Digital Peacebuilding: A Framework for Critical–Reflexive Engagement

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Abstract: Existing research on digital technologies in peacebuilding exhibits both tech-solutionist and tech-problematizing traits that tend to understate their embeddedness in society and politics. We argue that the study of digital peacebuilding should instead reflexively engage with the coproduction of the technical and the social in both academia and practice. This requires asking how assumptions about technology are related to assumptions about the conflict and peacebuilding context on which these technologies are brought to bear, and with what consequences. Therefore, we propose a methodological framework that brings to the fore how *technologies for peacebuilding* and *peacebuilding with technology* are coproduced. First, we focus on the interrelated *claims* about peacebuilding and technology, and the coproduction of peacebuilding problems and technological solutions. Second, we inquire into the characteristics of the digital peacebuilding *agendas* built on these claims, including the dynamics of disruptive change and datafication that these agendas bring. Third, we consider the sticky *effects* of digital approaches, in terms of a politicization or depoliticization of peacebuilding efforts, and ask what kind of peace this may produce.

Resumen: La investigación existente sobre las tecnologías digitales en la consolidación de la paz presenta rasgos tanto de solución tecnológica como de problematización tecnológica que tienden a subestimar su implantación en la sociedad y en la política. Sostenemos que el estudio de la consolidación de la paz digital debería, por el contrario, involucrarse de forma reflexiva en la coproducción de los aspectos técnicos y sociales tanto en el ámbito académico como en la práctica. Para ello es necesario preguntarnos cómo se relacionan las suposiciones sobre la tecnología con las suposiciones sobre el conflicto y el contexto de consolidación de la paz en el que se aplican estas tecnologías, y con qué consecuencias. En este sentido, proponemos un marco metodológico que pone de manifiesto cómo se coproducen las tecnologías para la consolidación de la paz y para la consolidación de la paz mediante la tecnología. En primer lugar, nos centramos en las afirmaciones interrelacionadas sobre la consolidación de la paz y la tecnología, y en la coproducción de problemas de consolidación de la paz y soluciones tecnológicas. En segundo lugar, indagamos en las características de las agendas digitales de consolidación de la paz basadas en estas afirmaciones, incluyendo la dinámica de cambio disruptivo y la dataficación que conllevan estas agendas. En tercer lugar, examinamos los efectos de los enfoques digitales, en términos de politización o

despolitización de los esfuerzos de consolidación de la paz, y nos preguntamos qué tipo de paz se puede producir.

Résumé: La recherche existante sur les technologies numériques dans le processus de consolidation de la paix présente à la fois des caractéristiques d'apport de solutions et de problématisation technologiques. Celles-ci ont tendance à minimiser leur intégration dans la société et la politique. Selon nous, l'étude de la consolidation numérique de la paix devrait plutôt aborder de manière réfléchie la coproduction des aspects techniques et sociaux, tant en recherche qu'en pratique. Pour ce faire, il est nécessaire de s'interroger sur les liens entre les suppositions sur la technologie et celles sur le conflit et le contexte de consolidation de la paix dans lequel ces technologies interviennent, ainsi que sur leurs conséquences. Nous proposons donc un cadre méthodologique qui met en avant les processus de coproduction des technologies de consolidation de la paix et de la consolidation de la paix à l'aide de la technologie. D'abord, nous nous intéressons aux affirmations interreliées concernant la consolidation de la paix et la technologie, mais aussi à la coproduction des problèmes de consolidation de la paix et des solutions technologiques. Ensuite, nous nous interrogeons sur les caractéristiques des programmes de consolidation numérique de la paix qui se fondent sur ces affirmations, y compris les dynamiques d'innovation et de datafication induites par ces programmes. Enfin, nous étudions les effets persistants des approches numériques, en termes de politisation ou de dépolitisation des efforts de consolidation de la paix, pour nous interroger sur le type de paix qui en résulterait.

