



CATAPULT DESIGN

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MISSION

The majority of our world's population lacks access to life's basic needs. We develop and implement human centered products to help them thrive.

Technology can empower and liberate. A single, effective product has more potential for worldwide impact – by providing clean water, food, shelter, or income – than any other existing development approach. Through the introduction of inexpensive and simple yet life-altering products the lives of more than 2 billion poverty-stricken people around the globe can be dramatically improved. However, few organizations possess both

the engineering expertise and developing world experience needed to effectively realize their missions abroad.

Catapult Design is a non-profit design and strategy firm that provides design, engineering, and implementation support to organizations in need of technologies or products capable of igniting social change. We are engineers, designers,

implementers, and educators – we design products, introduce technologies, and foster trends that are appropriate, self-sustaining, environmentally friendly, socially responsible and culturally sensitive.

Our product development, in-country implementation, and evaluation services are sold for a fee negotiated on a client-by-client basis. We reinvest all profits to grow the organization and pursue our mission.

The net benefit of our activities is nothing less than a substantial improvement in the lives of those who need it most.

HISTORY

Catapult Design was founded by Heather Fleming and Tyler Valiquette in 2008. The roots of the idea were inspired by their experiences abroad, in impoverished US communities, and by their work with Engineers Without Borders (EWB). Catapult was an outgrowth of the Appropriate Technology Design Team (ATDT), a project of the San Francisco Professionals Chapter of EWB co-founded by Heather in 2005. Originally conceived as a team of mechanical and electrical engineers focused on product design and development, the ATDT was initiated in response to a major need plaguing the development community: numerous NGOs desperately need assistance in designing the products necessary to realize their missions abroad and yet no such organization or team existed. In an effort to address this need, Heather led the ATDT with the intention to develop appropriate and sustainable design solutions for organizations working in disadvantaged communities. The vision: to empower communities to help themselves by providing tools that facilitate economic development and provide basic needs, local education, training, and entrepreneurial opportunities.

The ATDT grew to offer a number of different services, adopting an operational model similar to that of a design consultancy. The basic methodology relied upon partnering with non-profits working in developing nations that have identified a need and require help developing an appropriate product to meet that need.

In the two-and-a-half years after its inception, the ATDT enjoyed explosive growth, considerable project success, and a great deal of recognition. Encouraged by this success and cognizant of the fact that the ATDT's capacity would be limited under purely volunteer

management, Heather and Tyler, having met through the ATDT, conceived a professional, full-time design and engineering office. Catapult Design was founded in 2008 to:

1. provide affordable engineering and design services for the underserved .
2. lead the social impact design movement by providing career opportunities.
3. defy the traditional aid model of providing services for free -- Catapult believes the key to poverty alleviation is creating independence from aid.

LEGAL BUSINESS DESCRIPTION

Catapult Design was incorporated in the state of California and registered as a 501(c)(3) non-profit organization in December 2008.

TARGET POPULATION

Catapult's work targets impoverished or underserved peoples that need sustainable solutions to help them meet their basic needs.

PHILOSOPHY

Catapult's point of view is that successful products are not defined by engineering and technological feats, but rooted in a holistic perspective of the design process that is centered on the needs of the end-user.

In other words, what good is a water filtration technology if no one wants it, uses it, or will pay for it? Low-cost water filtration systems have existed for decades, so why does the majority of the world's population still drink dirty water?

The problems Catapult Design addresses are real; they're tangible; and they are solvable. We address them with a four-phased approach that includes:

- ensuring the right needs are addressed,

- a product is designed with the end-user in mind,
- a strategy for in-country implementation is defined,
- the impact the product has on a community is measurable

WHAT WE DO

Catapult's value for its clients lies in our design process. We help them approach poverty alleviation in a new way, in a human-centered way. Our core offerings include the assessment, design, implementation, and evaluation of contextually appropriate products. We also offer workshops focused on design topics for the underserved.

Assessment overview

- Visit the country/community to assess the identified need, meet local partners and end users, and identify working parameters, opportunities, and constraints.

- Evaluate solution(s) from an engineering and product design perspective including: impact assessment, feasibility and sustainability studies, cost estimates, and timeline projections.

