

Frailties at the Borders: Stalled Activist Media Projects in East Africa

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This article considers two activist projects involving attempts to export communication technologies. Groups of technologists based in the United States and Europe designed a radio station and an “oral wiki” for use in Tanzania and Rwanda, respectively. Both projects stalled before they could be fully implemented. But they did not languish because of user ambivalence or disregard; indeed, in both cases activists and local grassroots actors alike hailed the technologies as uniquely suited to the local conditions in which they were to be deployed. Drawing on social studies of technology, I argue that the Tanzanian radio station and Rwandan oral wiki cases illustrate that it matters where actors draw lines around where “technology” starts and ends. To distinguish between “the artifact” and “the social” is an act of boundary-drawing, with important consequences for media activism and technology transfer projects.

Keywords: media activism, design, technology transfer, failure, Global North, Global South

This article considers two activist attempts to export communication technologies designed in the Global North for use in the Global South. The article first presents a group of U.S.-based activists who promote FM radio as a technology especially suited to boosting community autonomy, and considers the consequences that arose when the activist organization built a radio station at a community center in Tanzania in 2005. More than three years after the station had been built and was technically operational, it remained off the air because of complications regarding licensing and, in particular, the lack of a niche for community media (i.e., media that were neither state-controlled nor for profit, both of which were more established radio models in Tanzania; see Howley, 2005; Javuru, 2011); 10 years on, this suspended state seemed decisively permanent. The second case is an “oral wiki,” networked using mobile

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phones. Developed by U.S. designers at a European design institute in dialogue with Rwandan *abunzi* (informal adjudicators), it was meant to support an archive of informal justice decisions (e.g., land disputes) in Rwanda. After building its prototype in 2009, designers stalled on building a larger archive because of a number of factors, including government ambivalence toward the project.

Unlike “technology transfer” projects that fail because designers value or interpret technologies along different lines than would-be users, (Akrich, 1994; cf. de Laet & Mol, 2000), these projects did not languish because of user ambivalence or disregard per se. In both cases, both activists and potential users hailed the technologies as uniquely suited to the local conditions in which they were to be deployed. Drawing on social studies of technology, I argue that these cases present an opportunity to scrutinize the boundaries of technologies (Woolgar, 1991). It matters a good deal how we designate what the technology is “itself” and what are “other factors” involved in technology’s success or failure. In other words, what is designated as the technology might not be as straightforward as it is often made out to be.

For instance, to say that “the radio station is working” means more than its transmitter can be turned on and produce appropriate electronic signals (although it does also mean that). This statement means other things too, such as listeners can hear the station, the station has programmers and producers of content, and the station is on the air in an expected and reliable manner. Even so, it is usual to synecdochally reduce a working system of social and technical elements to *the technology* and to speak of whether a radio station “works” largely as a question of whether its electronic, artifactual components are operational. For example, the radio activists wrote in 2010 that they had “built radio stations in places like . . . Tanzania,”² implying that the station not only existed in a material sense but was operational.

This is more than an issue of semantics or public relations. In this article, I show that bounding technologies too narrowly leaves activists (and potentially scholars) unprepared to explain the inability of technology projects to achieve implementation and use in their local target contexts. And the failures of these projects may seem especially puzzling because these particular artifacts had been selected (by activists *and* users) precisely for their ostensible portability and ease of use; indeed, the technical features of the oral wiki and the radio station were what made them ideal to operate in the local settings. Put differently, although the artifacts worked, the artifacts at the same time failed to work; thus, these sites raise the question of whether characteristics *reside in* objects, as opposed to being *attributed to* objects (Woolgar, 1991, p. 65). In these cases, although certain expectations were attributed to the objects—which seemed reasonable enough—the objects failed to meet expectations. Thus, it is worth considering drawing the boundaries around technology differently to include not only these artifacts, but also the

² Prometheus Radio Project, “Snatch Those Waves: Prometheus Radio Project and the Fight for Popular Communications” talk abstract for 2010 HOPE Conference, 2600 website, <http://store.2600.com/snthwapraan.html>. The oral wiki designers presented their project on their website in conditional language (“The Oral Wiki could be used to facilitate discussion around best practice and to establish an archive of decisions”). It acknowledged that “[informal justice system actors] and the formal justice system would each need to play a vital role in the database,” but this seems to be meant rather literally, as they also refer to the oral wiki as a “proposed *technological* solution” [emphasis added] (<http://www.agamanolis.com/distancelab/projects/oral-wiki>).

points of contact between artifacts and the social actors and institutions responsible for providing the conditions for the success or failure of the radio station or the oral wiki. These conclusions have import for not only scholars of community media technologies but for activists focused on technical projects.

Although this exercise in boundary consideration is useful as a heuristic, by itself it is insufficient to draw out the forces that led to these projects' languishment. The wider social and political contexts of these projects are relevant as well, so I sketch a speculative political economy. Initiated by Global North technologists, the oral wiki and the radio station were conceived in partnership with local grassroots actors in postcolonial states. In both cases, although technologists and grassroots actors were abundantly able to identify meaningful uses for the technologies, they lacked influence with state actors and institutions whose imprimatur would potentially validate the projects and lead to their full implementation. Neither Global North technologists nor local grassroots actors were close enough to state power to move the projects forward.³

Indeed, it is a mistake to assume that civil society participation typically facilitates a pluralistic, local agenda, or "balances" state power (Mahajan, 2008, p. 17). As Paula Chakravartty (2007) has argued, the category of "civil society" is rife with contradiction (p. 305). The oral wiki and radio station cases represent civil society amalgams of local grassroots actors working in partnership with Global North technologists. Both projects invert "top-down" technological intervention (but they were not strictly local or grassroots, either). Crucially, grassroots efforts contained within the rubric of civil society are often not embraced by the state. By contrast, many other civil society projects serve to advance state, corporate, or international nongovernmental organization (NGO) bodies' agendas. In particular, many "technology for development" projects are top-down, starting with governments, policymakers, or NGOs.⁴

In this article, I argue that what constitutes "technology" is always contingent. Even though the radio station and oral wiki "worked" for users, failure to engage actors and institutions beyond the grassroots meant that, in the end, these technological interventions did not "work." Yet, when an artifact does not work, we can see more clearly what it was built for and what local and intermediate conditions are required for its functioning; put differently, contingency becomes noticeable. Cases of technological "failure" thus provide great analytical yield: They expose expectations that "success" may obscure, as well as fragility more generally (see Jackson, 2014). Here, boundaries of technology come into focus when implementation proceeds in unexpected ways; the full concatenation of artifacts and social relations that

³ James Ferguson (1994) argues that "failed" projects in postcolonial nations may still accomplish quite a lot. The oral wiki and radio station were at the far end of the spectrum from the projects Ferguson discusses; they were very small and were initiated in dialogue with grassroots actors. But following Ferguson, we might ask what these failed technology projects accomplished. In a certain sense, the answer is "very little." But "very little" was perhaps a desirable outcome as far as the states were concerned. In neither case did the state intervene to shut down the projects, but state indifference was a factor in the projects' stalling.

