

# Multi-Lifespan Information System Design in Support of Transitional Justice: Evolving Situated Design Principles for the Long(er) Term

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Human societies face some significant problems—such as those tied to limitations of the human psyche, to tears in the social fabric, and to slow-moving natural processes—that defy rapid solution. Correspondingly, information systems that help to address these problems also develop over long(er) periods of time. Yet contemporary research and industry information system design is held to increasingly ambitious project deadlines. Research that engages with long(er) term design processes from diverse perspectives and theoretical orientations is needed. Early efforts of this ilk in the human–computer interaction community can be found around domains such as conflict and post-conflict situations, crisis informatics, collapse informatics, cultural heritage and sustainability. The work reported here joins this literature—in the context of recovering from genocide and the development of systems of transitional justice—and draws from the theoretical framing of multi-lifespan design. Specifically, we report on the first 8 years of a multi-lifespan information system design project—the Voices from the Rwanda Tribunal—to support aspects of transitional justice in Rwanda. We offer a systematic presentation of the project’s design principles and explicate the development of those guiding design principles through our engagement with a set of nine design challenges. We provide design reflections that pertain to information systems for transitional justice, conducting multi-lifespan information system design under shifting socio-political and technical conditions, and engaging with value sensitive design. We conclude with our contributions and open questions.

## RESEARCH HIGHLIGHTS

Through this submission we:

- Model the type of reflective scholarship that can inform and enrich longer-term research projects.
- Report on the first 8 years of a multi-lifespan design project—the Voices from the Rwanda Tribunal.
- Address the problem of designing an information system pertaining to long-term processes and outcomes of transitional justice systems.
- Review related information systems for transitional justice, the Rwandan context and our prior work.
- Describe our design approach, including a systematic presentation of the project’s guiding design principles.
- Explicate the development of those guiding design principles through our engagement with a set of nine design challenges.
- Demonstrate how guiding principles can provide one conceptual tool both to evoke and resolve value tensions throughout a design process.
- Demonstrate the roles political and social change, shifting perspectives and time (including pause) play in longer-term design processes.
- Demonstrate how well-designed systems have the potential to make information more accessible and comprehensible to the people who confront injustice, now and well into the future.
- Articulate open questions concerning how to ethically engage multi-lifespan design work.

*Keywords: ethics; multi-lifespan design; policy; transitional justice; value sensitive design; value tensions*

*Editorial Board Member: Michael Muller*

*Received 2 May 2015; revised 18 November 2015; accepted 10 December 2015*

## 1. INTRODUCTION

Human societies face some significant problems—such as those tied to limitations of the human psyche, to tears in the social fabric and to slow-moving natural processes—that defy rapid solution. The very structure of these problems and their solution spaces require long(er) periods of time to unfold. Correspondingly, information systems that support those processes also develop over long(er) periods of time. Yet contemporary research and industry information system design is held to increasingly ambitious project deadlines. Employing methods specifically honed to speed up the design process, such as ‘rapid prototyping’, and ‘discount heuristic evaluation’, it is not unusual for system design to be carried out in 3–6 months, the system to be deployed for 18 months and considered obsolete within 5 years. Research that seriously engages with long(er) term design processes from diverse perspectives and theoretical orientations is sorely needed. Early efforts of this ilk in the human–computer interaction (HCI) community can be found around domains such as conflict and post-conflict situations (Aal *et al.*, 2014; Durrant *et al.*, 2014; Mark and Semaan, 2009; Smyth *et al.*, 2010; Wallace *et al.*, 2014), crisis informatics (Burns and Eltham, 2009; Starbird and Palen, 2012), collapse informatics (Tomlinson *et al.*, 2013), cultural heritage (Liu, 2010) and sustainability (Bidwell *et al.*, 2013; Blevins, 2007). The work reported here joins this literature—in the context of recovering from genocide and the development of systems of transitional justice—and draws from the theoretical framing of multi-lifespan design (Friedman and Nathan, 2010). Specifically, we report on the first 8 years of a multi-lifespan information system design project to support aspects of transitional justice in Rwanda, early-stage with respect to a multi-lifespan framing, mature in comparison with much HCI research.

Transitional justice, according to the United Nations Rule of Law (Transitional Justice, 2015), refers to the full range of processes and mechanisms—judicial and non-judicial—associated with a society’s attempt to come to terms with a legacy of large-scale past abuses, in order to ensure accountability, serve justice and achieve reconciliation. In these complex, inter-related processes, societies take steps to establish conditions for human thriving, while making decisions around justice and developing support for reconciliation. International criminal tribunals, mobile courts and truth and reconciliation commissions are but a few of the types of processes that various countries have implemented in recent years as part of their transitional justice activities. In large part, transitional justice systems are motivated by

the possibility of peace building and more just, stable civil societies (Kerr and Mobekk, 2007; Truth and Reconciliation Commission of Canada, 2015; Utter, 2005). Ideally (and hopefully to some meaningful extent in lived experience), transitional justice systems inform governments and societies as they re-conceptualize and rebuild themselves, striving to create conditions in which people are not killed (as often), tortured (as often), raped (as often), stigmatized (as often) or have their children removed from their homes (as often).

Innovative work at the intersection of justice, human rights and information system design is transforming the ways in which people know about, participate in, and experience justice and justice processes. The depth and breadth of applications is vast. For example, official court and tribunal proceedings and records can now be accessed online (e.g. ‘United Nations International Criminal Tribunal for Rwanda’, n.d.; ‘United Nations International Criminal Tribunal for the former Yugoslavia’, n.d.); the testimonies of those who have survived atrocities such as those from the Holocaust (e.g. ‘USC Shoah Foundation’, 2007), Japanese-American internment (e.g. ‘Densho: The Japanese American Legacy Project’, 1997) and the 1994 genocide in Rwanda (e.g. ‘Welcome to Genocide Archive Rwanda’, n.d.) can be streamed over WiFi networks; and human rights activists in the midst of conflict can document (e.g. smart phone recordings with accompanying metadata) and post to networked repositories accessible to journalists and the public (e.g. ‘WITNESS | Human Rights Video’, n.d.) and, in some cases, for current or future use as judicial evidence (e.g. ‘Syria Justice & Accountability Centre’, n.d.; ‘EyeWitness to Atrocities’, Cellan-Jones, 2015).

Information and computer systems hold the potential to make transitional justice systems—their objectives, processes and outcomes—more accessible and relevant to those most affected by injustice (Huskamp-Peterson, 2005). In situations related to trauma and conflict, a diversity of perspectives and understandings is likely. Information system designers need a nuanced understanding of the politically and ethically fraught contexts in which their design work is situated (Durrant *et al.*, 2014). Further, certain perspectives may not be welcome by some stakeholders and some perspectives may do harm (e.g. genocide or holocaust deniers). Given the plurality of understandings related to traumatic human events, how might information systems help people in their assessments of the information they access? How might individuals be provided information that can help them critically evaluate questions of accuracy, credibility and legitimacy as relevant to the particularities of their own situations and the system that is

mediating their engagement with information? Designers can be hard pressed to make design decisions in such ethically challenging territory. It is here that situated design principles have much to contribute.

Moreover, to support sustained peace building and civil society, the processes and outcomes of transitional justice systems are important not only for those who experienced the violence directly but also for their children and their children's children. Similarly, these transitional justice systems may be of concern to multiple generations of those complicit (passively or actively) to the violence. Given the goal to break cycles of violence, we propose that the corresponding information system design will benefit from a multi-lifespan perspective, with key challenges to collect, secure, provide access to and steward sensitive collections.

