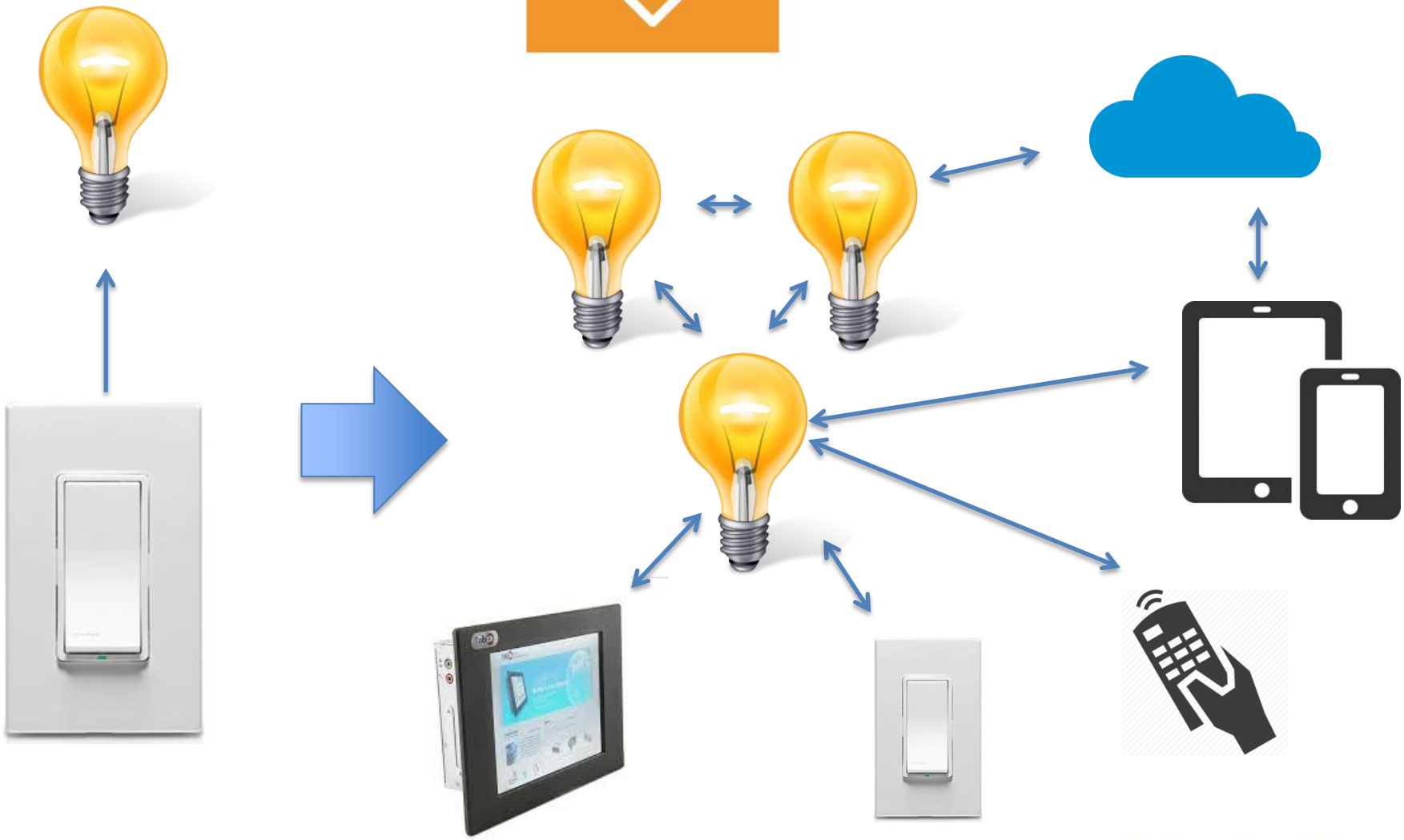
The Best user interface is no user interface?

Smart devices



Who is going to build all these devices?

Smart = Complexity^2



Development disciplines

- Electronical (pcb, embedded software)
- Mechanical (Design, casing, packaging)
- Chemical (led, sensors)
- IT (app, cloud)
- Behavioural (UI)
- New on the block:
  - Textiles
  - Other

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Challenges

- Development effort shifts more and more to software and IT
- Connect to a “near” future proof platform?
- Inter device communication profiles
- Hardware development
  - Who is going to design and manufacture 50 billion devices?

Distributed UI?