⁴ Nicholas Negroponte's One Laptop Per Child project, for which Rwanda was a recipient country, would be a prime example (Andersson & Norrmalm, 2010).

allow an artifact to be understood as working are rendered invisible when the object and social relations in question enmesh properly.

Theorizing Technology: Its Boundaries, Its Mediators

Working within the tradition of social studies of technology, scholars have theoretically and empirically challenged the idea that technology develops autonomously, and studiously attended to the politics of technology (Bijker, 2006; Bijker & Pinch, 1987; see also Winner, 1988). They have argued that the material features of an artifact do not simply and straightforwardly account for its success or failure; to the contrary, "the success [or failure] of an artifact is precisely what needs to be explained" (Bijker & Pinch, 1987, p. 24; Winston, 1996). A common mode of tracing out development of technologies in the social construction of technology (SCOT) analytical model involves uncovering the "interpretive flexibility" of an artifact: Which uses and meanings does a given social group attach to it? Do these deviate from or match with the interpretation assigned by other social groups? Through agreement, does the artifact's meaning stabilize and do attendant use patterns crystallize? (Or through disagreement, does it remain undefined and thus fail, suffering from the lack of critical mass of common meaning needed to guide its implementation?) SCOT accounts have focused on work by system architects to establish meaning (Hughes, 1987), efforts of users to shape meaning and appropriate technologies (Eglash, Croissant, Di Chiro, & Fouché, 2004; Oudshoorn & Pinch, 2003; see also Wamala, 2010), and mediators as a group between users and producers that also play a considerable role in shaping interpretations of technologies (Dunbar-Hester, 2014; Kline, 1997). Interpretive flexibility and then a subsequent move toward stabilization of meaning (so-called "closure") are common aspects of the sociotechnical trajectories that these accounts offer.

Bruno Latour and other theorists of the emergence and stabilization of facts and artifacts have attempted to account for these issues through an alternative framework: actor-network theory (Akrich & Latour, 1994; Callon, 1987; Latour, 1994). They do not understand sociotechnical change as a human-driven affair; instead, they examine how disparate sociotechnical elements align to form networks (or fail to do so). They conceptually conjoin elements that analysts had tended to treat as distinct and disparate. As Latour (2005) explains, "There is no empirical case where the existence of *two* coherent and homogeneous aggregates, for instance technology 'and' society, could make any sense" (p. 76). In this article, I borrow from these insights while still resting primarily on the SCOT framework. In other words, I do not take the boundaries of technologies to be unproblematic, and argue for attention by analysts and activists to where this boundary is drawn.

I argue that these two cases of technology transfer in East Africa present challenges to our understanding of technological adoption precisely because the failures in these cases did not flow from a lack of common understanding of the artifacts in question. Indeed, as will be demonstrated in the discussion of each case, understandings of the technologies by would-be users and by designers/activists were largely (which is not to say perfectly) aligned. However, the negotiation and calibration of meaning across these groups of actors did not result in the successful deployment of the technologies in their target domains. One possible explanation is that the users and especially the activists/designers were

conceiving of what constituted the technology too narrowly, accounting for the technology only in its immediate circumstances of use, but not in its wider institutional and sociolegal contexts.

In conceiving of these “failures,” it is important to scrutinize the positions of the radio activists and the oral wiki designers. Following the turn to studying “users” in social studies of technology (Oudshoorn & Pinch, 2003), I theorize these actors as “mediators” of technologies. Situated between “upstream” producers or regulators and “downstream” end-users, mediators are significant analytically because of their role in promoting and advocating for technologies. Their translational work shapes how technologies are interpreted and used.

Research Method

This article combines firsthand ethnographic research on radio activism, conducted by the author from 2003 to 2007, with documentary and interview research on the Rwandan oral wiki project conducted in 2010–2011. I do not name actors or sites in either case, but I have not made a strong effort to cloud identities beyond all recognition, and identifying details can be found in citations. Indeed, some details are both unique and analytically relevant, so achieving strong anonymity would be all but impossible.

Unlike much ethnographic research, the emphasis here is less on “thick description” (Geertz, 1973) and more on describing the contours of the two projects in a way that enables a comparison; the data and analysis are by necessity drawn with broader brushstrokes. The sites are also not treated symmetrically, as the ethnographic data on the radio case are richer, whereas the oral wiki case receives a rather more superficial treatment; however, this asymmetry does not present a difficulty for the analysis because it is general contours rather than specific particularities that are of interest. What this approach loses in granularity is offset by the benefits of a comparative approach, as discussed by Karin Knorr-Cetina (1999), who writes that

Using a comparative optics as a framework for seeing, one may look at one [site] through the lens of another. This “visibilizes” the invisible; each pattern detailed in one [site] serves as a sensor for identifying and mapping (equivalent, analog, conflicting) patterns in the other. A comparative optics brings out not the essential features of each field but differences between the fields. (p. 4)

Here, the comparison of the two cases highlights key similarities that are of analytical value to scholars and activists.

I also have not striven for symmetry with regard to whose voices are prominent in this account. The Global North technologists garner the most attention, although in the radio case, I am able to include leaders of the Tanzanian community center. The radio case is more fully fleshed out because the data is drawn from a larger ethnographic study of radio activism; inclusion of the oral wiki case was possible because of essentially opportunistic research when I casually learned of the project from a designer and realized that it warranted comparison with the radio station case. Notably absent are voices of government officials or policymakers, and it is unlikely that they would speak to me frankly. These

considerations inform the presentation of the research as a narrower argument about how activist technologists bound technological intervention, framed by political economy factors.

Two Cases: Exporting Technologies to East Africa From the United States and Europe

Radio Station, Tanzania

In 2005, Philadelphia-based activists planned a trip to a community center near Arusha, Tanzania. These activists were members of a tiny NGO that had been founded as an unlicensed broadcasting collective in the 1990s. Later that decade, their station was raided and shut down by the U.S. government. They subsequently refocused their efforts toward advocacy for licensed, legal, low-power broadcasting in the United States, as well as building new radio stations. In the U.S. context, they built only licensed stations; this stance was made possible by a change in U.S. telecommunications policy in 2000, in which community groups desiring access to the airwaves for local broadcasting were permitted to apply for licenses for the first time since 1978. Over the course of the 2010s, the group had built approximately 10–12 stations in the United States, and had assisted countless more with the process of applying for licenses and putting new stations on the air.