Our work is part of this growing body of system designs and associated literature, contributing a longitudinal account of and reflection on the evolving situated principles that have guided our design of one information system design project to support transitional justice in Rwanda—the *Voices from the Rwanda Tribunal* ([Voices from the Rwanda Tribunal website](#), 2015). The kernel of this project is a collection of 49 video interviews with personnel from the United Nations International Criminal Tribunal for Rwanda (ICTR). The research reported here is grounded by our experiences conceptualizing, designing and building information systems and the associated activities around this kernel over an 8-year period (2008–15). While individual aspects of this project have been presented elsewhere ([Nathan and Friedman, 2010](#); [Nathan et al., 2011](#); [Nilsen et al., 2012](#); [Yoo et al., 2013](#)) this paper provides an over-arching account of our reflections on design principles and challenges based on years of sustained thinking on one cohesive project. HCI scholarship is familiar with shorter-term research projects, tied to grant funding cycles and the pace of technological change. As noted above, this project is both early stage (relative to human lifespans) and mature (aged for HCI). It is a long cycle start-up, helping us think about and take actions toward multi-lifespan design. This article includes enough background to be comprehensible to those reading only this publication; we cite additional project publications throughout the article to direct those interested in specific project details.

This article is organized as follows: We first present background on transitional justice in the Rwanda, our research context; on our design approaches, multi-lifespan design and value sensitive design and on related information systems for transitional justice. Then we present the project history and our prior work. From there, we turn to the bulk of our contributions: a systematic presentation of the project's design principles and explicate the development of those guiding principles through our engagement with a set of nine design challenges. Next we provide design reflections that pertain to information systems for transitional justice, conducting multi-lifespan design under shifting socio-political and technical

conditions and engaging with value sensitive design. We conclude with contributions—to information systems for transitional justice, multi-lifespan design and value sensitive design—and open questions.

## 2. BACKGROUND

### 2.1. Transitional justice in Rwanda: a framing of the evolving research context

During the 1994 genocide over 800 000 Rwandans were massacred by their neighbors, political leaders and clergy (detailed in [Uvin, 1999](#); [Wallace et al., 2014](#)). Immediately following the genocide, the decimated Rwandan society was confronted with the challenge of delivering transitional justice in response to mass atrocities. Many judicial staff had been killed or fled the country, and much of the judicial infrastructure had been destroyed. In December 1994, there were only 12 prosecutors in Rwanda ([National Service of Gacaca Courts, 2012](#)).

In response the United Nations Security Council, with initial cooperation from the newly established Rwandan government, formed the ICTR. This international tribunal was broadly tasked with prosecuting those who organized and masterminded the genocide and to aid reconciliation in Rwanda ([Forges and Liebhafsky, 1999](#)). The international tribunals set up for the former Yugoslavia and for Rwanda both in 1994 represent the first international tribunals since Nuremberg.

By focusing on the masterminds of the genocide, the UN Security Council left the Rwandan government to develop its own system to prosecute hundreds of thousands of perpetrators domestically. In the years that followed, Rwanda explored several types of justice systems, and eventually developed its own system of public, community-based trials, culminating in the Gacaca court system. Gacaca courts processed more than 1.9 million cases from their first trials in October 2005 until their closure in 2012 ([National Service of Gacaca Courts, 2012](#)). Since the genocide, Rwanda's national courts have been rebuilt, materially and politically, including reforms begun in 2004 for independence of the executive and the judiciary.

In their efforts to rebuild justice systems, the Rwandan government introduced a number of major law reforms including the abolishment of the death penalty in 2007. In 2008, the Rwandan Parliament passed a law modeled after Germany's Holocaust denial legislation that criminalizes 'genocide ideology', including denial of the 1994 Genocide against the Tutsi. Contravention of the 2008 law was punishable by up to 25 years in prison. Children of any age can be sent away to rehabilitation centers for up to 1 year under the law—including for teasing classmates. In addition, in 2009, the government passed a new media law, which criminalized defamation and imposed a wide range of restrictions on gathering and reporting information. The 2008

Genocide Ideology Law and 2009 Media Law were critiqued for their influence on open and democratic political discourse and public conversations surrounding the genocide (Human Rights Watch, 2010).

Rwanda continues to experience rapid socio-political and technological change. In 2013, in partial response to international demands, the Rwandan government enacted amendments to the Genocide Ideology and Media Laws to reflect international standards on freedom of expression. The amended Genocide Ideology Law penalizes only intentional and public acts of communicating genocide ideology, and the maximum prison sentence was reduced from 25 to 9 years (Human Rights Watch, 2014). Rwanda's technological infrastructure is also changing: the ownership of personal computers and smart phones continues to grow, and fiber optic cable is being laid throughout the country and expected to bring broadband access to a large number of Rwandans in the near future.

In a society undergoing rapid transition such as Rwanda, information systems have important contributions to make toward realizing justice. Moreover, understandings of what constitutes justice will develop over time in response to changing situations. We draw from multi-lifespan design for engaging with long(er) term processes of transitional justice.

## 2.2. Multi-lifespan design

Multi-lifespan design (Friedman and Nathan, 2010) begins from the observation that certain categories of societal problems because of the structure of the problem are unlikely to be solved within a single human lifespan. For the work reported here, two categories of problems are relevant. The first entails healing from widespread or cyclical violence. The second entails, tears in the social fabric, such as the destruction of justice systems during civil unrest.

From this longer-term perspective, questions of how to ethically design and develop digital and non-digital information systems that will leverage opportunities as they emerge over time is largely unfamiliar territory. Here, we explore the unique challenges of designing primarily digital tools to steward information related to contested human atrocities and transitional justice. The multi-lifespan design framing points us toward designing for multiple generations, intentionally engaging with adults and youth as well as considering generations not yet born. It points us toward embracing adaption as a normal condition of design, to being alert to changing socio-political and technical conditions (Johnson, 2013) both as sources of opportunity and also of new challenges. It points us toward the element of time in the design process, including the possibility to pause if socio-political or technical conditions appear intractable at any given moment. It points us toward the opportunity of collecting and securing certain information now that may not be accessed or used until sometime far in the future, and even under conditions in which at a given moment we are unsure how or lack resources to

preserve that information for the longer term. And it points us to the on-going securing of information for the long-term while simultaneously providing access.

## 2.3. Value sensitive design

Our multi-lifespan information system design work is grounded within the broader approach of value sensitive design. Specifically, in the work reported here, we draw from value sensitive design theory and methods for engaging with stakeholders, both direct and indirect; positioning designer values; acknowledging the plurality of stakeholder values and positions and working with value tensions (Davis and Nathan, 2014; Friedman *et al.*, 2006; Miller *et al.*, 2007). In turn, our work contributes to the body of value sensitive design research by describing the ongoing development of the project's design principles while drawing upon exemplars of engaging value tensions in complex socio-political and technical contexts. We also provide insights into how the element of time might be leveraged in design processes with deep-seated value tensions.