Keywords: peacebuilding, digital technology, power, reflexivity, hate speech

Palabras clave: consolidación de la paz, tecnología digital, poder, reflexividad, discurso del odio

Mots clés: consolidation de la paix, technologie numérique, pouvoir, réflexivité, discours de haine

Introduction

Efforts to end violent conflict and build peace have become increasingly digitized. Today, most organizations with peacebuilding and conflict prevention mandates rely in one way or another on digital information and communication technologies (ICTs). These technologies, which range from broadly used video conferencing and social media platforms to highly specialized tools that draw on Big Data, machine learning, virtual reality, or blockchain, enable new peacebuilding approaches through the digital collection, analysis, and transmission of data (Schirch 2020). Unsurprisingly, the practice- and policy-driven interest in the utility of digital technologies is commonly underpinned by a tech-solutionist attitude that portrays technological innovation as a remedy for armed conflict. Academics at times join the chorus of those who celebrate technology as a solution for conflict and a means of building peace, but they also problematize the role of technology in armed conflict and peacebuilding. This notwithstanding, few scholars would object to the premise that the conflicts those digital technologies ought to prevent, mitigate, or resolve have inter alia political, historical, economic, and cultural dimensions.

We argue in this article that the study of digital peacebuilding should reflexively engage with the coproduction of the technical and the social in both academia and practice. This requires shedding light not only on claims about technology, but

just as much on the assumptions about the social and political context in which these technologies are brought to bear. We find that existing research on digital technologies in peacebuilding has both optimistic "tech-solutionist" *and* pessimistic "tech-problematizing" traits that tend to emphasize certain advantages or disadvantages of technology, in close correspondence with implicit or explicit assumptions about politics and society. However, as Patrick Jackson (2011, 30) argues, research that is guided by strong theoretical predispositions tends to retreat behind particular scientific ontologies, which risks that the "partisans of each worldview simply reassert their central postulates and go on reading the world in their own way." We find a comparable pattern in the research on digital technologies in peacebuilding and demonstrate that this creates a heterogeneous field with often disjunct perspectives. Yet, they commonly tend to reduce technology to a "pawn" in the larger "game" of peacebuilding that is seemingly dominated by other factors, and thus understate technology's co-constitutive role in peacebuilding.

In contrast, our article points to the merits of engaging with the coproduction of the technical (technologies for peacebuilding) and the social (peacebuilding with technology). We argue that the study of digital peacebuilding can benefit from a reflexive inclination that is curious about how theoretical assumptions shape ontology yet stop short of employing these assumptions to delimit the scope of inquiry. Rather than championing or criticizing one particular approach to digital peacebuilding based on established theories, we outline and explore a research perspective that sheds light on how claims about peace and conflict co-emerge with claims about technology, and how this shapes peacebuilding agendas and outcomes.

We build our argument on an understanding of the concepts of digital technology and peacebuilding that maintains a curious openness about the practical interactions that take place *behind* and *between* these concepts. Defined narrowly, digital technologies rely on the use of software and hardware that operate through the computational processing of digits (Salmons and Lynn 2008, 221). However, when studying digital technologies in peacebuilding, it is analytically more fruitful to move beyond this narrow definition toward a focus on the relationships between humans and technologies. Therefore, in line with broad sections of the science and technology studies (STS) community, we shed light on technologies as "socio-technical systems," rather than mere digital "tools" (Hoijtink and Leese 2019b). In doing so, we emphasize the social embeddedness of technology (Sassen 2002), the distribution of agency between humans and machines (Passoth, Peuker, and Schillmeier 2012), and their interdependent role in coproducing peacebuilding problems and solutions (Jacobsen and Monsees 2019). Thus, our article speaks to a broader concern with how digitalization and technology shape the practices that make up international relations, and vice versa.

Since the end of the Cold War, the term "peacebuilding" has been understood in a variety of ways, but commonly associated with external interventions in support of domestic processes aimed at preventing the occurrence or reoccurrence of armed conflict (Barnett et al. 2007). Today, peacebuilding contains a broad range of measures, including peacekeeping, strengthening public security, promoting the state's monopoly on violence, as well as support to political processes and governance, socioeconomic development, and societal conflict transformation through truth, reconciliation, and justice efforts (Mross, Fiedler, and Grävingholt 2022). Scholars also emphasize the need to pay attention not only to external or international, but also to "local" actors and their approaches, yet these are often difficult to disentangle from the agency exercised by "external" or "international" actors (Hirblinger and Simons 2015). Furthermore, the digitalization of peacebuilding has led to the emergence of many new actors, such as "PeaceTech" labs, which complement the work of conventional international or local peacebuilding organizations. To avoid getting lost in definitions, we aim to develop a research perspective that lends itself for the study of the practices of all such actors that describe themselves as a peacebuilding

organization, as having a peacebuilding mandate, or referring to their work as contributing to peace and the prevention of armed conflict. Rather than forcing us to define what peacebuilding is and what is not, this approach enables us to maintain a critical distance to the truth claims that underpin digital peacebuilding organizations and their approaches.