The radio activists often cited radio as appealing for being inexpensive to transmit and receive, easy to use technically, and not requiring literacy. These attributes were all contrasted to computers and Internet-based technologies; although the radio activists were not entirely dismissive of Internet-based technologies, they were adamant that low-power radio had unique qualities that made it especially appropriate for local use (Dunbar-Hester, 2014). The group focused primarily on domestic broadcasting in the United States. At the same time, radio activists firmly believed that many of the reasons that radio was a useful and “appropriate”⁵ technology in the United States were even more apposite in other contexts, Global South and “developing” nations in particular.

As noted above, the group’s work was mainly organized around building radio stations and advocating for policy that would strengthen and expand low-power broadcasting in the United States. Yet the radio activists also had an international mission, largely conducted on an ad hoc basis; when they traveled internationally for other purposes, such as attending the World Social Forum,⁶ they would conduct workshops and bring electronics including transmitter boards, leaving behind radio equipment for other groups to use. In these contexts, they were willing to work in grayer areas legally, leaving local groups to make decisions about whether to apply for broadcast licenses if that was an available option, or to instead broadcast without obtaining permission from authorities. For the U.S. activists, these decisions were best adjudicated by the local groups, which, they felt, could best ascertain whether the likelihood of having a licensed (and thus potentially more sustainable) station was high, or if not, whether they would be subject to enforcement efforts including prosecution, whether this was a risk they wished to take, and so forth.

⁵ This use of the term *appropriate technology* both does and does not invoke the appropriate technology movement of the United States of the 1960–1980s (Pursell, 1993). This term has crept into activist and NGO vocabulary, and my use of it here is more an artifact of this wider usage than a direct reference to the movement. On the other hand, its wider use is arguably a legacy of the movement.

⁶ An annual gathering for to resist neoliberalism and hegemonic globalization.

The trip the U.S. radio activists planned in 2005 deviated from this pattern in that they planned the trip from the outset as an opportunity to hold a dedicated “barnraising” with a community center in Tanzania. “Barnraisings” are what the activists called their station-building events for new low-power stations in the United States. The term, self-consciously borrowed from the Amish, emphasizes community interdependence and cooperation to complete a project too ambitious for a few people to complete alone. Radio barnraisings featured “work tracks,” in which activists and volunteers worked continuously on building the station, running alongside workshops on everything from station governance to interviewing and mixing audio (see Figure 1). They were designed to level technical expertise through the cultivation of technical affinity in novices, although in practice this was quite challenging.



Figure 1. Volunteers practicing audio recording at a “barnraising,” Arumeru District, Tanzania, 2005.

Activists planned the trip to Tanzania to somewhat formalize their international mission, dedicating a trip to building a new station instead of tacking on these activities to already-scheduled travel. However, this undertaking required of the activists additional reflection on the politics of their work: As a mostly White group in the Global North, they were extremely wary of enacting a colonizing agenda, even inadvertently (cf. Headrick, 1988). They were careful to frame their activities as self-consciously antiracist work promoting cultural exchange, as opposed to a group of (mostly) White activists providing a commodity or service to a less-privileged "other." One activist discussed their international work, which in addition to the Tanzania project had involved building stations in Guatemala and Nepal:

Historically the U.S. has been seen as a patronizing force, NGOs come in [from outside]. . . . But we're learning from [community groups] in other countries—we're resource-rich materially, but how are they organizing? We're not "giving" to them, because in the U.S., the organizing strategies and ability is in its infancy [and so we also learn from these encounters]. (Fieldnotes, March 16, 2005)

(This is in no way to claim that these activists successfully evaded paternalism, only to point out their self-conscious efforts to avoid it.) To prepare for the trip, the organization made an effort to get to know the Tanzanian host organization through their mutual contact, a schoolteacher, and raised funds to bring along additional volunteers, two African American filmmakers with an interest in African media and politics, and one South African activist who had founded an unlicensed radio station in Johannesburg.

The host organization in Tanzania was founded in the 1980s by two expatriate Black Panthers, political revolutionaries who left the United States in the early 1970s and spent time with a group exiled Black Panther Eldridge Cleaver founded in Algeria before settling in Tanzania. Their community center was located in the mountains near Arusha, in the northeastern part of the country. The organization conducted many activities geared toward the community in which it was located: arts and music classes; sexuality workshops, including HIV awareness and education; computer training; film screenings and discussions; indigenous knowledge classes; lectures by visitors and elders on a variety of topics; and other community knowledge trainings. Its classes were in high demand in the surrounding villages. Although its founders had not considered broadcasting before the opportunity presented itself, one reason the founders were keen to have a radio station was to create a greater reach for the center's activities, potentially easing problems they had with their physical space being inadequate to meet the community interest in their classes and facilities; they wrote on their website,

Because we do not have enough space for the literally hundreds of people who apply for a chance to participate in our classes each year, many of the programs to be aired on [Community Center Radio Station] will be an effective means to reach those who are not able to actually study at [our Community Center]. ("UAACC and Prometheus Radio," 2005)

The community center founders and radio activists agreed that FM radio was a well-suited technology for their environs. It could accommodate a variety of languages, including English, Kiswahili, and tribal languages spoken in the district. The community center was located in the foothills of larger mountains;

this elevation gave the station's signal the capacity to travel fairly far when not blocked by other hills (FM transmission range is line of sight, so elevation is a significant factor in reach; see Figure 2). The youth and adults of the community center attained the knowledge required to operate computers and studio equipment used to produce radio broadcasts. Radio receivers were common in village homes and could easily operate on batteries. The station could also interact with listeners, who often had mobile phones and could text message or call into the station during broadcasts.



Figure 2. Raising the FM antenna on the roof of a thatched hut, Arumeru District, Tanzania, 2005.

In addition to these technical considerations, during the workshops to put the station on the air, much enthusiasm was generated for producing programming guided by the community center's mission. The reporter from Johannesburg shared his experiences with the community station he helped operate. He recommended that the new Tanzanian station seek a wide range of volunteers; in an explicit critique of mainstream media, he said, "This as about getting as many people as possible involved in creating knowledge and sharing information" (Fieldnotes, August 17, 2005). He and the other volunteers planned

some potential programs, including a hip-hop⁷ program, a program for primary-school-age children to get help with schoolwork, and a program to interview community elders about various topics, tentatively titled "What's up, *Wazee* [elders]?" (Fieldnotes, August 17, 2005). The Tanzanian community center members also produced a list of rules for operation of their station. They included the following:

NO SEXISM. This means that [we] will not play music that promotes the degradation, exploitation, or oppression of women. Songs whose theme is pimping women, have extreme references to physical or sexual abuse, or which generally promote sexist attitudes will not be played by any DJ.