## 2.4. The growth of conflict and post-conflict transitional justice information systems

Transitional justice, as noted in the introduction, refers to the full range of processes and mechanisms—judicial and non-judicial—associated with a society's attempt to come to terms with a legacy of large-scale past abuses, in order to ensure accountability, serve justice and achieve reconciliation. With the broad purview of transitional justice, an array of digital initiatives have emerged in recent years in response to conflict and post-conflict situations including: international governmental archival institutions (e.g. ICTR, United Nations International Criminal Tribunal for the former Yugoslavia [ICTY]); well-funded nonprofits (e.g. WITNESS); grant funded academic enterprises (e.g. Voices from the Rwanda Tribunal project); court mandated, yet without continued funding, hybrid institutions (e.g. the National Centre for Truth and Reconciliation formed through Canada's Truth and Reconciliation Commission) and grassroots and community archives (e.g. Occupy Archive). Below we provide details of projects that share our emphasis on system design, divided into those begun mid-conflict and those started post-conflict.

*Mid-conflict.* A number of systems have emerged around justice concerns in the midst of ongoing, violent conflict. One effective technical strategy involves crowdsourced documentation of human rights abuses and violations. With the dual missions to support human rights response and raise public awareness, these projects grew out of initiatives to support on-the-ground activists and citizens in recording and sharing their experiences of violence (e.g. 'Ushahidi' [Okolloh, 2009], 'WITNESS', 'Standby Task Force', n.d.). In particular, the past few years have seen growing body of work investigating the use of online social networking during the modern

conflicts in the Middle East (e.g. Abokhodair *et al.*, 2015; Al-Ain *et al.*, 2010; Burns and Eltham, 2009; Starbird and Palen, 2012). Other projects focus on long(er) term preservation and use of digital documentation. As Mark *et al.* (2013) pointed out, the effects of warfare are often long-term, lasting years. In protracted war such as the Mexican Drug War, violent clashes become a part of everyday life, turning otherwise extraordinary events into ordinary ones (Monroy-Hernández *et al.*, 2013). The ongoing Syrian Civil War provides another example. The Syria Justice and Accountability Centre's Violations Database ('Syria Justice & Accountability Centre', n.d.) seeks ways to collect and preserve widespread documentation of violations, working to develop documentation that is comprehensive, credible and of high enough quality to be useful in future transitional justice processes. The Syria Violations Database project illustrates the multi-lifespan opportunity of collecting material that can be used in the future to substantiate, interrogate and address atrocities.

*Post-conflict.* Others have explored how information systems can work in post-conflict settings to facilitate transitional justice processes and peace building. For example, Smyth *et al.* (2010) designed a mobile kiosk to enable Liberian citizens from remote provinces to participate from their regions in truth and reconciliation processes. Other work has focused on human rights media archiving, in particular, on preservation and curation of genocide survivors' oral testimonies ('Densho', 1997; 'USC Shoah Foundation', 2007; 'Welcome to Genocide Archive Rwanda', n.d.). Within HCI, one recent study stands out as closely related to our own, that of Durrant *et al.* (2014). Durrant and colleagues sought to understand the archiving processes of 'sensitive archive materials' that are emotive and visceral, and contextualized within a politically and ethically contested history, again, the 1994 genocide in Rwanda. While they studied the curatorial concerns and values of the staff at the Kigali Genocide Memorial Centre from an 'outsider perspective', in this paper we critically reflect on our own design and archiving processes related to a different collection of materials related to the same event.

Despite critical socio-cultural, historical, political and technical differences, all of these systems in one way or another are concerned with issues of access, authenticity, dis/trust, legitimation and security. We note that these issues are also addressed through scholarship in the field of archival studies, including those oriented toward transitional justice collections (e.g. Caswell, 2010, 2014; McKemmish *et al.*, 2011). However, the majority of archival scholarship in this area addresses the specialized concerns of professional archivists, with the aim of informing archival practice (e.g. Gilliland and McKemmish, 2011).

## 2.5. Voices from the Rwanda tribunal

We turn now to provide an introduction to the Voices from the Rwanda Tribunal project and team.

*Detailed Project History.* In the fall of 2007 shortly after the theoretical framing of the multi-lifespan design approach (Friedman and Nathan, 2010), one of the authors attended a talk by the Chief Librarian of the ICTR Angeline Djampou who was visiting the University of Washington (UW). During the talk the librarian described her understanding of the current context of the Rwandan justice system. Continued conversations with the librarian both at UW and in the months that followed over email, led two of the authors to visit the ICTR in Arusha, Tanzania in February 2008. At that time, we discussed the possibilities of a multi-lifespan design framing with ICTR personnel and many expressed a wish to share their experiences of and reflections on helping to shape an international justice system, a nascent attempt to support transitional justice at an international level. Because of their longer-term interest in international justice systems and how their insights might be useful in the future, those we spoke with resonated with our multi-lifespan framing. It was through these initial conversations at the ICTR that a design research project began to take shape.

Subsequently, in June 2008, we learned that the United Nations funded Tribunal was beginning to wind down, with the expectation that substantial numbers of the personnel would be laid off in the near future. Given the threat of imminent downsizing of the Tribunal, speed was of the essence. Thus, in 3 months, between 15 June–27 September 2008, a 10-person team of information scientists, legal experts and videographers was assembled, funds were raised, human subjects approvals obtained and travel organized to enable the collection of video interviews during the fall of 2008. Upon our arrival, ICTR personnel expressed both enthusiasm and caution in early conversations with the research team. It was only after building relationships over coffee in the ICTR cafeteria and shared meals that tribunal personnel began to step forward.

*Collecting for Whom.* Our goal was neither investigative journalism nor documentary filmmaking. Rather, from the outset, we sought to provide a space for the ICTR personnel to share their experiences of enacting justice, accounts that can be heard and responded to now and into the future. The project was and remains independent from the United Nations, from the ICTR and from the Rwandan government. Our primary funding is from the United States National Science Foundation (NSF), with some gifts from academic institutions and individuals. Initially, we had three main stakeholder groups in mind: the international justice community that is responsible for and will be developing future systems of international justice; the Rwandan people (in all of their diversity) who were most affected by the atrocities associated with the genocide; and the global public interested in the beginnings of systems of international justice. Interviewees were informed multiple times that our goal was to provide widespread public access to their interviews.

*Interview Method and Structure.* Tribunal personnel from across the organization were invited to be interviewed

through email, paper notices placed throughout the building and in person. We sought to include a broad representation of roles in the Tribunal. Apart from broad representation, no other screening criteria were used. Whenever possible, each interviewee was interviewed first by an interviewer without legal expertise, to solicit dialog that would be meaningful to non-legal experts, followed by an interviewer with legal expertise who would follow up about more nuanced legal issues, court proceedings and the like.

The interviews proceeded as follows: First, interviewees were reminded not to mention any confidential information, such as anything that could jeopardize a witness or a case. Second, interviewees were asked to state their names and current role in the Tribunal. Interviewees were encouraged to explain their job role and to locate their work within the organization of the Tribunal, providing the interviewees with an initial voice and framing in the interview. Third, we asked interviewees to recount where they were when they first heard about the genocide occurring in Rwanda in 1994. Interviewees' replies here were poignant and deeply reflective. Fourth, we asked interviewees when and why they made the personal decision to participate in the ICTR. Fifth, at this point in the interview, we asked interviewees if they had any reflections, experiences or insights that they wished to share with Rwandans, with the international justice community and with global citizens now, 50, 100 years or more from now. Interviewees launched into issues, topics and insights they wished to convey. From this point forward, the interviews followed the topics and issues of import to the interviewees.

As the interviews were completed and before the team left the country, interviewees had the option to review and redact all or portions of their interviews, and seal any material they might wish until a time that they specified. In total, only one word was redacted and only two interviews contain sealed material.

