



Process before product: How one BCIT researcher's work is enabling ethical, innovative product development globally

BCIT News, January 23, 2019 by Andrea Bellamy

From [baby calmers](#) created for BC Women and Children's Hospital to an [electronic starting system](#) for the Burnaby Lake Rowing Club, the news-making products developed by [BCIT Applied Research team MAKE+](#) are often just that: products. But there's a second—equally important—part of the research team's focus that often goes without fanfare.

Finding collaborative and innovative solutions to industry challenges

“Many of the products we’ve worked on have been very successful, for example, working with an entrepreneur to refine a prototype and bring the product to market,” says MAKE+ Director Nancy Paris. “But projects where process, not product, is the focus are equally important and also lead to successful—if not as visible—outcomes. The best products and processes are the ones that place value on front-end design research.”

It’s that process development piece—also known as “service design”—that sometimes fails to capture the headlines.



Mbale Uganda home to the District Health Office and home base for BCIT Research Associate and Dr Nicolas Christofi during the project

MAKE+ Research Associate Lisa Boulton has a keen interest in service design, and currently specializes in front-end design research. That focus, along with a background in health informatics, made Lisa the ideal person to take on an exciting new international project.

A front-end design research approach to a complex problem

“[Wendepunkt Medical Innovations CEO] Dr. Nicolas Cristofi approached me after attending a presentation I gave that highlighted the design research approach,” says Lisa. “He knew this approach would be critical to the success of a project he was working on: the design and development of a solution for medicine and supply shortages in Uganda.”

With a background in medical clinical research and noticing a lack of supplies during a visit to the regional referral hospital in Mbale at which his wife was completing a midwifery internship, Dr. Christofi was working with Ugandan research centre [SAfRi](#) to address concerns surrounding their ability to maintain medical supplies and essential medicines for the most basic of treatments.

“Faced with the lack of supplies, [healthcare providers] are often left feeling helpless and unable to treat patients,” says Dr. Christofi.



This project took Lisa and Nicolas to many remote health centres including this hilltop centre in the Mbale region

Lisa’s interest was immediately piqued. “I was excited that design research was being put at the front of a product development project,” she explains. “That doing the groundwork and engaging end users in the development and creation of solutions was a priority—seldom do companies prioritize this front-end design research, often starting right away with a prototype before fully understanding the context.”

Dr. Christofi was in agreement: without the buy-in and active participation of local communities, he knew he’d be blind to the realities of providing medical care in this particular environment, ultimately resulting in an incomplete solution. He had visited each of SAfRi’s remote health centres shadowing one of their researchers, Odeke Mackayi, and had conversations with care providers about their critical concerns in being able to deliver care, primarily their ability to maintain medical supplies and essential medicines for the most basic of treatments.

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Bringing BCIT to Uganda

Nicolas and Lisa (pictured with Odeke in the top, feature photo) partnered to conduct an extensive research mapping exercise. “We went to Uganda and drew maps of the existing

systems in a co-creative research approach to finding possible solutions,” explains Lisa. “Input from the end user—in this case, the healthcare providers who shared their experiences—was key. The psychological factors faced when unable to fully treat sick patients—and how they related to the processes, procedures, and contextual pressures involved in delivering care—helped to identify areas of greatest opportunity for improvement.”



Mt Elgon is visible en route to another health centre

The resulting maps highlight critical areas: for example, where increased labour is needed, or where a diminished ability to deliver care exists. “This laid the framework for solution generation,” says Lisa.

Charting a path to improved healthcare

“The product here is a map that charts the communication, infrastructure, people and physical products in order to deliver a service—in this case the provision of medical supplies and medicines,” explains Lisa.

With research results in hand, Lisa and Nicolas met with the Mbale District Health Office to present their findings as well as possible solutions. The team’s three proposed pilot projects received government approval in June 2018.

Wendepunkt Medical Innovations has signed on to work with local research partner SAfRi to digitize existing analog records, implement transport solutions for drug supply, and automate systems to support the effective delivery and ordering of medicines and supplies. Wendepunkt is currently working to grow its funding and will return to Uganda to further investigate technological requirements this spring.

The resulting “product” of Lisa and Nicolas’s work may not be a physical prototype, but it has tangible benefits nonetheless.

Lisa believes the front-end design research approach was key to the project's success: "It's important not only as an approach to doing work in low- and middle-income countries but also in creating meaningful products in a time in the world when the ethics of solutions matter more than ever."

[Learn more about Lisa's work in this short video.](#)