Design overview

- Develop novel solutions based on needs assessment and feedback from client organization.

- physical prototype fabrication for on-the-ground field testing, final prototype design for manufacturing.

Implementation overview

- Assist with manufacturer sourcing, vendor relations, skills training, documentation and advertising.

- Ideate marketing strategies targeted at scale.

Evaluation overview

- Quantify and evaluate the efficacy and impact – environmental, economic, and social – of a product over time.

FOUNDERS BIOS

Heather Fleming

In 2005, Heather helped found and then led the Appropriate Technology Design Team, EWB's first volunteer group of engineers and designers focused on humanitarian product design projects. In 2008 Heather was named a Pop!Tech Social Innovation Fellow, a program aimed at high-potential young leaders with new approaches for transformational impact. In 2010 she was selected as a World Economic Forum Young Global Leader for her work with Catapult Design. Prior to Catapult, she worked for six years in Silicon Valley as a product development consultant, working with multi-disciplinary teams to design and develop product solutions for a diverse range of companies. Heather is also an Adjunct Lecturer at Stanford University teaching "Design for Sustainability" in the engineering department and a Senior Lecturer at California College of the Arts teaching "Industrial Design." Heather has a B.S. in Product Design from Stanford University.

Tyler Valiquette

Having lived, worked, and traveled extensively in Latin America in his mid-twenties, Tyler returned to the United States in 2005 determined to devote the rest of his career to tackling the problems of human inequality and environmental degradation that had played such a major role in his travels. In 2007 he joined EWB and became very active in the San Francisco Professionals Chapter, particularly the Appropriate Technology Design Team where he led the development of a small wind turbine for rural Guatemala. Tyler has worked both as an industrial mechanical engineer for Chevron and as a project manager for a premier commercial construction company in San Francisco. He has his B.S. in Mechanical Engineerin

CATAPULT DESIGN TEAM

Heather Fleming, CEO, Co-Founder
Tyler Valiquette, COO, Co-Founder
Noel Wilson, Lead Designer
Dr. Charlie Sellers, Technology Specialist

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MEDIA KIT

Photos: www.picasaweb.google.com/CatapultDesign.org

Video: www.youtube.com/user/CatapultDesign

Blog: www.catapultdesign.org/blog

Twitter: [@catapult_design](https://twitter.com/catapult_design)

Press: www.catapultdesign.org/news-media/press

Team Bios: <http://catapultdesign.org/about-2/team>

High-Res Logo: <http://catapultdesign.org/news-media/media-kit>

PROJECT SAMPLES



client: dissigno
country: Tanzania
start date: January 2009
completion: February 2009

More than 1 billion people around the world rely on kerosene lamps to light their homes and businesses when the sun goes down. Not only is kerosene expensive, but its flames are dangerous and the smoke poses serious health risks. According to the World Bank, 1.5 million people die each year due to indoor air pollution. These deaths are avoidable with the use of LED lamps available on the market.

In 2008 dissigno received a grant from the World Bank to establish an off-the-grid lighting project in Tanzania. This initial project could bring LED lamps to 3,000 homes in the Karagwe District via “Pedal Power”, or using a stationary bike to generate enough energy to charge battery-powered LED lamps. Catapult played an instrumental role in the project by assisting dissigno with LED lamp evaluation for the project. Each LED lamp on the market differs by: price tag, the brightness of the light it emits, how long it produces good light, and how long it takes to charge its battery. Catapult’s goal: to assist dissigno with defining metrics that help them pick an appropriate solution for their project needs.



client: The Ihangane Project
country: Rwanda
start date: February 2009
completion: September 2010

Seven rural off-grid health clinics in northern Rwanda serve the needs of 120,000 community members. These clinics provide both in-patient and out-patient care for people who cannot make the 2-3 hour walk to the main hospital. The clinics provide HIV medication to thousands of patients, but each clinic needs access to electricity in order to distribute that medication. The Ihangane Project coordinated the effort to outfit clinics with a solar energy systems that provide for their power needs.