*The Collection and its Release.* A total of 49 video interviews (~65 h of material; 5 terabytes of data) with a multi-national group of judges, prosecutors, defense counsel, investigators, interpreters and others were recorded. As of 28 April 2011, the entire collection of unsealed material has been released on the Internet under a Creative Commons license ([Voices from the Rwanda Tribunal website](#), 2015). The original copies are securely archived in a vault in the special collections of the University of Washington library. In addition, the online publically accessible version of the collection includes public curation tools that allow users to tag interview segments with their own terms (in Kinyarwanda, English or French) and to select clips from the full interviews to become part of the collection highlights. Both tools begin to move curation of the collection out of the hands of the project team and into those of online publics (see [Nilsen et al.](#), 2012).

## 2.6. Positioning the design team

Multi-lifespan design has within its framing the expectation that the duration of design projects will out last any given human being, so of necessity the membership on project teams will change over time. Over time, some team members may move on to other activities, some may pass away. Such is the case with our team. Several team members have moved on to other activities. In a few instances, some have returned for additional stints. One long-standing team member was lost to death. Regarding the authors for this paper, one is the project Principle Investigator and has been with the project since its inception to the present (2008–15); one was the project co-lead from the project's inception (2008) and segued from a project team role to the advisory board in 2010; and one joined the project in 2011 and overtime has come to a take up the co-lead role (2011–15).

Our team is an ever-shifting assemblage of HCI researchers and designers, legal specialists, computer engineers, computer security experts, videographers, justice scholars and archivists. While primarily from the USA, over the years the team has included members from Canada, England, Iran, Korea and New Zealand. Team members have ranged in age from the late teens to mid-eighties. We are non-Rwandans and non-Africans. We do not claim to hold or be able to represent Rwandan perspectives on the genocide. While we have an awareness of and respect for diverse justice systems from around the world, our perspective is largely Western. Our work is deeply interdisciplinary, thus our scholarly references draw on a range of traditions.

With respect to the video collection, we view our role as one of stewardship, where stewardship includes three dimensions: (i) securing and protecting the collection against tampering, data corruption and other related issues; (ii) providing widespread access to the collection for individuals in diverse circumstances and settings; and (iii) proactively supporting use and re-use of the collection. Who will be the long-term stewards of this collection remains an open question. For now, we are holding this archived collection at the University of Washington and have started conversations with universities, holding institutions and research teams in Rwanda and elsewhere.

We now turn to the heart of this paper. Specifically, we describe our design approach and report on nine design challenges we have faced since first generating this collection, throughout providing discussion of the principles that guided our work.

## 2.7. Design principles (and their evolution)

In doing this work, we recognize the tensions involved in designing information systems around materials tied to transitional justice that are entangled with processes of reconciliation in a context of widespread distrust. We further

acknowledge the diversity of experiences and information needs of people from widely varying perspectives—on what the conflict is; the causes; whether or not it is over; the role and efficacy of the Tribunal and what the next generation will need to know, care about and trust. We take steps to explicitly engage these tensions. Our project’s design principles continue to be an important tool here, that both guide and are developed through action. Others have put forward that values play a similar role (JafariNaimi *et al.*, 2015), and we do not disagree.

As noted earlier, the project came together quickly because of our understanding that the ICTR was soon to be dismantled. Thus, rather than reflecting and iterating on an initial guiding set of design principles informed by input from key stakeholders at the project’s outset (as would be ideal), through team discussion we articulated a small set of guiding principles—*Credibility*, *Impartiality* and *Legitimacy*—before we left to conduct interviews at the ICTR. Shortly after our return, we elaborated on that smaller set through a series of full day, debate-intensive workshops. The team considered many possible guiding principles and had no particular number as a goal. During hours of often-heated discussion, principles were suggested and considered. Members of the team would speak to a specific term explaining why the term was critical, or perhaps inappropriate, for the project. We did not attempt to develop shared definitions of each term; rather, we listened as our colleagues talked out their understandings of proposed terms and how those terms related (or not) to the project. Over a period of weeks, we reached consensus on the following eight words:

Access,  
Accuracy,  
Credibility,  
Impartiality,  
Legitimacy,  
Multi-lifespan,  
Respect,  
Transparency.

This set of principles was literally taken ‘on board’: posted on a large white board in the middle of our laboratory, a physical, persistent reminder of the project’s ethical commitments.

In generating this expanded set of guiding principles and with an eye toward a multi-lifespan design process, we recognized that the set would need to be flexible. That is, as the project progressed and as we engaged with increasingly diverse stakeholders, we might identify other critical principles. In addition, our current set might work well in the early phases of the project in particular contexts, however it might fail to provide useful guidance at later times or for divergent work. As a case in point, since that time, and particularly as we have gained experience utilizing the collection with research partners in Rwanda, we identified and added the further guiding principle of *Safety*.

Although the same list of words serve the project as of this writing, our current understandings of the terms are likely different from those expressed during our early discussions. As we engage with design challenges and work our way through decisions, we encounter numerous value tensions and develop policies and processes to address them. When value tensions are identified and articulated, the team engages in extensive discussions about the issues, reflecting on the principles, consulting when possible (via email, phone, video conference and in person) with Rwandan colleagues and our advisory board as well as drawing on data from our design research with a wide range of stakeholders. The advisory board is made up of experienced HCI researchers working in conflict and post-conflict situations, international justice experts, transitional justice experts and social justice experts—some of whom are Rwandan. As we work with the principles in our decision-making, we also enrich our understanding of the principles. Over time, we may discover particular interrelationships among the principles (e.g. a subset of principles may tend to reflect recurring tensions, one principle may highlight a special case or element of another); as we gain more experience applying the principles, we would anticipate systematically conducting this analysis. That said, in Table 1 we provide a brief description of each principle as situated within the project. These descriptions are neither fixed nor consensual across all project members. Rather the particular descriptions presented here represent emergent understandings of the authors’ of this article.

## 2.8. Principles into practice: nine design challenges

We suggest that among other things, it is our process of developing and putting our principles into practice over the past 8 years that is significant to other projects that in one way or another share a longer-term framing. To illuminate our process, we present nine design challenges that we engaged in the course of developing the project. To do so, we have drawn on our design records (e.g. field notes, written design rationale, sketches) and collective memories (verified by email trails) as we developed this paper. Table 2 demonstrates how multiple principles guided our responses to each of the challenges. Often, it is the case that once encountered, the challenges are on-going. Thus, it not only possible but likely that individual challenges build on and inform each other as we continue to seek refinements and opportunities to further the project and its potential impacts.

