
Creating Opportunities in Mobility:

An Analysis of Trikes and Mobile Businesses

Currently Available in Vietnam and the Philippines

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Executive Summary

WWI has had considerable success with their RoughRider wheelchair and is planning to enter the trike market. This trike will be designed in such a fashion that it can be used as a potential microbusiness. To assist WWI in designing the prototype, we traveled to Vietnam and the Philippines to interview current trike users about their experiences. We specifically targeted those whom used their trikes to as a microbusiness or as a means of earning income. Ideally, their narratives would help us elucidate the effectiveness of the current trike designs, and this work will support WWI in their final manual-powered trike design. While we had many microbusinesses in mind, we found that the market opportunity for the differently abled in Vietnam and the Philippines to be dissimilar with our expectations entering the field. In Vietnam, social barriers existed barring the differently abled from expanding outside of lottery ticket sales. In the Philippines, it was too difficult to maneuver the city without a motorized vehicle. Before Whirlwind creates opportunities for trike riders in any country, it must understand the specific context to ascertain whether the technology and business solutions are appropriate.

Project Background

The Global Social Benefit Fellowship is one of the Center for Science, Technology, and Society at Santa Clara University's initiatives to educate students of the various business, technology, and science-based approaches to alleviating poverty. The Center began the fellowship with the support of Ann Bowers and the Robert N. Noyce 1999 Foundation and accepts 10-12 high-achieving undergraduate juniors every year to engage in field-based research with a social enterprises.

As a part of our participation in the fellowship, we worked with Whirlwind Wheelchair International (hereafter: WWI), a non-profit social enterprise dedicated to building wheelchairs for quality mobility in different environments and terrains. WWI defines a quality wheelchair as one that is "safe, durable, locally repairable, and highly useable for the rider." WWI has had considerable success with their RoughRider wheelchair and is planning to enter trike market. This trike will be designed in such that it can be used as a potential microbusiness. To assist WWI in designing the prototype, we went to Vietnam and the Philippines to interview current trike users about their experiences. We specifically targeted those whom used their trikes to as a microbusiness or as a means of earning income. Ideally, their narratives would help us elucidate the effectiveness of the current trike designs, and this work will support WWI in their final trike design. We left for Asia in August 2012; we worked with Kien Tuong in Ho Chi Minh City, Vietnam, and Tahanang Walang Hagdanan (House with No Steps) in Manila, Philippines.

Methodology

In Vietnam, we had two Kien Tuong staff members help transport us around the city on motorbikes. We then looked for possible trike riders to interview. Many trike riders would refuse, as speaking to us would take away from their ability to sell their product. We decided to pay 100,000 dong (\$5 USD) to each person we spoke to augment their loss in income. We recorded each interview and took photos of their trike. In the Philippines, we went to Tahanang Walang Hagdanan and observed the product design process, while observing those using their trikes at the factory. Because we could not arrange for a translator prior to arriving to the Philippines, we were unable to interview any of the trike users there.

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Observations

Vietnam

During our two weeks in Vietnam, we were able to interview 6 trike users with the Kien Tuong staff on Ho Chi Minh City. Based on the feedback we received from the Kien Tuong staff members and our observations in the field, trike users in HCMC who have mobile businesses almost exclusively sell lottery tickets. For this reason, we were only able to conduct interviews with lottery ticket vendors using trikes.

In general, most of the information we collected from the lottery ticket vendors was very similar. Of the six people we spoke to, five of the vendors cited their sales as the primary income as individuals or the family. Two of the trike riders that we spoke to on different occasions were married, and both sold lottery tickets to support their family of three. Many of them had lost the ability to walk due to poliomyelitis.

“I’ve been sick for awhile now but I don’t have savings. I don’t know why I’m still alive, I’m in so much pain but I have no money for the doctors and now I’m just waiting to die”

ONE TRIKE RIDER
OUR INTERVIEW, 2012

When asked about their reasons for choosing to sell lottery tickets rather than other items, most of the interviewees were confused—much to our surprise. They simply were unable to answer the question, as if we did not give them context prior to asking. We then asked questions regarding their dreams and aspirations, hoping that it would lead to answers regarding their choices to sell lottery tickets. These questions, too, were met with much surprise and confusion. Eventually, the general response we received was that they were “supposed to” sell lottery tickets. While we were unsure what this meant initially, we confirmed in multiple conversations with Kien Tuong staff that there is a strong social undertone that the differently abled in Vietnam are “useless”, and that the only industry available to those who would like to make a living is in lottery tickets. While this belief that trike riders are “useless” is not widely held by many Vietnamese people today, social norms still constrict their livelihoods to the sales of lottery tickets. They cannot conceive diversifying their livelihood, and would constantly tell us that they were not “good” or “smart” enough. Beyond looking for any barriers to entry for microbusinesses in Vietnam, it seemed like there was a mental block or social convention that trike users had to overcome.