NO RACISM. [We are] about promoting community development and upliftment, specifically within the African context. We will not air any programming which promotes a racist ideology. This includes any song, show, or commentary that degrades African culture, aesthetic, and traditions. This does not apply to critical discussion, but is meant to prevent the promotion of values and standards that place all things African in an inferior position.

PROMOTE COMMUNITY. [This station] is the voice of [our] Community Center. At all times the programming should reflect the goals and objectives of the [Center], namely "Sharing Knowledge for Community Development." This rule is meant to discourage programming that is individualistic and materialistic in nature. We should at all times promote the principles of *kujitegemea* [self-reliance], *kujichagulia* [self-determination], and *ujamaa* [cooperative economics, fellowship].⁸

This lengthy quote illustrates the extent to which the Tanzanian community center members thoughtfully considered the radio station's use and content. It is evident that radio was hailed as an appropriate technology for incorporation into their mission. The U.S. radio activists in tandem with the Tanzanian hosts got the station up and running technically; by the time the U.S. activists departed a month after their arrival, the station was fully operational with working equipment and trained and enthusiastic would-be programmers, reporters, and deejays (see Figure 3).

⁷ The station's launch coincided with Black August, a political hip-hop festival held each year in which American political hip-hop artists tour Africa, a celebration of "hip-hop and freedom fighters." It had origins in the 1970s Black militant community in the California prison system. During the Black August observance, observers wore black armbands, fasted during daylight, read revolutionary works, including those of George Jackson, and, interestingly, did not watch television or listen to the radio (Black August Hip-Hop Project, 2006).

⁸ [Community Center Radio Station] Rules, August 2005. This document was posted in English and Swahili in the studio.



Figure 3. Volunteers in the radio studio, Arumeru District, Tanzania, 2005. Courtesy of Erik Hoversten.

However, the operational status of the station did not result in a smooth transition to broadcasting. The Tanzanian community center broadcasted for a couple of months later that fall, on an explicitly experimental basis. Its members then voluntarily went off the air, not wishing to court conflict with authorities from whom they sought a broadcast license.

The issues they next encountered were somewhat foreshadowed during the barnraising. One concern was that, unlike the U.S. context to which the radio activists were accustomed, the station would not have the freedom to discuss openly issues such as political campaigns and candidates because of government intolerance. The community center members decided that the station would seek a license and legal status, giving it a greater likelihood of longevity. This also meant that to keep in good standing with the government, it would be preferable to avoid explicit coverage of potentially controversial topics such as elections.⁹ Thus, a number of workshops on programming discussed “how to be political without

⁹ Tanzanian broadcasting policy allowed freedom of expression in principle, but the language set out in the policies makes vague recommendations that stations promote national unity and national security (Article

being overtly political.” Community center leaders were extremely cautious about how to proceed with the radio station; they felt that as an independent, nonstate media outlet, they would potentially be under intense scrutiny (see Javuru, 2011).

Not only that, the ambitions of the U.S. activists and Tanzanian community center ran afoul of Tanzanian broadcasting policy, which essentially did not support community media. Tanzanian broadcast media had long been controlled by the state; although the situation was changing somewhat, the major emerging template for nonstate media was commercial media. According to the community center leaders, there was one extant radio station that fit neither of these models, a station operated for and by Maasai people (an ethnic group located along northern Tanzania and southern Kenya). The community center members took hope from the Maasai station that government approval for a community station would be possible to receive (Fieldnotes, January 9, 2007).

As noted, the Tanzanian government was not necessarily strictly opposed to community broadcasting, although there was little precedent for it. Rather than rejection or opposition, the community center’s application was met with government hesitation. The first application was returned within six months with a request that they constitute a more diverse board, which was to include a range of village elders and not privilege the community center’s founders, thus orienting the station toward a wider range of constituents and diversifying its governance (Fieldnotes, January 9, 2007). Their first financial projection also caused a holdup; as one person explained to me, their application was too ambitious and made the government wary that the application was for a commercial station in disguise (Fieldnotes, January 9, 2007). The community center leaders gamely acceded to these requests and resubmitted their application. Yet, after meeting requests for more information by the authorities, their application withered on the vine and they did not hear back for some time.

The Tanzanian community center leaders thus faced a protracted application process. Three years after the station was operational, it languished pending government approval. The community center leaders appeared to wrestle with conflicting sentiments. On the one hand, after 18 months, they insisted that their momentum since building the station during the U.S. activists’ visit had only grown. They also expressed hope and credulousness that the station would be approved “any week now” (Fieldnotes, January 9, 2007). On the other hand, they were somewhat grasping at straws in their speculations about what was causing the holdup in obtaining the license. In a twist foreseen by no one at the time of the station building, community center leaders claimed that one of the issues was the government viewing the station as a potential “crown jewel” in the region. Precisely because community broadcasting was a rarity and a respected Tanzanian station would receive much notice, they claimed the government was experiencing a seemingly contradictory urge to stall on licensing because of its ambivalence about relinquishing control over the station to community members.¹⁰

19: Global Campaign for Free Expression, 2004, p. 11). In practice, broadcasters shied away from criticizing the government too explicitly, and particularly in the semi-autonomous Zanzibar archipelago, there have been repeated instances of harassment and detainment of journalists.

¹⁰ To underscore how unusual and contingent the circumstances under which their license was being considered were, a community center founder told me that when the station had been broadcasting

Oral Wiki Project, Rwanda

The second case presented here is a telephone-based oral wiki. In 2008–2009, an American software developer at a digital media and design research group in the United Kingdom considered applying the principles of blogs, wikis, and other “user-generated” or “participatory” platforms in settings where Internet infrastructure lagged or literacy hindered their deployment. With design partners, she traveled to Rwanda and met with informal justice actors known as *abunzi*, who play an important role as community mediators, adjudicating disputes between neighbors. These informal justice actors are widely respected and used in their communities for a variety of reasons including lack of access to formal (state) justice systems, cost, and simplicity of proceedings and rulings compared with formal justice systems (Agamanolis & Jeffers, 2009, p. 7). *Abunzi* process about 70% of the civil cases in the country (Agamanolis & Jeffers, 2009, p. 2), and land disputes are a majority of those.

