

Technology and engineering to support work with refugees

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New partnerships are being forged to encourage young engineers to use their skills in the service of refugees.

We have all benefitted from the remarkable global transformation brought about by the work of engineers and innovators. What was once science fiction is today commonplace. None of this would have occurred had there not been engineers and companies motivated by the challenge of the problem paired with the potential for commercial gain.

Meeting the needs of refugees and other marginalised people, however, requires us to find ways to attract crucial engineering problem-solvers

to humanitarian work where the profit motive is not a primary driver.

Attracting a new generation

The engineering salaries of recent university graduates rank at the very top of the pay scale. To attract these individuals to careers that provide direct humanitarian benefits, they must therefore be inspired to a higher goal than simple monetary gain. Engineering has a history of solving problems for the general good – and with so many active conflicts around the globe, there is an opportunity to reframe the myriad challenges

associated with supporting refugees as a worthy effort in that great engineering tradition.

Many young engineers today are in search of inspiration. Unfortunately, their limited understanding of the global problems of refugees comes primarily from mass media, which often paints the picture as hopeless and driven by political squabbles – not effective messages for recruiting talent. To address this problem, the Hunt Institute for Engineering and Humanity at SMU has been working with teaching staff across the Southern Methodist University (SMU) in Dallas to augment its engineering programmes with

a range of global development programmes that explore the cultural, financial, legal and of course technical challenges faced by those in the Global South, including refugees in camps. Students who were once intent on gaining engineering skills for a life in commerce can now make informed choices about pursuing an alternative vision for engineering.¹

An early success story

Engineering innovation should not be limited to engineering professionals; students and non-engineers can also provide creative solutions. At the Hunt Institute's first Engineering and Humanity Week held in April 2011, interdisciplinary student teams competed to develop a complete micro-business to provide clean water and cell phone recharging services from within a temporary refugee shelter. Competing teams formulated detailed business plans that dealt not only with product innovation but also with marketing, sales and distribution challenges. Creative concepts included leasing advertising space on the exterior of the shelter to market to those queueing for services, as well as accepting payment via cell phone for water or phone recharging. The resulting ideas were inventive, practical and, according to the competition judges, viable.

This small-scale competition successfully demonstrated how effective cross-discipline collaboration can be in addressing well-defined challenges with immediate benefit to specific local communities.

Field innovation centres

In August 2011, UNHCR and the Hunt Institute for Engineering and Humanity at SMU signed

an agreement establishing a framework for increasing the role of engineering and innovation in support of refugee camp operations. This agreement calls for the organised engagement of universities, government-run research institutes and corporations to work together to address the most pressing technical and infrastructural issues faced by UNHCR in assisting refugees in relation to water, sanitation, shelter, communications and health care.

One key element of this plan is to collaboratively develop and deploy Field Innovation Centres in a number of locations within or adjacent to refugee camps and urban slums. These research and development sites will allow for researchers, engineers, innovators and graduate students to work side by side with those working and living in the refugee camps. These Field Innovation Centres, staffed by experts seconded by their organisations, will expose engineers and scientists to the complexities of actual problems faced within the camps, thus increasing the likelihood of real advances.

Importantly, the Field Innovation Centres will directly engage the refugee communities themselves in the development and testing of solutions, particularly those refugees who have engineering skills. This will help ensure that solutions meet



Innovations at the first SMU-Hunt Institute Engineering and Humanity Week, April 2011.

the local cultural and technical needs of the community while in turn providing opportunities to develop a specialised workforce within the camps for maintaining and protecting these new assets.

Furthermore, creating an international base for technical innovation within the refugee communities we serve will provide a strong humanitarian motive needed to attract the best problem solvers in the world to the service of those with some of the greatest needs.

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1. The new programme elements were introduced in 2011.

Mobile technology in emergency response

In determining whether and how to use mobile technology (in particular, SMS) in emergency response, factors such as customs around the use and control of mobile phones, the state of the national mobile market, and the condition of the network are all important considerations. infoasaid and partner Frontline SMS (www.frontlinesms.com) have developed a checklist of factors to be aware of in assessing the mobile context.

infoasaid (<http://infoasaid.org/>) is a consortium of Internews and the BBC World Service Trust, funded by DfID. This initiative aims to enhance the quality of humanitarian assistance through improved information exchange between disaster-affected populations and aid agencies. infoasaid is developing a range of tools and resources for improving preparedness for communications in emergencies and is also working in partnerships with selected aid agencies to inform and support their communications responses in emergencies. See <http://tinyurl.com/infoasaid-checklist>

infoasaid's YouTube clip, called 'Communication is Aid', can be viewed at www.youtube.com/user/infoasaid