

Exploratory Framework for Equity in Innovation

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Abstract

An exploratory framework to accompany the *Engagement* “A Tale of Two Perspectives on Innovation and Global Equity” published as part of the STS and Innovation thematic collection. This exploratory framework brings together IS and STS insights to help technologists, STS scholars, and policymakers enhance equity in development, design, and implementation. They can use the probes on the left when they are considering investing in or building a technological solution. The MHM example on the right demonstrates how users might answer these questions.

Keywords

India; innovation; equity; menstruation; gender

Table 1. Probing the Solution

Probing the Solution	Example (Menstrual Hygiene Management, MHM) (Parthasarathy, 2022)
Identifying the Problem	
How do you know there is a social problem?	Public health researchers conducted knowledge, attitudes, and practices (KAP) surveys, Muruganatham observed that disposable sanitary pads were too costly.
How might the structure or process of evidence-gathering have shaped the identification and definition of the problem?	KAP survey questions and the option of closed-ended responses assumed there was an MHM problem. There was virtually no opportunity for girls and women to describe whether or how MHM was a problem for them.
What other forms of knowledge might help inform our understanding of the problem?	Historical and ethnographic investigations, open-ended assessments of priorities and needs developed in collaboration with user communities.

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Defining the Solution	
How has this problem been solved in the past, and by whom?	There is little scientific information available, but evidence suggests that women have used cloth (old and recycled, or new) to absorb menstrual blood. In some cases, they also use other absorbent organic materials.
What social structures and practices are tied to these previous solutions, and how easy will they be to transform?	In India, there are multiple practices that reinforce the idea that menstruation is exceptional, from restrictions on daily activities to celebrations at the onset of menarche. More research is needed, but KAP studies suggest that many still observe restrictions.
How have solutions differed across contexts, cultures, and among people with different needs?	While it is impossible to identify all MHM permutations, it seems that girls/women have adapted to context. Rural women who work in the fields all day, for example, bleed into the petticoats they wear under their saris.
What other forms of knowledge might help inform our understanding of the solution?	Ethnographic studies, co-design efforts that bring together community, technical, and social knowledge, environmental assessments of disposal practices.
Who owns the solution, and what are the consequences for accessibility?	Muruganatham owns patents on his low-cost disposable sanitary pad-making machine, and dominates this market in India. However, he donates these machines at cost to women's self-help groups who create enterprises.
Considering the User	
What do the intended users think about the solution?	There is limited short-term evidence that girls and women take up the solutions offered. We need to conduct more open-ended and long-term investigation of this question.
How do we know what the intended users think about the solutions, and what are the limitations in gathering this knowledge?	The evidence available—surveys, news articles/documentaries—focuses on short term uptake. In addition, girls and women are offered low-cost disposable sanitary pads at low or no cost; it is not clear that they would purchase them if they were not available through government schemes.
What society, user, and use does the solution presume? How easy are they to achieve?	The low-cost disposable sanitary pad enables the user's participation in school and the workforce. However, it presumes that the user can and does change the pad frequently. It expects the user to have relatively low blood flow. And it assumes that disposal is easy, hygienic, and does not trigger environmental problems.
Who is marginalized by the solution?	More research is needed, but rural women who work in the fields all day cannot easily change or dispose of these pads.
Allocating Responsibility	
Can the solution be redesigned to be more inclusive? What tradeoffs would this involve?	There are a variety of reusable methods of managing menstruation, but it might be difficult to implement these in schools/workplaces with inadequate washing facilities. Menstrual leave policies and virtual school/work options may also help but would require institutional flexibility and public policy intervention.
Who is responsible for maintaining the solution, its	Unlike reusable methods, the user is not responsible for maintaining the solution; they can simply dispose the low-cost pad. However, there are concerns about product quality and there are no government standards or other kinds of regulation. The government has

quality, and any potential negative impacts?	installed incinerators in schools to ease disposal, but some worry this pollutes the air further.
What kinds of public policies or design choices would ensure that the user has limited responsibility over any flaws in the solution?	Government quality standards, regulations, use of compostable materials, assessment/regulation/widespread implementation of incinerators

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