Especially given the specter of Rwanda’s violent civil unrest, consensus and reconciliation are preferred results for disputes between neighbors. Informal justice systems are valued by citizens because

they are highly participatory[,] giving the victim, the offender, and the community as a whole, a real voice in finding a hopefully lasting solution to the conflict. Furthermore, they assist in educating all members of the community as to the rules to be followed, the circumstances which may lead to them being broken, and how ensuing conflict may be peacefully resolved. (Penal Reform International, quoted in Agamanolis & Jeffers, 2009, p. 2)

Thus, the designers zeroed in on supporting the work of the *abunzi*.

In consultation with *abunzi*, the designers developed the idea of the oral wiki. Acknowledging the factors of cost, accessibility, and literacy, the designers focused on the idea of a lightweight technical intervention that could mesh well with orality. The oral wiki would allow *abunzi* to record, archive, listen to, and rate or respond to resolutions issued by other *abunzi*. Over time, the design would allow the archive to grow, increase transparency of *abunzi* decisions, and provide a comparative basis for rulings that would be useful to *abunzi* and to disputants. Accessible to citizens, *abunzi*, and government actors, the designers’ goal was to build capacity and faith in the informal justice system already in place.

experimentally, its range was farther than expected, with reports that its transmissions had been received just across the Kenyan border. Arusha, the nearest city, would be well within range. Arusha itself had seen much growth since being selected in 1994 as the site for the United Nations tribunal on the Rwandan genocide. Furthermore, Arusha was a proposed capital of the proposed East African Federation, a political union of five states (Tanzania, Kenya, Rwanda, Uganda, and Burundi) into one, with the federation scheduled to occur in 2012 or later. Thus, the center leaders’ claims that the station was being given special scrutiny by the government seem warranted.

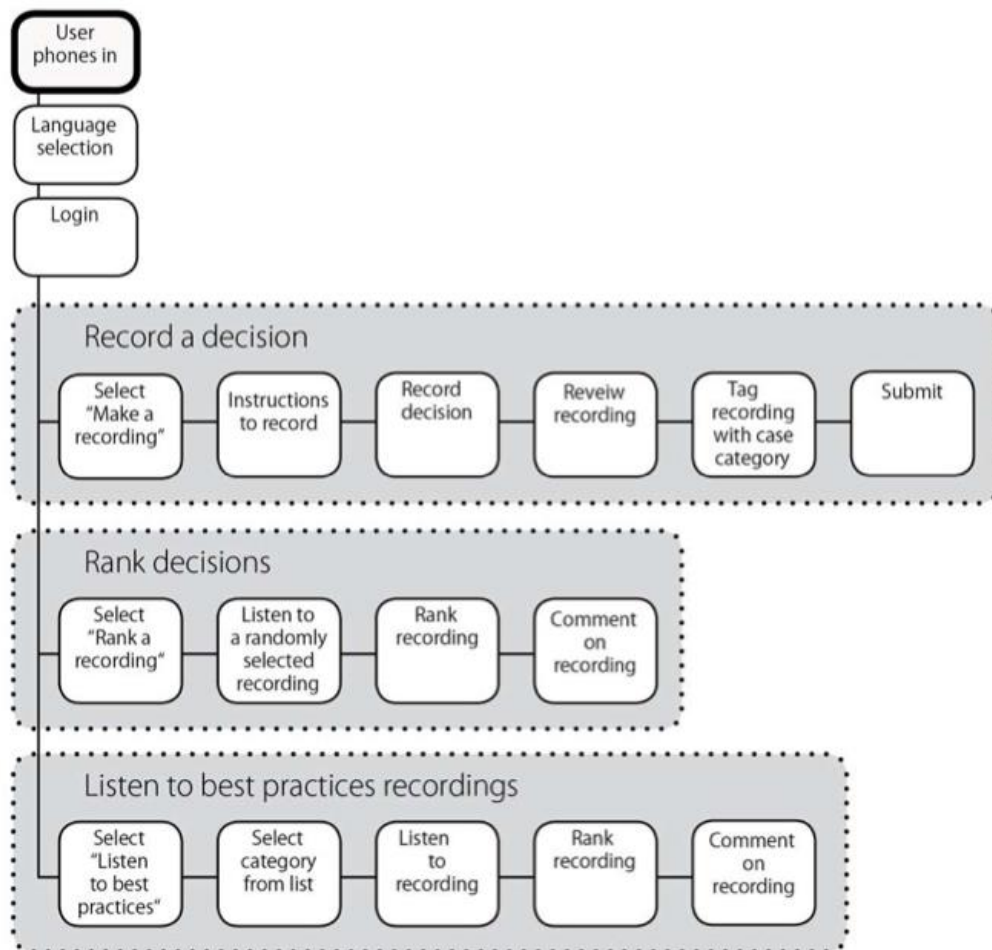


Figure 4. Oral wiki design. © Agamanolis & Jeffers.

Abunzi and other actors claimed to be enthusiastic about the promise of the oral wiki. Some *abunzi* felt that such a system would promote responsibility and accountability within the *abunzi* profession; they also felt that the system would potentially validate the work performed by members of their profession. One *abunzi* said, "If you never leave your village you think your ideas are the best ones" (quoted in Agamanolis & Jeffers, 2009, p. 1). Another asserted that this system would allow "*abunzi* [to] correct errors in the community with this tool" (quoted in Agamanolis & Jeffers, 2009, p. 8). Many people cited the benefit to citizens, who would potentially see faster resolution of disputes, which would mean that families would spend less time in limbo with their livelihoods up in the air (e.g., where to farm, who should collect profits from farming a given parcel of land). Heeding enthusiastic feedback, the designers were committed to developing the idea for the oral wiki into a working technology (see Figure 4).

The other main task was to develop functionality. To design for the local context, the designers had to work within the existing parameters of *abunzi* understandings of their work practices and Rwandan infrastructure. They learned that although *abunzi* typically kept handwritten records of their own cases, they lacked access to adjudication decisions of similar disputes. *Abunzi* felt that a network that provided both transparency of resolution decisions and knowledge of other cases would lead to trust, accountability, and an accrual of knowledge about best practices. Although the Rwandan government was heavily invested in moving the country from an agricultural economy to a “knowledge economy” (Murenzi & Hughes, 2008; see also Pascal, 2004¹¹), there were no state plans to provide Internet access for the *abunzi* justice systems. Overall, less than 1% of Rwandans used the Internet,¹² approximately 65% were literate, and access to electricity was low, approximately 6% (Agamanolis & Jeffers, 2009, p. 3).