Moreover, the lottery business is a difficult job and is an uncertain means of income. Lottery tickets are only valid for one day, and all lottery tickets come from their own financial resources. Trike riders must wake up by four in the morning to buy their lottery tickets and travel 10 to 15 kilometers a day. If they are lucky, they make enough money to cover their daily start-up costs, some money for a meager dinner, and the remainder to pay rent. One man was able to save more because he was in his early 20s and lived by himself. Most of the time, their money disappears if they



One of the Kien Tuong trike users, who has created a makeshift table to display her lottery tickets. She notes that her tickets have been stolen from her before.

are unable to sell all their lottery tickets by the end of the day. Many could not understand how they could start a different business because they did not have savings, let alone enough capital to begin to buy products or tools. When told they could get a bank loan, they repeated that they were not “good enough”

While we were quick to conclude that decades of social exclusion have made these trike users feel undignified for other forms of work, we must look for other patterns that may contribute to the overwhelming number of trike users in the lottery industry. Some alluded to leaving their homes in the country to come into the city, not because it was easier to find a job, but because their families could no longer support them. The aforementioned social constructs that confine the differently abled into the lottery business also makes it difficult for them to stay at home: the lottery business is only successful in the cities and only provides concrete roads for them to ride the 10-15 kilometers a day that they cover. Also, in our conversations with Kien Tuong and of our own interviews, a high number of differently abled persons came from the country. This may be from their access to the polio vaccine or education. One rider we talked to was able to work in shop, fixing electronics, because his parents had enough money to send him to a vocational school. However, he only used his trike to get to work, not as a

“Vietnam still has a lot of shortcomings. They haven't yet been able to find a way to improve things for disabled people.”

THANH GIANG
FRONTLINE WORLD
PBS INTERVIEW, 2009



In the first two photos from the left, the two trike users have modified their Kien Tuong trikes to assist them with their daily needs. In the last photo, a man built a trike himself from a wheelchair and uses a one-arm crank.

microbusiness. We believe that there are many layers of complexities in the Vietnamese trike market, and were unable to discern the patterns at the times of our interviews. Because most of our questions circled around design and use of their current trike, this is an area of coverage that leaves much to be desired.

While the market in HCMC is limited to lottery tickets, the venders we were able to interview and photograph demonstrated innovation in the adaptations they made to their trikes in order to sell their lottery tickets more efficiently and effectively. This includes devices to block the sun, storage areas, and display boards, among other things. Many of these adaptations can be seen in the attached photos. Additionally, all photographs from our research in both countries have been shared with the staff at WWI.

The Philippines

Unlike in Vietnam, we had no prior knowledge of a presence of persons using hand-powered trikes to operate microbusinesses in the Philippines. Because of this, we initially reached out to Tahanang Walang Hagdanan (TWH), Inc., an organization that provides a number of services for persons with disabilities. One of the projects they operate is a wheelchair manufacturing operation. They also manufactured the only trikes we were aware of prior to our arrival in the Philippines. Upon visiting TWH, we were able to speak with a mechanical engineer, who showed us the different motorized trike models they have produced and are currently designing. We are unable to attach photos because of their request to



A woman proudly shows off one of the TWH motorized trike prototypes.

keep the blueprints private.

Although we were instructed not to focus on designs that included motors, we find it worth noting that there were no hand-powered trikes produced at TWH. Their prototypes were overwhelmingly motorized, and the only trikes used at TWH were motorized. It was communicated to us that a hand-powered trike would not be practical in navigating metro Manila, and that an older, charity-sponsored manual trike model was unsuccessful. The city is fairly spaced out between neighborhoods, the streets are among the most congested in Asia, and

had few sidewalks, which made it very difficult for persons in wheelchairs to move from one block to the other. To demonstrate the city's space and traffic, we find it worth noting that many people drive cars and there are many forms of public transportation. While Manila does have a subway and light rail system, it is difficult to access. On the streets, public transportation mainly consists of jeepneys—compact buses—and taxis, neither of which have the capacity to provide transportation for a person in a wheelchair. For this reason, many wheelchair users in metro Manila have opted for a motorized trike attachment for the front of their wheelchairs or for a wheelchair sidecar, which attaches to a motorcycle. This allows persons in wheelchairs to move easily and independently throughout the city.

We found, from our conversations with TWH staff, that mobile businesses operated by people with disabilities in the Philippines are largely operated from wheelchairs, which have one of the two aforementioned motorized attachments. These businesses vary, from selling items like rosaries, padlocks, or foods, to mobile watch repair businesses.