- Shared between devices
- UI active on other device
- Split UI
- Or a world of smart lego?
  - Building your own UI?!
  - Ultimate customer personalization
- Choose strong and simple use cases

To minimize UI complexity think about your minimal viable product first and start from there

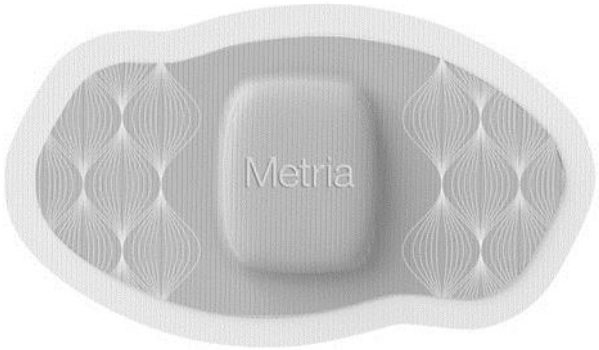
Profiles

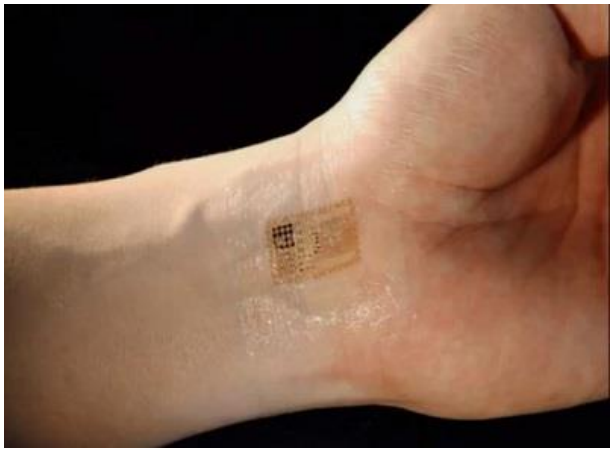
- Currently a lot of potential winners for distributed devices
  - BLE
  - Wifi
  - etc
- eg Hartrate is transferred between sensor and fitness devices without mobile phone (currently done with ANT+ but ANT+ is not IOT ready)
- Stay within profiles to ensure interoperability or get stuck with a proprietary profile

Wearables

- First of all 95% of wearables are wristbands
- Most of todays wearables have a minimal UI
  - Most of UI is displayed on 3rd party platform
  - Screen on smartwatches is mostly extension of smartphone UI
  - Status notifications mostly through led and vibration
- Possible UI output
  - Vibration
  - Heat/cold
  - Light
  - Other?