Telephony was much more widely accessible, and did not require literacy, computer access, or computer literacy. Although village phone use was higher (at 30%) than mobile phone use, mobile phone use was growing more quickly than village phone use (Agamanolis & Jeffers, 2009, p. 3). Thus, the designers settled on a design interface in which users could interact with the oral wiki by either phone or Internet (the latter, they presumed, would be more valuable to government actors, who had disproportionate access to the Internet versus citizens and *abunzi*; see Figure 5).

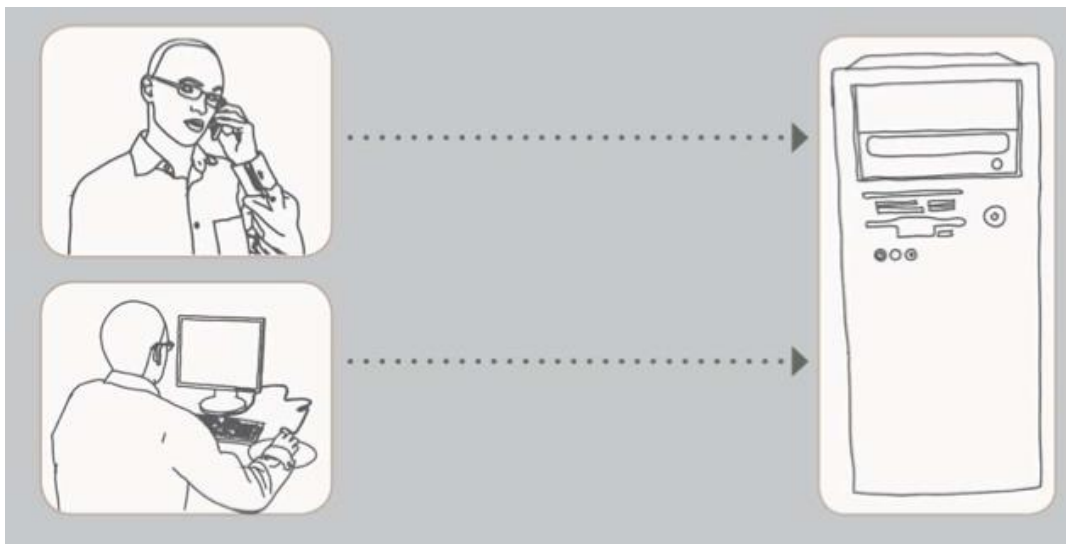


Figure 5. Oral wiki, accessible to users by networked computer or mobile phone.
© Agamanolis & Jeffers.

¹¹ Although the smallest one, the African ICT market is regarded as the most rapidly growing.

¹² See Sally Wyatt (2003) for a critique of the progressive assumption that all nonusers have been “left out.”

The designers then built a working prototype of the oral wiki. They also submitted a proposal to build out the prototype including a pilot program and providing mobile phone access to pilot participants. After implementing the pilot and studying the oral wiki in practice, the designers were hopeful about scaling the project to implementation in many villages.

Yet, the project faltered after the prototype. The pilot implementation was never initiated. One American designer returned to the United States and found other work. She remained committed to the project and enthusiastic about its implementation, and even worked to further build up and debug the prototype. However, over time, she became skeptical that the oral wiki would move toward implementation, and as of this writing, her fear had been borne out.

One main reason that the project stalled appeared to be government ambivalence. Some Rwandan government actors were eager to rationalize *abunzi* decision making. One district-level government official said, "the *Abunzi* have a hectic schedule and the technology will ease their way of work. . . . *Abunzi* do a great job. The database . . . would provide for a great exchange of ideas" (Agamanolis & Jeffers, 2009, p. 8). Other government actors, especially at the level of the central government, were especially keen for the oral wiki to bring *abunzi* informal justice into view of the state (one function of the oral wiki's archive feature; see Akrich, 1994). There was even potential for the formal justice system to make laws based on a full knowledge of the nature of cases faced by *abunzi*, which would in theory bind local justice systems to the central government and legitimate and rationalize the justice system of the nation as a whole (Agamanolis & Jeffers, 2009, pp. 8–9).

Yet, the central government failed to approve the plans to move forward with the oral wiki pilot. Although she could not be certain, the designer speculated that this reflected more than just "ordinary" bureaucratic foot-dragging and red tape. In spite of the enthusiasm expressed by some government actors, the designer thought that central government actors may have perceived that the project potentially represented a risk to the government (Interview, February 2011). In ratifying the *abunzi* justice system, the government might be concerned that it was ceding some of its own authority. Although the formal justice system was reliant on the efficacious working of the informal justice system, too much empowerment of a community-adjudicated justice system could tip the balance of power away from central authority, raising a specter of fear about the effects of citizen empowerment (see Straus, 2007). It is impossible to know for certain the range of contingencies that contributed to the stalling of the project, but this matrix of factors bears consideration, especially in the historical context of Rwanda.

Conclusion: Appropriate Boundaries, Appropriate Technologies?

These two cases of "failed" technology export are instructive. In fact, the paradox of both cases is that they are successes as well as failures. In both cases, the radio activists and software developers averted common pitfalls of technology design or technology transfer: They made serious efforts to plan for the local conditions in which the technologies would be used. In envisioning the use of these artifacts,

these technological mediators also attempted to account for what would-be users needed to find these technologies useful (see Oudshoorn, Rommes, & Stienstra, 2004).¹³

Both the Tanzanian community center members and the Rwandan *abunzi* appeared to be more or less in agreement with the bearers of technologies in their respective circumstances. The interpretations of the uses and meanings of radio and of the oral wiki were stable across the social groups that brought the technologies and the social groups that intended to use them, and were constructed in dialogue between users and designers/activists.¹⁴ This differs from other cases of African users of technologies who fall so far outside the intended market that Western designers do not account for them (Burrell, 2011, pp. 141–142). It also contrasts with cases of Western designers who simply do not recognize the existing parameters of infrastructure when they supply technologies to Global South contexts (Akrich, 1994).

Indeed, activists selected the Tanzanian radio station and the Rwandan oral wiki in part for their material features, which they and potential users understood to mesh particularly well with local exigencies. The U.S. radio activists advocated for radio in part because they understood it to be highly portable and usable. The oral wiki designers explicitly conceived of the oral wiki as a lightweight and impermanent technology intended to bridge between Rwandans' current ICT-impooverished landscape and a more wired future. The wiki operated on a familiar platform: telephony. In terms of technical functionality, these mediators were not wrong; the radio station and oral wiki were largely adaptable to local circumstances and appeared to be embraced by would-be users (see de Laet & Mol, 2000).