Catapult’s role was to ensure each clinic received an adequate, affordable, and reliable PV system. This includes understanding and assessing the current and future energy needs of the clinics, vetting local vendors, ensuring a maintenance and training program for clinic staff, and overseeing the installation.

August 2009: Catapult performs an energy audit on the Nyange Health Clinic.

December 2009: Solar Electric Light Fund joins the project to lead installation and on-going system and load maintenance.

August 2010: solar installation

September 2010 - 2012: SELF monitors and evaluates the solar system.



client: CTI/WorldBall
country: Rwanda
start date: November 2009
completion: February 2010

There are a number of “sports for development” organizations working throughout Africa using sports as a means to teach important life skills such as conflict resolution, gender equality, and HIV awareness. The footballs required to run these camps are often expensive – as high as 75USD in land-locked countries — and wear out quickly. When you factor in the rough terrain prevalent throughout Africa, the projected life span of a ball is as little as seven to 90 days. As a result, organizations using football as a core component of their work have a limited number of balls they can purchase each year without becoming dependent on outside donation of footballs.

Catapult teamed up with WorldBall to research and assess locally produced vs. imported footballs available in-country. We contextualized market numbers, profiled customers, and mapped the manufacturing chain of competitors. After weeks of interviews and data collection from on-the-ground organizations, aid organizations, manufacturers, and local entrepreneurs, we generated concepts that highlighted gaps in the market.



client: AYZH
 country: India
 start date: August 2010
 completion: November 2010

In India, women frequently deliver their children in unsanitary conditions due to insufficient access to health facilities. Doing so contributes to postpartum infection in both mother and child. The appropriate use of inexpensive yet vital medical equipment can dramatically improve the health outcome for all involved. In response to this need, AYZH produces and distributes their Janma Clean Delivery Birth Kit with the following items:

- A sterile surface.
- Sterilizing hand wipes.
- Clamps for the umbilical cord.
- Scalpel blade and handle for cutting the umbilical cord.

The stainless steel handle included in the kit is the most expensive component. It is also a traditional scalpel handle, intended for repeat sterilization and reuse. Unfortunately, in many locations where the kit is needed and used, the handle is not appropriately sterilized between uses. In response to both of these issues, AYZH and Catapult are designing a scalpel that meets the following criteria:

- Less expensive.
- Discourages reuse.
- Branded with the AYZH logo.
- Is biodegradable (preferred).



client: Anza Technologies
 country: Tanzania
 start date: October 2010
 completion: February 2011

Farmers in rural areas of eastern Africa frequently have little means other than their heads or their arms to carry heavy loads such as water, firewood, food, or agricultural produce to their homes or market. Daily chores such as fetching water frequently fall to women and children and can occupy a large part of their day. Handcarts and wheel barrows are available locally but are often too expensive for subsistence farmers to afford. Mobility, in general, is a challenging issue throughout the developing world where rugged terrain (often no more than footpaths) and long distances make transporting goods difficult.

A low-cost, durable handcart could have a huge impact on the lives of people who have, up until now, never owned a wheel much less a cart. Catapult is working on the design of a steel-framed handcart to be fabricated in China, shipped flat, and assembled by the end user – minimizing cost throughout the process so that the lowest cost, quality cart is available to those who need it most.



client: Simpa Networks
 country: India
 start date: February 2011
 completion: April 2011

Pilot testing new concepts 'in the field' may sound like a simple process of putting them there, watching what happens, and maybe glean user feedback... but there is many hidden considerations that will determine how useful your pilot data actually is. Applying human centered design (HCD) principles to a pilot to shape the approach, methods and protocol can provide you with a high quality set of data, rich with unexpected insights and new consideration, that can then be fed back into the design process to refine your concept.

Catapult created a Pilot Methodology Kit for Simpa Networks by infusing HCD principles into contemporary data collection methods, and through gleaning the wisdom of people who have experience of pilot successes and failures. They are piloting their system of radically affordable solar power for private homes and micro-enterprises in Karnataka, India, with the aim of discovering the nuances, stories, and hidden considerations within peoples energy relationships. This project also led to the creation of the Pilot Planning Words of Wisdom document which you can find in our Publications section shortly.