### 2.8.1. Design challenge 1: negotiating independence

Given the contested history and context surrounding the 1994 genocide including the involvement, actions and lack of actions of actors including the United Nations and persons now in powerful positions in the Rwandan government, the project principles of *Credibility*, *Impartiality* and *Legitimacy* made (and continue to make) salient the need to establish perceived

**Table 1.** Design principles and situated implementations.

Principle	Brief situated implementations
Access	The project initially identified three primary stakeholder groups (and since then, several refinements and expansions on these). For each primary stakeholder group, the principal of access refers to the ability of members of those primary stakeholder groups to materially, intellectually, linguistically and meaningfully access the content of the interview collection and to use or repurpose the interviews for their own aims, goals, purposes or intentions
Accuracy	Given the historical significance of this interview collection, the principle of accuracy refers to ensuring that the content of the interviews as recorded is preserved, translated and made available without changing the meaning of the content as expressed when it was recorded. Note: There is no claim that <i>what</i> interviewees chose to relate is or is not an accurate reflection of the truth with any sense of big ‘T’ truth
Credibility	The principle of credibility refers to the <i>actual</i> as well as <i>perceived</i> integrity of the interview collection and, correspondingly, to the integrity of the individuals and institutions who participate in managing the collection. The principle of credibility has had implications for how the collection has been secured, transcribed and translated, as well as presented to the public
Impartiality	While recognizing that a completely impartial position with respect to the conflict and transitional justice in Rwanda might not be possible, the principle of impartiality refers to policies and mechanisms that help to position the project team and interview collection as ‘arms’ distance away from the powerful political stakeholders, including the United Nations, the International Criminal Tribunal for Rwanda and the Rwandan government. Note: Early on, the project team debated between the terms ‘impartiality’ and ‘neutrality’; and eventually settled on impartiality because the term neutrality potentially conveys that a neutral position exists with respect to the conflict
Legitimacy	The principle of legitimacy refers to a sense of social consensus around judgments of being appropriate or fitting. The legitimacy principle was used to call attention to the socio-political-cultural integrity of key stakeholders
Multi-lifespan	A key premise of this project is that societal healing and rebuilding from widespread violence, such as that of the 1994 genocide in Rwanda, will likely span multiple generations. The multi-lifespan principle refers to these long(er) term considerations and positions the project to engage with and design for not only Rwandans who lived through the violence but also their children and generations not yet born. Similarly, a long(er) term view is taken with respect to engaging with and designing for the law and human rights community
Respect	As noted above, the project initially identified three primary stakeholder groups. For each primary stakeholder group, the principal of respect refers to making genuine and sustained efforts to listen and act with sensitivity to the perspectives, views and values of that stakeholder group in its complexity
Safety	The principle of safety refers to not putting at greater risk than is already present in the situation persons, institutions or others who contribute to, are mentioned within, visit, discuss or otherwise engage with the artifacts we design around the collection—be that artifact in digital (e.g. website), non-digital (e.g. curriculum, quote cards) or non-material (e.g. oral, film screening, workshops) forms. Note: The principle of safety has implications mainly for the derivative artifacts as opposed to the content of the interview collection. That is, while we are sensitive to emotional triggers and political realities in our use of the interview collection, we do not exercise <i>a posteriori</i> censorship on the interview content in the name of safety
Transparency	The principle of transparency refers to making visible the project teams’ reasoning, evidence and intuitions that lay behind key project policies, processes and practices. Transparency enables the inspection of underlying reasons, actions and processes that, in turn, can be instrumental in supporting the project principles of accuracy, credibility, impartiality and legitimacy

and actual independence from the ICTR, the United Nations and the Government of Rwanda. As such, from the outset of the project, we established the project policy not to solicit or take funds from any of those entities. We also established the project policy that none of these entities could directly specify who from the ICTR could participate in an interview, dictate

the content of interview (or ban particular topics), or review or otherwise censor content.

Consider this example concerning financial independence. At one point, we were offered translation services from the ICTR. Although we needed to translate the interviews from English and French into Kinyarwanda and the ICTR had the



**Table 2.** The nine design challenges by design principles.

Challenge	Access	Accuracy	Credibility	Impartiality	Legitimacy	Multi-lifespan	Respect	Safety	Transparency
1 Negotiating independence			•	•	•				
2 Designing for whom?						•			
3 Credibility and security	•		•			•			
4 Widespread access	•								
5 Unpacking language	•	•	•				•		
6 Speaking safely			•					•	
7 Emotional wellbeing							•	•	•
8 Redaction and censorship		•	•	•			•	•	•
9 Whose words?	•				•		•	•	•

necessary expertise, our guiding principles of *Credibility*, *Impartiality* and *Legitimacy* pointed us toward maintaining financial independence. Instead of accepting the offer, we chose to spend project funds on a private translation service. Explaining our project principles and rationale to those making the offer assisted us in declining the offer tactfully. These experiences reinforced the principles of *Credibility*, *Impartiality* and *Legitimacy*, helping us make difficult decisions.

Other experiences suggested that attending to these principles and maintaining independence benefited the project. For example, when returning to Rwanda to meet with various Rwandan NGOs and government ministries to explore their interest in and potential use of the interview collection, we were often met with reticence. Some initially assumed that we were a promotional unit from the ICTR (the relationship between the Rwandan government and the ICTR has had many rifts). However, once we confirmed our independence in person and described some of the topics discussed in the interviews, NGO staff, ministers and others would physically take the video player into their own hands and begin to show excitement for the potential of the interview content in their work (e.g. ICTR personnel acknowledging the risks of providing rape testimony).

### 2.8.2. Design challenge 2: designing for whom?

As noted earlier, when the project team initially set out to collect the interviews, the team had three primary stakeholder groups in mind: the international justice community, the Rwandan people and the global public. As we conducted design work with particular populations (e.g. international justice personnel, Rwandan justice and court personnel, Rwandan adults and youth, Rwandans in urban and rural settings, Rwandans living in the diaspora), we became more sensitive to the scope and complexity of each group. For example, the ICTR defense counsel's approach to justice may challenge the ICTR prosecutor's approach, women may react differently to the notion of 'rape as genocide' than men and so on. Such complexity imposed an important challenge to understanding, 'Who are we designing for?' The more dialog we have had with Rwandans and legal personnel, the better able we are to elicit diverse perspectives and values

within and across these communities. Over time, we extended beyond the international justice community to embrace a broader stakeholder group that includes law and human rights communities in general. We have reached out to various levels of justice systems from local prisons (e.g. Washington Corrections Center for Women) to the judiciary of Rwanda (e.g. The High Court of Rwanda) to international justice systems (e.g. ICTR). We have worked in close partnership with NGOs in post-conflict peace building such as *Never Again Rwanda* (n.d.), *Hope After Rape* (n.d.), *Healing and Rebuilding Our Communities* (n.d.), and *Global Solidarity Corporation* (n.d.) to name a few. In a similar vein, we have begun to work with Africans from across the Great Lakes region of East Africa living in the diaspora.

Moreover, our commitment to the *Multi-Lifespan* principle adds even greater complexity, as the audiences will continue to change and new perspectives emerge. What we understand now about our primary stakeholder groups may be radically different 50 years later. We found the perspectives by those who experienced the genocide may differ from those who were born after the genocide. For example, when shown a short clip on the experience of a rape victim testifying in court ('A Witness in Court', 2008), some young Rwandans living in the diaspora found the clip to be educational, conveying invaluable lessons for the future generation. Conversely, a woman, who was a victim, said the clip was misleading and traumatizing, and that nobody should ever watch the clip. Thus, a critical question emerges regarding the public curation of the collection: What should we do if some people want to make a particular clip more visible on the website, while others wish to keep the clip less visible (if not invisible)?

### 2.8.3. Design challenge 3: credibility and security

Upon returning to the USA with the interview collection in early November 2008, the first design challenge we faced was ensuring the long-term (*Multi-lifespan*) *Credibility* of the collection along with widespread *Access*. We recognized the need for policies and practices that would allow us to secure the collection (what we refer to as the authentic copies with verifiably correct digital content) in the near-term; continue to maintain and preserve the secured authentic copies against

data corruption and media migration; and provide a means to check against tampering of any publically accessible version of the collection (what we refer to as the public copies). To achieve these ends—security with widespread public access—we sought to ensure that recipients of interviews from this collection could verify that those interviews did, indeed, come from this collection. Specifically, we wanted to ensure that parties could not claim that an interview came from this collection when it in fact did not, or that an interview had not been tampered with when in fact it had been. Thus, early in 2009 we extended the approach of Haber and Kamet (2006) to develop a process utilizing the cryptographic (security) properties of hash functions.