The understandings of the radio station held by both the U.S. activists and the Tanzanian community center members were closely aligned. This was largely true for the *abunzi* and the oral wiki designers as well. The government actors' interpretations of these technologies are harder to uncover, but in both cases, there are grounds for speculation, if not evidence, that the government actors' interpretations of the meanings and uses of these technologies also did not differ significantly from the designers' or users' interpretations.

Instead, the government actors may have wished to block the implementation of these projects precisely because they understood the technologies in the same terms as the mediators and would-be users, but they simply did not wish to promote these uses. If true, this indicates a potential problem with

¹³ An alternative rendering of these encounters might hold that these technological interventions foundered because would-be users found them neither useful nor needed; it is certainly possible that the activists/designers were in fact deaf to the social realities of the would-be users, who, as soon as resources and attention from outside were withdrawn, returned their focus to their more pressing concerns, including everyday survival. However, this account is less charitable to the activists/designers and less analytically interesting, in part because such occurrences are all too common. Thanks to Caroline Wamala for discussion on this point.

¹⁴ Here I rely on what the Tanzanians told me and what the Rwandan *abunzi* told the American designer (and she relayed to me). Of course, my and the designer's positions vis-à-vis those of the East African informants (or vice versa) are relevant, and we cannot know with absolute certainty that East African informants were not withholding critique or skepticism.

analysts of sociotechnical assemblages treating the “problem” of technological success or failure as being reducible to the actors’ interpretations of technologies themselves. The need for users, designers, and other relevant social groups to hold commensurate interpretations of technology remains paramount. Yet this agreement, while necessary, is not sufficient for the success of the technology.

Rather, this case points to the need to interrogate what is meant when “a technology” is said to “work.” Clearly, whether a technology in a given setting works is not restricted to a narrowly bounded artifact and its material properties; when we expect a technology to work, we are also assuming its successful enmeshment into certain social relations that also account for its working (see Akrich, 1994; Callon, 1987; Latour, 1994). However, the requirement for social relations that also work is often obscured; it is common to synecdochally reduce these arrangements to the technology itself, as the radio activists did. These relations may be very hard to see under ordinary circumstances when a given arrangement is in working order, but one benefit to an analysis of the cases discussed in this article is that failures bring these relations to the surface (see Garfinkel, 1967). As the radio station and oral wiki cases demonstrate, these dynamics are of special interest not only in design, but also in the promotion of familiar technologies in novel settings (Marvin, 1988).

Although these technologies succeeded in (micro-meso) negotiations between users and designers/activists to construct meaning, they failed elsewhere. Specifically, they failed at the level of a wider sociolegal context. Although ratified by would-be users and mediators, they were not legitimated at (meso-macro) institutional or state levels (see Wyatt & Balmer, 2007). We might say that activists/designers and would-be users succeeded in how they negotiated the respective meanings of these technologies in the particular contexts where use would occur, but they failed to successfully navigate the outer reaches of the artifacts, where they “touched” the law, broadcast policy, and the state.

Given that proponents intended to export technologies that worked, these cases point to the need for a serious analytical parsing of the boundary of what is encompassed by “technology.” Steve Woolgar (1991) argues that the question of whether characteristics *reside in* entities, or whether they are *attributed to* entities is, in practice, not nearly as straightforward to answer as it might seem, nor is it a neutral undertaking (p. 65). He writes, “Any existing complex of relationships between entities [is a consequence of] the moral order of representation, . . .” that is, moral and social work is required to attribute a given characteristic or action to a machine, versus to its user, versus to a web of social relations in which artifact and user are entangled (p. 65).

To distinguish between “the artifact” and “the social” is an act of boundary-drawing and an implicit ordering of the rights and responsibilities associated with each entity and the distribution among them (Woolgar, 1991, p. 66). The Tanzanian radio station and Rwandan oral wiki cases illustrate that it matters where actors draw the line of where the technology starts and ends. The paradox between the ostensible portability and ease of use of these technologies and their in situ failures can in part be explained by considering the boundaries of the technologies to be wider than a narrowly artifact-centered approach allows.

In other words, we cannot predict whether a technology will “work” in a given setting by reciting its material properties. In placing the responsibility for “working” on the radio station and the oral wiki’s

artifactual properties, the mediators here shifted responsibility away from themselves and implicitly onto the technology itself. This approach, however, failed in both cases, and responsibility shifted once again, leaving regulators or would-be users to make the artifacts work, and leading to the stagnation of both projects. These outcomes are ironic given the mediators' intent to fully anticipate local contexts and provide appropriate technological interventions. Drawing narrow boundaries around what a technology "is" is insufficient to account for the articulations between the (narrowly construed) artifact and the institutional, cultural, and sociolegal contexts its successful deployment must incorporate. Rewriting communicative power requires careful attention to how these boundaries are drawn, by whom, and with what effect.

References

- Agamanolis, S., & Jeffers, C. (2009). An oral wiki to support informal justice systems. In P. Cunningham & M. Cunningham (Eds.), *IST—Africa 2009 conference proceedings* (pp. 1–10). Dublin, Ireland: International Information Management Corporation.
- Akrich, M. (1994). The de-description of technical objects. In W. Bijker & J. Law (Eds.), *Shaping technology/building society* (pp. 205–224). Cambridge, MA: MIT Press. Retrieved from <http://hdl.handle.net.libproxy1.usc.edu/2027/heb.01128.0001.001>
- Akrich, M., & Latour, B. (1994). A summary of a convenient vocabulary for the semiotics of human and nonhuman assemblies. In W. Bijker & J. Law (Eds.), *Shaping technology/building society* (pp. 259–264). Cambridge, MA: MIT Press. Retrieved from <http://hdl.handle.net.libproxy1.usc.edu/2027/heb.01128.0001.001>
- Andersson, L., & Norrmalm, T. (2010). *Finding the formula for sustainable ICT: Lessons from the One Laptop per Child project in Rwanda* (Master's thesis, Uppsala University, Uppsala, Sweden). Retrieved from <http://urn:nbn:se:uu:diva-119636>
- Article 19: Global Campaign for Free Expression. (2004). *Note on the United Republic of Tanzania Information and Broadcasting Policy*. London, UK: Author. Retrieved from <http://www.article19.org/pdfs/analysis/tanzania-information-and-broadcasting-policy-f.pdf>
- Bijker, W. (2006). Why and how technology matters. In R. Goodin & C. Tilly (Eds.), *The Oxford handbook of contextual political analysis* (pp. 15522–15527). Oxford, UK: Oxford University Press.