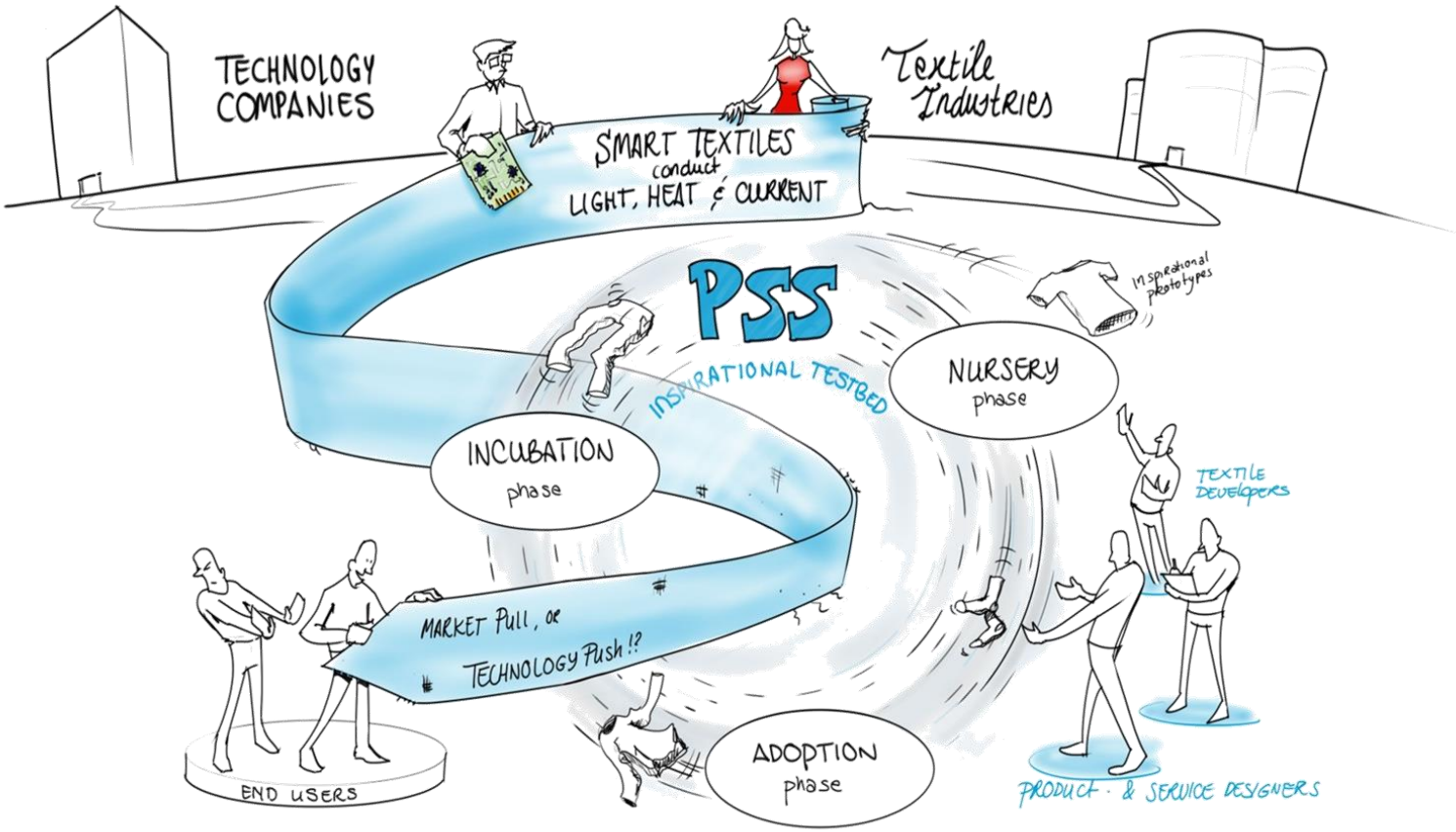
Examples





Crisp

Creative Industry scientific platform



E-Brace

SNEAK PREVIEW

- Gadget for E&A 2015 fair
  - Get your own on the fair!
- Joint development of 40 companies

Sound module

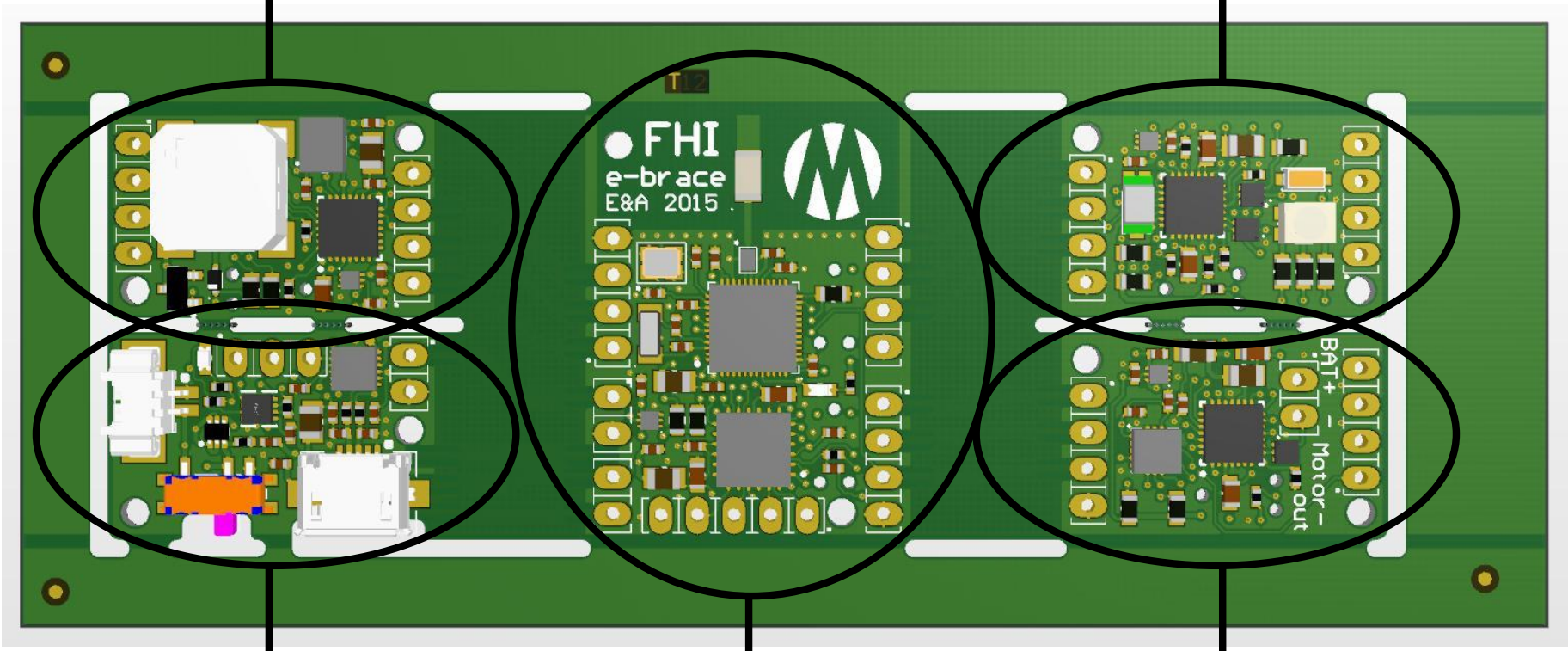
- Microphone
- Speaker
- 4 Outputs (1 PWM, 3 ADC)

E-BRACE

Light module

- Ambient Light Sensor
- RGB LED
- White LED
- 4 Outputs (1 PWM, 3 ADC)

4 Arduino boards on an I^2C bus



Charger

- On/Off Switch
- FTDI (USB to UART)
- Power/UART output
- 200mA charger

Controller module

- Bluetooth Low Energy (nRF51822)
- ISP for feedback modules
- 4 Outputs (1 PWM, 3 ADC)

Movement module

- ADXL362 Accelerometer
- Motor output
- 4 Outputs (1 PWM, 3 ADC)

What can Metatronics do for you?

- Create full service hybrid systems
  - Led solutions
  - Sensor solutions
  - Human interface solutions
  - Networking solutions (both wired and wireless)

Thank you


Committed to your next innovation
Realizing intelligent solutions

Contact

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