Making opportunities tangible

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An inspirational test bed enables textile developers to understand the multi–disciplinary opportunities and challenges of creating Smart Textile Product Service Systems.

MAKING OPPORTUNITIES TANGIBLE

The textile companies that remain in the Netherlands are struggling to stay profitable: competition, high technological know-how and a culture of cost-focused SME companies makes it difficult for this industry to collaborate and combine their strengths. Although there are many interesting smart textile concepts, we have seen few relevant examples that are producible and valuable for our society: the 'killer application' has not been found. That is why it is important that multi-disciplinary parties teamup during the ideation process to come up with innovative solutions. In the Smart Textile Services project, we are exploring new applications for smart textiles and stakeholder adoption. We try to create shared ownership of the ideas and solutions through collaboration and engagement in workshops where we invite people from a variety of disciplines: fashion designers, interaction designers, textile engineers, and service providers. We hope to provoke innovation and collaboration not only in workshops, but also when people return to their company, institute or service.

These workshops are also a great way to explore the technology available. As designers and engineers come together, they start to experiment with the materials and look beyond the traditional approach. Together, they can go beyond the boundaries and explore radically new ideas. In June of last year, we organised a full-day workshop "Beta textiles, Textile and Code", which was hosted by Waag Society in their FabLab, an environment where people can rapidly prototype their ideas. In this workshop we were interested to learn who should take the lead in such a project. To reflect the real-world situation, we invited participants to act

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CROSSING BOUNDARIES

The Smart Textile Services project uses proto–types as boundary objects to collaborate with the project partners. Lilian Henze is building a framework to map all interactions between partners in PSS development and the use of boundary objects to support these interactions.

as fashion designers, technology experts, and textile engineers in the morning and collaborate in multidisciplinary themes during the afternoon.

The most challenging and at the same time most rewarding moment during the workshop was right after lunch. We had asked the group who worked as fashion designers in the morning to come up with a shape for the garment and after lunch the other participants from the "textile engineering" group and the "technology group" had to decide how their expertise and input would best suit the concept of their choice. Each of the resulting six groups brought participants from the different disciplines together.

With the goal to have a working prototype at the end of the day, the groups set to work with knitted fabric that was produced in collaboration with the TextielMuseum. One of the fabrics had conductive areas to measure stretch and the other fabric had integrated circuitry and pockets for LED lighting. This set-up ensured that the participants could start immediately, instead of first having to produce a smart textile themselves.

One of the great things about the Smart Textile Services project is that through these workshops there are so many tangible objects to show our progress and inspire other companies. At the end of the Beta textiles workshop, we had six iconic garments that all made use of technology: a dress that could shorten the hem line with actuated thread, or one that can sense movement and heat up and emit light when outside. Although the prototypes were only made in a day, and some parts quickly stapled together, they clearly illustrate what people can do and want to do with these smart textiles. At the end of the workshop the participants were asked to

think about how the textiles could be improved to better suit their needs, while the academia reflected how to solve the collaboration issues they came across during the workshop. This workshop is one approach to foster collaboration between partners with very different backgrounds. But in real-life projects we are stimulating multidisciplinary collaboration as well.

The textile used in the workshop may be used for a broad range of applications. A first prototype used to explore this application is a touch sensitive garment: Tender. It is made of a technical knit textile, which has programmable microchips in each pocket integrated into the material. These microchips can react to different inputs and perform a range of actions. In this touch-sensitive prototype, the garment reacts to stroking: by bringing the pockets into contact with the wearer's skin, the individual pockets light up. This feature of the garment can be used to gather light around the neck, or around the chest area as a reading light, or as a spotlight near the hands. vimeo.com/51436809

Many of these low-tech prototypes are actually the first step in an inspiration loop. Kristi began the bed linen project because she was curious to explore the use of craft. "I was looking at the patterns and symbols of traditional clothing and was inspired by their underlying meaning. I thought about those patterns and came up with a bed cover and pillow case that contained a QR code. You could scan the code with a smart phone and it would trigger any QR code reading software that would tell you a fairy tale."

When the project began, Kristi was in the lead; She set the wheels in motion. Relatively quickly after that initial concept, though, Léon Meertens contacted her and said he wanted to be involved in the project. He works as an R&D manager for a large textile manufacturer, Johan van den Acker Textielfabriek BV.
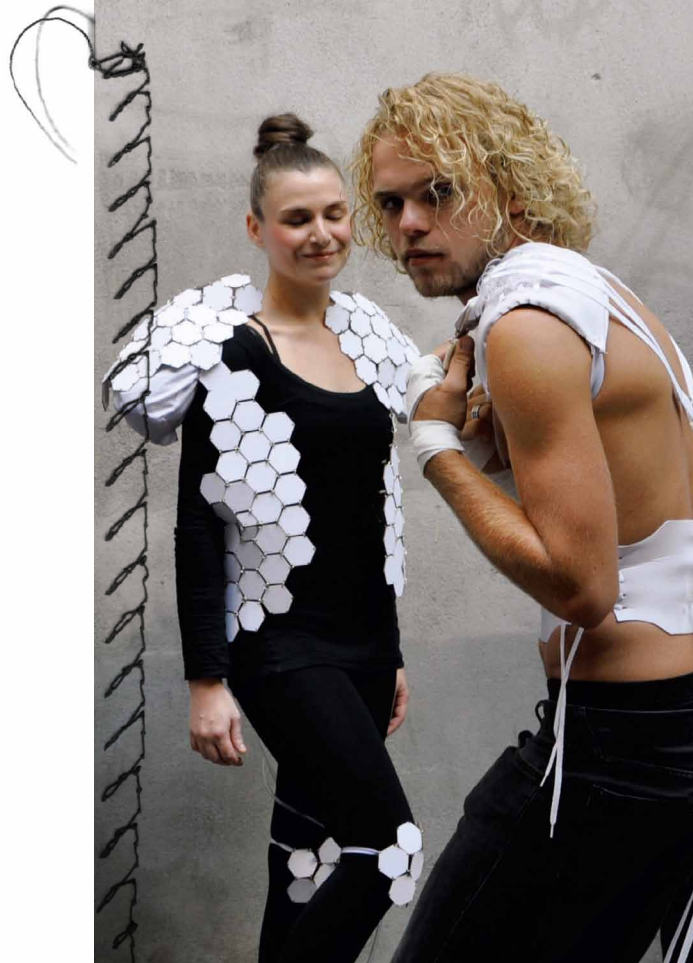
And soon other companies who saw opportunities to further improve the concept approached us. Guido van Gageldonk and Wouter Widdershoven from the technology company Unit040, for instance, suggested we switch from QR codes to image recognition. And the final application is conceptualised and designed as a collaboration between all parties involved.

Many interactions between the different partners often take the form of challenges. "If I can build such an inspiring but low-tech prototype with my hands alone," we would ask a textile manufacturer, "how can you build on that idea but do it properly, with the necessary tools and make it so that it is ready for production?" These challenges go in any direction — each development from one partner challenges the others to work further on the ideas. vimeo.com/54711270

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