Having created policies and processes for both securing the authentic copies and checking for tampering of public copies, our next challenge (not unique to our project) entails maintaining the integrity of the authentic copies over time. We designed and implemented an Archival Review Plan that requires (i) at a 2-year interval, the authentic copies be verified against the most recent corpus manifest and (ii) at a 5-year interval (which resets the 2-year clock), the authentic copies be verified against the most recent corpus manifest, then replicated onto new media (possibly with technology migration), with new replicas verified against the most recent corpus manifest. A further challenge that we hope to address in the coming year entails protecting against destruction in a disaster, natural or otherwise (e.g. earthquake, war).

#### 2.8.4. *Design challenge 4: widespread access*

Different from our work with the secure archives, maintaining *Access* over long(er) periods of time (*Multi-Lifespan*) requires an approach that adapts to the underlying technology as it changes even as it remains accessible to those who hold on to older technologies. In this case, the challenge entails offering the multi-lifespan content in new formats as those formats become dominant among earlier and mainstream adopters, while at the same time maintaining access to older formats for those with more limited bandwidth, software and hardware. These constraints have shaped our approach to providing video in diverse file formats (e.g. from Flash Video to MP4 and WebM), adaptable browser support (e.g. supporting older video playing technology while at the same time supporting client side interactivity with current HTML5 best practices) and overall website design (e.g. minimizing extraneous images and scripts). Moreover, extending the principle of *Access*, we sought to support appropriation, including modification and re-use of derivative works by Rwandans, the law and human rights communities and others in the context of their on-going goals, activities and organizations. As part of this effort, video and audio files downloadable from the project website have been released under a Creative Commons license.

To take steps toward making the collection accessible and re-usable to people in Rwanda, one of our primary stakeholder groups, we produced a static version of the website on DVDs

(i.e. an offline version of the collection) that can be distributed in areas with limited or intermittent internet access. In addition, we designed paper-based Quote Cards that can be distributed physically to users with little to no access to the Internet or computer technology or even electricity. The quote cards contain a photo of the interviewee, the interviewee's position at the Tribunal, a title indicating the topic of the quote (which we generated), and a verbatim quote from the interview. Each quote card is printed in Kinyarwanda on one side and in English on the flip side. One Rwandan official responded to the accessibility of the quote card with, 'My mother could understand this'. To date, we have produced quote cards for five interviewees. Over the coming year, we plan to produce a quote card for each interviewee, with attention to the messages conveyed by the set of quote cards taken together. We anticipate a number of value tensions around selecting which messages and which quotes to include.

#### 2.8.5. *Design challenge 5: unpacking language: access and respect? Who decides?*

Multiple languages used in and around the Voices from the Rwanda Tribunal collection further complicate the issue of widespread *Access*. The interviews were conducted primarily in English, one of the languages of the ICTR as well as the working language of the research team, with a small number of interviews in French. Kinyarwanda is the principle language in Rwanda. In addition, prior to 2008 Rwanda was also a French speaking country; in 2008 the Government of Rwanda changed the official language of education from French to English, beginning a shift in which English is becoming a predominant national language for education, commerce and civic life. Given this linguistic backdrop and a commitment to *Access*, the team agreed that at a minimum the interviews should be released in the language in which they were recorded (English and/or French) with subtitles in Rwanda's principle language, Kinyarwanda. That decision was straightforward. However, complications immediately arose from practical considerations—of timing and of expense. Kinyarwanda translation of the entire collection was estimated to cost ~\$200 000. The process of obtaining adequate funds, translating and subtitling might have delayed release of the collection by 1–2 years. Thus, the design challenge around the public release of the collection was recast as release now in the languages of the interviews (and provide translations over time) or release later once all the interviews had been translated into Kinyarwanda.

Deliberations on this design challenge brought into sharp relief different assumptions and interpretations of the principle of *Access*. Some team members interpreted *Access* with a focus on making the interviews readily available for the public. They contended that the collection should be released online as soon as possible in the language in which the interviews were recorded. Others interpreted *Access* in terms of ensuring the materials would be comprehensible to the intended stakeholder

groups and invoked the principle of *Respect*, particularly with regard to Rwandans. These team members contended the collection should be released only when all of the interviews were subtitled with Kinyarwanda.

Seeking parsimony, we first considered crowdsourcing the translation to Kinyarwanda. An emergent method (at that time), crowdsourcing is known to be fast and low-cost but with the downside of limited quality control: ‘Naively collecting translations by crowdsourcing the task to non-professional translators yields disfluent, low-quality results if no quality control is exercised’ (Zaidan and Callison-Burch, 2011, p. 1220). Furthermore, for less common languages such as Kinyarwanda, crowdsourcing often still lacks even the most basic ability to create comprehensible translations that preserve basic meaning. In addition, since none of the team members spoke Kinyarwanda, there was no effective way for the team to evaluate translations. Given the historically and politically sensitive nature of the interview materials, we contemplated various risks related to poor translation that could lead to negative consequences (e.g. mischaracterizing views of ICTR personnel, inciting violence). While ‘usable’ or ‘passable’ quality of crowdsourced translations may be very helpful for casual translation needs (e.g. getting the gist of the content), it is not sufficient in situations where high-quality translation is essential (e.g. literary translation, legal translation) (Hu *et al.*, 2014). Hence, although attractive in some ways, the principles of *Accuracy* and *Credibility* led us to set aside a crowdsourcing approach for the collection.

After considerable discussion concerning what constitutes *Access* and how to balance between the principles of *Access* and *Respect*, we recognized that a Western team located in the USA, even with consultation, could not make such a decision. The perspectives of those primarily affected by the decision needed to be solicited and taken into account. This precipitated in part our 2009 design research in Rwanda (reported in Nathan *et al.*, 2011). During this field research, we spoke with numerous groups and individuals across many sectors of Rwandan society—from members of the Rwandan high courts, to persons running grassroots NGOs, to Rwandan high school students—to understand their views on what should be done: release now, as is or release later, with Kinyarwanda translations. Virtually all of the Rwandans we spoke with were in agreement: release now. Many expressed the sentiment that Westerners often came and took things from Rwanda but did not give back; releasing the interviews quickly would provide them to Rwanda. Thus, we understood another interpretation of *Respect*. Granted these efforts do not fully address the important critiques of ‘fly-in’ research over the past decade (e.g. Bidwell *et al.*, 2013), however, it was a process based on our capabilities, resources and knowledge at the time.

#### 2.8.6. *Design challenge 6: speaking safely*

In post-conflict contexts, it is not uncommon for governments to restrict speech. Over time as the society moves forward,

those restrictions may change, either opening up or closing down further opportunities for speech. We began our work in Rwanda in 2009 in a climate with heavy restrictions (e.g. the 2008 Genocide Ideology Law described earlier) and strong punitive consequences for unfettered speech concerning the genocide. Moreover, we did so knowing that in the Voices from the Rwanda Tribunal collection, some interviewees shared opinions that could be viewed as violating the 2008 law.