- Bijker, W., & Pinch, T. (1987). The social construction of facts and artifacts: Or how the sociology of science and the sociology of technology might benefit each other. In W. Bijker, T. Hughes, & T. Pinch (Eds.), *The social construction of technological systems* (pp. 27–47). Cambridge, MA: MIT Press.
- Black August Hip-Hop Project. (2006). Retrieved from http://www.blackaugust.com/2006/about_ba.html (post since deleted)
- Burrell, J. (2011). User agency in the middle range: Rumors and the reinvention of the Internet in Accra, Ghana. *Science, Technology, & Human Values*, 36, 139–159. doi:10.1177/0162243910366148
- Callon, M. (1987). Society in the making: The study of technology as a tool for sociological analysis. In W. Bijker, T. Hughes, & T. Pinch (Eds.), *The social construction of technological systems* (pp. 83–106). Cambridge, MA: MIT Press.
- Chakravarty, P. (2007). Governance without politics: Civil society, development, and the postcolonial state. *International Journal of Communication*, 1, 297–317. Retrieved from <http://ijoc.org/index.php/ijoc/article/view/20>
- de Laet, M., & Mol, A. (2000). The Zimbabwe bush pump: Mechanics of a fluid technology. *Social Studies of Science*, 30, 225–263. doi:10.1177/030631200030002002
- Dunbar-Hester, C. (2014). *Low power to the people: Pirates, protest, and politics in FM radio activism*. Cambridge, MA: MIT Press.
- Eglash, R., Croissant, J., Di Chiro, G., & Fouché, R. (2004). *Appropriating technology: Vernacular science and social power*. Minneapolis, MN: University of Minnesota Press.
- Ferguson, J. (1994). *The anti-politics machine: Development, depoliticization, and bureaucratic power in Lesotho*. Minneapolis, MN: University of Minnesota Press.
- Garfinkel, H. (1967). *Studies in ethnomethodology*. Cambridge, UK: Polity.
- Geertz, C. (1973). *The interpretation of cultures*. New York, NY: Basic Books.
- Headrick, D. (1988). *Tentacles of progress*. Oxford, UK: Oxford University Press.
- Howley, K. (2005). *Community media*. Cambridge, UK: Cambridge University Press.
- Hughes, T. (1987). The evolution of large technological systems. In W. Bijker, T. Hughes, & T. Pinch (Eds.), *The social construction of technological systems* (pp. 51–82). Cambridge, MA: MIT Press.

- Jackson, S. (2014). Rethinking repair. In P. Boczkowski, T. Gillespie, & K. Foote (Eds.), *Media technologies* (pp. 221–239). Cambridge, MA: MIT Press.
- Javuru, K. (2011, January). *Community radio in East Africa: A critical overview*. Paper presented at the Media Communications and Cultural Studies Association conference, Manchester, UK. Retrieved from <http://kennedyjavuru.wordpress.com/2011/02/21/meccsa-2011-conference-paper/>
- Kline, R. (1997). Agents of modernity: Home economists and rural electrification, 1925–1950. In S. Stage & V. Vincenti (Eds.), *Rethinking home economics* (pp. 237–252). Ithaca, NY: Cornell University Press.
- Knorr-Cetina, K. (1999). *Epistemic cultures: How the sciences make knowledge*. Cambridge, MA: Harvard University Press.
- Latour, B. (1994). Where are the missing masses? The sociology of a few mundane artifacts. In W. Bijker & J. Law (Eds.), *Shaping technology/building society* (pp. 225–258). Cambridge, MA: MIT Press.
- Latour, B. (2005). *Reassembling the social: An introduction to actor–network–theory*. Oxford, UK: Oxford University Press.
- Mahajan, M. (2008). *The politics of public health emergencies: AIDS epidemics in India and South Africa* (Doctoral dissertation). Retrieved from <http://hdl.handle.net/1813/11107>
- Marvin, C. (1988). *When old technologies were new: Thinking about electric communications in the late nineteenth century*. New York, NY: Oxford University Press.
- Murenzi, R., & Hughes, M. (2008). Engineering growth: Technology, innovation and policy making in Rwanda. In P. Guthrie, C. Juma, & H. Sillem (Eds.), *Engineering change towards a sustainable future in the developing world* (pp. 13–20). London, UK: Royal Academy of Engineering.
- Oudshoorn, N., & Pinch, T. (Eds.). (2003). *How users matter: The co-construction of users and technologies*. Cambridge, MA: MIT Press.
- Oudshoorn, N., Rommes, E., & Stienstra, M. (2004). Configuring the user as everybody: Gender and design cultures in information and communication technologies. *Science, Technology, & Human Values*, 29, 30–63. doi:10.1177/0162243903259190
- Pascal, Z. (2004). Black star: Ghana, information technology and development in Africa. *First Monday*, 9, 3. Retrieved from <http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1126/1046>
- Pursell, C. (1993). The rise and fall of the appropriate technology movement in the United States, 1965–1985. *Technology & Culture*, 34, 629–637. doi:10.2307/3106707

Straus, S. (2007). What is the relationship between hate radio and violence? Rethinking Rwanda's "radio machete." *Politics & Society*, 35, 609–637. doi:10.1177/0032329207308181

UAACC and Prometheus Radio join hands to launch UAACR: United African Alliance Community Radio!
Retrieved from <http://www.uaacc.habari.co.tz/radio%20barn%20raising%20at%20UAACC.htm>

Wamala, C. (2010). *Does IT count? Complexities between access to and use of information technologies among Uganda's farmers* (Doctoral dissertation, Luleå University of Technology, Luleå, Sweden).
Retrieved from [http://pure.ltu.se/portal/en/publications/does-it-count\(3c7b5ee0-ecb8-11df-8b36-000ea68e967b\)/export.html](http://pure.ltu.se/portal/en/publications/does-it-count(3c7b5ee0-ecb8-11df-8b36-000ea68e967b)/export.html)

Winner, L. (1988). *The whale and the reactor: A search for limits in an age of high technology*. Chicago, IL: University of Chicago Press.

Winston, B. (1996). *Technologies of seeing: Photography, cinematography and television*. London, UK: British Film Institute.

Woolgar, S. (1991). Configuring the user: The case of usability trials. In J. Law (Ed.), *A sociology of monsters* (pp. 58–97). New York, NY: Routledge.

Wyatt, S. (2003). Non-users also matter: The construction of users and non-users of the Internet. In N. Oudshoorn & T. Pinch (Eds.), *How users matter* (pp. 67–79). Cambridge, MA: MIT Press.

Wyatt, S., & Balmer, B. (2007). Home on the range: What and where is the middle in science and technology studies? *Science, Technology, & Human Values*, 32, 619–626.
doi:10.1177/0162243907306085