During our time at TWH, we were able to speak with Juanito Mingarine, one of the quality control managers for wheelchair production. He was aware of one person in the area who was operating a microbusiness from a trike. He estimated the trike to be created some time during the 1980s, although he was unsure of its origins. This man travels about 10 kilometers each day on his trike, selling balut—a popular Filipino egg dish—and using a whistle to alert people that he was coming. Unfortunately, we were unable to locate this person. After we spoke about this trike rider, Mr. Mingarine gave some suggestions as to what potential Filipino trike users may need:

1. A lock on the front wheel to prevent roll back on a hill
2. An umbrella holder or stand, rather than a permanent canopy
3. A locked box for money storage
4. A basic tool kit, including a tire pump
5. Storage for transportation of supplies in front or back, in addition to lower storage area

When asked about the market for manual trikes in the Philippines, Mr. Mingarine responded that it could potentially compete with motorized trikes because of price difference.



Prototypes created at TWH, all of which includes a motor and a way to transport the wheelchair

Implications

Vietnam

If we design a trike with the no intentions of changing the current markets available for trike riders, we would only have to produce specialized attachments for the trikes to make the sales of lottery tickets more efficient and effective. Our trike riders relied stories of their lottery tickets getting stolen or being rained on. Trike riders will need a place to display their product effectively, safely store their valuables, and protect themselves from the various elements. The trike riders also mentioned that the size of their trike was very important: they wanted to store their lunch or water, but it had to be narrow to enter restaurants to sell their tickets.

Designing a trike that fulfills WWI's mission to promote sustainable local economic development, by constructing new opportunities and expanding into microbusinesses, may be fairly difficult. While economic barriers to entry were expected, the unanticipated social barriers to entry bar the expansion of these microbusiness beyond lottery tickets in

the greater Ho Chi Minh City area. To overcome these barriers to entry, there would need to be a very intentional on-the-ground presence to encourage these people to take on new ventures and to demonstrate the potential success.

The Philippines

The Philippines offers great potential in the area of expanding and diversifying the types of mobile microbusinesses in operation. We encountered no social barriers to entry like we saw in Vietnam. In fact, there seems to be a spirit of innovation, with many people taking it upon themselves to operate unique, specialized business from their wheelchairs. Because of this, there is much potential for a market for customized attachments for trikes and mobile businesses.

The greatest limitation to the production of hand-powered trikes in the metro Manila area is the difficulties posed by transportation throughout the city. It may be beneficial to offer a motorized attachment for trikes in this area. Although we were unable to travel outside the city to research, there may be potential for use of a completely hand-powered trike for mobile businesses in the provinces. It is also important to note that while Mr. Mingrane seemed optimistic about the ability of a hand-powered trike to compete with a motorized one, it is culturally unusual for Filipinos to be honest and upfront if they feel they cannot give you the answer they think you may want.

Review of Field Research

The conclusions we were able to draw from our research in Vietnam and the Philippines have enforced the necessity of conducting such field research prior to market entry. The observations and implications discussed earlier were unexpected for us as researchers for Whirlwind Wheelchair International. The kinds of markets that have developed, along with barriers to entry, cannot be accurately observed from afar. For future field research, there are a number of crucial elements to be considered in order to make the research as efficient and effective as possible.

Receiving in-country support from a host organization or company is extremely important to the introductory process of the research. While some communication should be done prior to arrival with contacts in country, having individuals assist with the research process—scheduling interviews, arranging transportation, providing translation services—is invaluable. Planning prior to the trip may reduce some of this need, but upon arriving in country, many things can, and often will, change unexpectedly. These hosts can help provide the resources and contacts to make these changes easier to handle without significantly affecting the scope or pace of the research.



A woman shows us a photo of her son, who died in a fatal car accident. She received much support from him until he passed away.

Prior to departing, however, there is significant preparation that should be done as well. This involves detailed planning of basic logistics like lodging, transportation, and language resources as best as possible. It may be helpful to consult with contacts in country during this process as well. A communication schedule should be developed prior to departure, as well, that includes methods, times, and dates of communication between Whirlwind Wheelchair International and the field researchers. It is important to consider date and time changes when developing this schedule and how those affect the ability to move forward with research should the unexpected occur.

While developing a hefty research plan is central to the process of preparing for field research, a secondary plan should also be developed. As discussed earlier, it is not uncommon for things to not go as planned when conducting international field research. Setbacks or unexpected information should be accounted for when developing a research plan. This is especially important when significant time changes exist between researchers and staff. If the desired research has suddenly changed direction, the researchers should be prepared to find the value in the new information and its applications to the project. While this may seem obvious, it requires a certain level of understanding of the greater scope and path of the project that is being researched and can require more detailed preparation.

Further Research

For those interested in working with mobility in Vietnam and the Philippines, we suggest looking at the complex socioeconomic variables that constrict the differently abled into industries. Also, many of the trike users we talked with in Vietnam did not understand why they were still alive, so they felt no need to better their livelihood. Before looking into the different opportunities that enterprises can create, we suggest examining best practices on how to empower and dignify communities. In general, it is a necessity to conduct specific research in each market to determine the feasibility to market entry based on what technology and business solutions are appropriate in each location.