As we reported elsewhere (Nathan *et al.*, 2011), coming from a Western perspective on technology and free speech, we discussed with Rwandan partners about the possibility of implementing an online discussion forum on a local area network for students and legal personnel in a law documentation center. Our partners, while recognizing the potential benefit of such online dialog, warned strongly against doing so because of potential risks. Specifically, if on an un-moderated forum a visitor to the center contributed content that violated the Genocide Ideology Law, the employees of the center and perhaps the center itself could be held accountable. At the same time, a moderated forum did not seem doable as we could not ensure trusted moderation, including awareness of code words that had been used pervasively during the genocide.

The question then arises: if, in the current climate and with such content, a discussion forum is not feasible at a given point in time, what other forms of speech (if any) might be possible? Drawing on the principle of *Safety* to guide our design ideation, we reflected on other types of online interaction such as early markup languages that allow modifying the presentation of content but not embedding code to change the content. This suggested to us an approach that built on our commitment not to censor what interviewees had spoken (from the principle of *Credibility*) coupled with a means to modify the presentation of that content by making some aspects of the interviews more salient on the project website. Thus, as reported elsewhere (Nilsen *et al.*, 2012), we developed online public curation tools to allow the online public to select segments from the interviews to make into clips that we would then present more visibly on the website. That is, online visitors can ‘express’ themselves, albeit in a limited way, by making selected content from the interviews more visible to others, so that what matters most to online visitors is more likely to be ‘heard’ by others. This mechanism begins to shift the power relation from the project team to the online public as curators for the collection.

#### 2.8.7. *Design challenge 7: emotional wellbeing*

Over time, harms can become less salient as memories fade, leaving space to rebuild human relationships. Throughout our work, Rwandan partners and participants often expressed the desire to focus more on positive aspects of the present and future (e.g. the beauty of Rwanda, rebuilding communities) as opposed to re-engaging or dwelling on a difficult past. In a similar vein, Smyth *et al.* (2010) report many Liberian participants in the MOSES remote truth and reconciliation project chose not to speak about the war as it brought

back ‘old wounds’ but rather to speak about current matters (e.g. the economy). Here, we observe a tension between the increasingly widespread practice of recording human activity, keeping records and reifying memory indefinitely, with what might serve people well in their processes of healing from horrific violence.

Such tensions defy easy solutions. We recognized the importance of taking into account the emotional wellbeing of individuals who access the collection: Interviews may trigger memories of this or other genocides, particularly for those who have experienced violence. Drawing on the principles of *Respect*, *Safety* and *Transparency*, we established a policy to inform users about the content of individual interviews and video clips so that users could make personal informed choices about whether or not, or when, to view such material. For example, for each interview we provide a brief summary (~80 words) of key topics. To illustrate, the full 82-min interview by Mr Adama Dieng, Registrar, is summarized as follows:

Adama Dieng discusses the challenges of establishing the “rape as genocide” jurisprudence, the importance of training defense counsel, and the need to strengthen Africa’s national courts. In his reflections on the important role played by Gacaca in Rwanda’s healing, he emphasizes the serious challenges that domestic justice has posed to witness protection, as well as the need to avoid “victor’s justice”. He stresses the importance of the presumption of innocence at the international level while advocating for compassion for detainees.

In addition, for the clips selected from each interview, if the clip directly discusses sexual violence we include that information in the title (e.g. ‘rape as genocide, Mr Karegyesa, Acting Chief of Prosecutions’). That said, we do not know to what extent and in what ways the collection may traumatize viewers. Currently, two independent reviewers—one Rwandan man, one non-Rwandan woman—are reading transcripts of the entire unsealed collection with the goal to identify sensitive material on a line-by-line basis. That review will provide a basis for understanding the types of information that could be emotional triggers and position systematic design work for the collection and interface. More broadly, our work contributes to the recent call for more research on designing information systems that may result in significant negative affect (Halbert and Nathan, 2015).

*2.8.8. Design challenge 8: redaction, sealing and censorship*  
What is censored and by whom and for what reasons can be closely tied to the perceived *Credibility* of the collection. Materials can be permanently redacted, sealed for shorter or longer periods of time, or made available to some communities in some contexts but not others.

Intuitively (that is before the project team had explicitly identified the extended set of principles) guided by the

principles of *Accuracy* in regard to content and *Safety* for those mentioned in the interviews, we instructed interviewees not to provide any confidential information and provided them with the opportunity to redact or seal any aspects of their interviews. Yet, we also drew on the principles of *Accuracy*, *Credibility* and *Impartiality* to establish the project policy that project team members would not censor what participants chose to say. This no-censorship policy applies to the archival set of interviews as well as the copy of the interviews released on a publicly accessible website. Following from this policy, the video editing to prepare the interviews for online release was limited to minimal cuts for segmenting interviews or addressing technical issues. For example, we broke long interviews (~1–2 h each) into shorter segments for easier streaming. When needed, we also made minimal edits to address technical issues (e.g. corrupted data files) as opposed to reconstructing content. Invoking the principles of *Credibility*, *Accuracy* and *Transparency*, we inserted a caption to inform viewers of such edits or missing material such as: ‘Gap in Interview (~16 s in duration). Gaps occurred due to interruptions during the interview, technical issues or corrupted data files’.

However, given the politically and ethically sensitive nature of the content, uncensored speech presents unique risks to the *Safety* of the interviewees as well. For example, an interview could be (mis)interpreted as violating the Genocide Ideology Law (e.g. denying the 1994 Genocide against the Tutsi), unprofessional (e.g. display of sentiments) or against human rights (e.g. proponent of the death penalty). It is also possible that over time interviewees may change their perspectives or feel that their interview conducted at an earlier point in their career no longer reflects their current professional understandings. What is to be done in that instance? The principle of *Respect* might suggest removing or making the interview less salient on the website; that of *Credibility* and *Legitimacy* leaving presentation of the interview on the website unchanged.

#### *2.8.9. Design challenge 9: whose words define the collection?*

Different communities may construct different meanings from the same interview clip based on interest, culture and context (e.g. Rwandans, international justice community); different individuals may do so based on different life experience (e.g. perpetrators, witnesses, survivors, those born after the genocide) and the same person might even see multiple messages within a single interview segment (e.g. treatment of witnesses, court room process). Who, then, should decide what is ‘the meaning’ for any given interview or interview segment? What is at stake with such decisions?

In Western information systems (e.g. libraries, archives, back of book indices) there is a history of experts (catalogers or indexers) who assign keywords and indexes to help others find and make sense of particular material. However, the guiding design principles of *Respect* and *Access* (for

different communities and ways of knowing) and *Legitimacy* (of different world views, interests and life experience) caused us to reconsider this approach. We did not feel that we or other expert catalogers, no matter how well intentioned, would be positioned to assign indexes to the materials in a way that would reflect the meanings ascribed by the diverse stakeholders identified at the outset of the project. Our current approach involves the development of an online public tagging tool. Visitors can tag video segments, and if they wish, they have an option to provide information identifying themselves with different communities (e.g. Rwandan, African or Non-African). Eventually, the system will identify tags that have been generated by members of certain communities rather than by specific individuals. Personal tags may become limited to a personal lexicon and may hinder creating shared language within and among communities. Furthermore, personal tags require some type of persistent identity (e.g. an account) that, even without an identifying name, would have implications for *Safety* considerations. Thus, while attractive in many ways, on balance personal tags do not seem appropriate for the collection at this point in time.

Following the principle of *Transparency*, once we receive a substantial number of tags for specific video segments, we will be positioned to display the words different communities use to characterize the same segment. The public release, representation and display of these community tags, however, need to be carried out with careful attention to implications for *Safety*. For one, we will need to establish a trusted moderation mechanism, including ways to address code words that were used pervasively during the genocide and any new code words that might emerge (cf., Design Challenge 6: Speaking Safely). In addition, given the history of genocide in which a faulty generalization of a group as a whole has led to serious hate crimes (Walters, 2011), we must be cautious in how we relate certain tags to certain communities, as that may also have substantial *Safety* implications. How to address the release, representation and display of community tags within the project remains an open design challenge.

## 2.9. Reflections on principles, policy and practice

We turn now to reflect on our experiences highlighting elements that pertain to conducting multi-lifespan information system design under shifting socio-political and technical conditions, designing information systems for transitional justice and engaging with value sensitive design. Our design reflections focus on value tensions, shifting socio-political climates and complex stakeholder analyses.

### 2.9.1. Guiding principles and value tensions

By highlighting the role of guiding principles, we draw from value sensitive design, in particular the notion of explicitly supported values. We place our particular set of guiding principles in the ongoing discourse about building technology

and systems for transitional justice. We hope that designers and researchers will borrow, appropriate and adapt our process, whether or not this particular set of guiding principles are applicable to their context. In turn, we hope they report on their work of developing principles, policies and practices.

Guiding principles provide one conceptual tool both to evoke and resolve value tensions throughout a design process. Principles can be used as a tool to recognize design constraints and justify a new policy or practice. For example, Design Challenges 6–8 illustrate how the principle of *Safety* committed us to look hard at the meaning of speaking safely in a context of widespread distrust, which, in turn, structured some of our innovation (e.g. online public curation tools, Design Challenge 6). At the same time, principles can be used as a tool to monitor, evaluate, and, as appropriate, resist common policies and practices such as funding sources (e.g. Design Challenge 1), design conventions (e.g. online discussion forums, Design Challenge 6) and popular technology practices (e.g. crowdsourcing, Design Challenge 5; personal tagging, Design Challenge 9).

Divergent views would often foreground value tensions that, in turn, helped us to examine a situation closely. We engaged with value tensions in a variety of ways: Sometimes we sought advice, for example, from our advisory board (e.g. Design Challenge 5). Other times we created openings by introducing novel interactions and technology (e.g. Design Challenge 6). In such ways, design can present an innovative solution to ethical dilemmas (Van den Hoven, 2007). Still, at other times, we simply waited. The multi-lifespan design framing allowed us to resist making hasty decisions and taking action in situations when we were uncertain how to proceed. Over time, the context shifted and tensions either were resolved or we were better positioned to address them.

### 2.9.2. Influences of working in a politicized environment

Project policies and practices are closely interwoven with the shifting political climate. We have been alert to the domestic policy change in Rwanda (e.g. the Genocide Ideology Law, the Media Law), institutional policy changes in the United Nations (e.g. winding down of the ICTR and establishment of the Mechanism for International Criminal Tribunals), international policy change in the international justice community (e.g. tension between the African Union and the International Criminal Court) and so forth. We also need to understand the social implications of that landscape—that is, how does a policy or law or regulation impact people's everyday life. As part of this effort, we continued to visit Rwanda in 2008, 2009, 2012, 2014 and 2015. We developed Multi-Generational Workshops aimed at eliciting changing perspectives, visions and values over time and across generations (Yoo *et al.*, 2013).

In our work, we are also particularly aware of shifting political landscapes and implications for safety. Utterances in one political landscape that allows for greater freedom of expression may be unsafe in another political landscape.

Moreover, political landscapes may change over time, at one point allowing for more limited expression, at another point more expansive expression and then again for more limited expression. It remains an open question how to design multi-lifespan information systems to tread responsively through these changing landscapes.

### 2.9.3. *Designing for publics*

Early on we identified the general public as one of our primary stakeholder groups. We did so because (a) the content material—genocide and international justice mechanisms—concerns humankind and (b) we promised widespread public access to the collection.

Recently in HCI, several designers and researchers have begun a conversation around designing for publics, as opposed to the traditional notion of designing for targeted individuals or groups of users. Lindtner *et al.* (2011) and DiSalvo *et al.* (2014) each suggest a useful, albeit different, lens for thinking about publics. Drawing from media and cultural theory, Lindtner *et al.* (2011) constructed a framework of emergent publics around social computing and user-generated content. Employing this ‘media’ lens, we can identify a set of publics around the use of the collection’s public curation tools (e.g. tags, clips and other derivative work) as follows: legal personnel, human rights activists, educators, students, artists, filmmakers, journalists and so on. Each category can be further specified. In contrast, DiSalvo *et al.* (2014) draw on political theory to focus on emergent publics around contentious political issues. Employing this ‘political’ lens, we can identify a different set of publics around the content of the 1994 genocide and transitional justice mechanisms as follows: Rwandans, the Government of Rwanda, the United Nations, the ICTR and so on. Similar to the guiding principles, our analysis of publics is open-ended and has undergone (and will undergo) many modifications over time, particularly in light of the multi-lifespan design framing, extending traditional stakeholder analysis and consideration of publics to include (imagined) future generations.

## 3. CONCLUSION

Through this submission we:

- (i) Model the type of reflective scholarship that can inform and enrich longer-term research projects.
- (ii) Report on the first 8 years of a multi-lifespan design project—the Voices from the Rwanda Tribunal.
- (iii) Address the problem of designing an information system pertaining to long-term processes and outcomes of transitional justice systems.
- (iv) Review related information systems for transitional justice, the Rwandan context and our prior work.
- (v) Describe our design approach, including a systematic presentation of the project’s guiding design principles.

- (vi) Explicate the development of those guiding design principles through our engagement with a set of nine design challenges.
- (vii) Demonstrate how guiding principles can provide one conceptual tool both to evoke and resolve value tensions throughout a design process.
- (viii) Demonstrate the roles political and social change, shifting perspectives and time (including pause) play in longer-term design processes.
- (ix) Demonstrate how well-designed systems have the potential to make information more accessible and comprehensible to the people who confront injustice, now and well into the future.

Yet, open questions remain. When and how frequently should we revisit earlier design decisions? Value tensions rarely reach ‘closure’; disputes that appear settled may arise again as opportunities emerge (e.g. new funding, new technologies), political and social conditions change, or the team’s capacities and abilities shift. We need more and better methods for complex stakeholder analyses that can cover a wide range of current publics as well as future generations. Over time, composition of the design team will bring new perspectives to the project. How can we support the various types of migration? Representations and mechanisms are needed to pass along and adjust the principles, policy and adaptive processes from one generation of designers and researchers to the next. Moreover, when (if ever) is the right time for the next steward to take over? To whom should we (or should we not) pass the baton of stewardship? These questions lay out critical ethical considerations for future work.

## ACKNOWLEDGEMENTS

We thank the ICTR personnel and the people of Rwanda for their participation in and contributions to this on-going work. We also recognize and deeply appreciate the contribution and support of past and continuing Voices from the Rwanda Tribunal team members, volunteers and our Advisory Board.

## FUNDING

This material is based upon work supported by the National Science Foundation under grant nos. IIS-1302709, IIS-1143966 and IIS-0849270 as well as gifts from the University of Washington, UW Foundation, Seattle University School of Law and private individuals.

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