Bringing digital technology and peacebuilding together, the article suggests studying digital peacebuilding as such practices carried out in sociotechnical systems that rely on the processing of digital information with the aim of preventing armed conflict. We acknowledge that this broad definition includes both specialized applications utilized by expert users, such as machine learning–powered data analysis software, and more broadly used and often ubiquitous technologies, such as social media and messenger applications. Arguably, our approach also renders most peacebuilding practices as part of *some* sociotechnical system. Yet, it also helps to avoid a fetishization or overemphasis on specific trending technologies and to put the focus broadly on how peacebuilding actors utilize specific digital applications or methods against the backdrop of certain assumptions about peace and conflict.

The article starts with a discussion of existing research of digital technologies in peacebuilding, highlighting how scholars often produce either tech-solutionist or tech-problematizing accounts in correspondence with theoretical assumptions about peace and conflict, and notions of what "good" or "right" peacebuilding entails. We then outline a research framework for the critical–reflexive study of digital peacebuilding, which brings to the fore how technologies for peacebuilding and peacebuilding with technology are coproduced. Drawing on efforts to counter hate speech as an illustrative example, we first focus on the interrelated claims about peacebuilding and technology, and the coproduction of peacebuilding problems and technological solutions. We then explore how we can ask about the characteristics of digital peacebuilding agendas that emerge from such claims. Finally, we suggest investigating the effects of digital peacebuilding by studying its potential for politicization and the types of peace it might produce.

Digital Peacebuilding Research: Moving beyond Janus?

The etymology of technology suggests a concern with how specific arts or crafts are studied or used in a systematic manner, and thus diverges considerably from today's popular understanding of technology as a thing or material practice.[1] Adding to these definitional quagmires, references to technology in peacebuilding are not any less ambiguous.[2] Terms such as "ICT4Peace" (Stauffacher et al. 2005, 2011) and, more recently, "PeaceTech" (Dajer 2018) used in policy and practice, and incorporated into the names of leading organizations and initiatives in the field, suggest that technology should or can play a particular role in making, keeping, or building peace. However, rather than analytical categories for scholarly research that clearly define what is meant by technology and what it does, these terms are the result of self-labeling practices by practice and policy initiatives that aim to promote or regulate the use of a heterogeneous set of technologies for an often likewise heterogeneous set of objectives. Due to constant innovation, the field also seems caught in a state of liminality (Firchow et al. 2017), which makes it difficult to capture digital technologies as an object of peacebuilding research in any comprehensive or conclusive manner.

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[1] Technology stems from the Greek term tekhnologia (systematic treatment), a compound of two terms, namely techne (denoting art, skill, or craft) and logia/logos (denoting language and reason) (Soanes and Stevenson 2005; Schatzberg 2018, 8, 75).

[2] Establishing a comprehensive overview of all technological applications in peacebuilding seems beyond the scope of this paper. However, see, for instance, Schirch (2020a), who identifies twenty-five spheres of digital peacebuilding and eleven types of digital technology.

Nonetheless, from a bird's-eye perspective, we observe certain patterns in how scholars tend to approach digital technologies. Most research somewhat contributes to the overall view that, while technologies have a potential for peacebuilding, they also tend to play a considerable role in the perpetuation of conflict and may negatively affect peacebuilding efforts. This is well expressed through references to the "Janus-faced," "double-edged," or "dual-use" nature of technology (see, for instance, Tellidis and Kappler 2016; Dajer 2018; Richmond and Tellidis 2020). Reflexive engagement with the dual use of technologies, not only as conventionally understood in terms of the pursuit of both civilian and military purposes (Riebe and Reuter 2019), but also for the pursuit of "good" and "bad" peacebuilding, requires shedding light on the social practices that tilt the verdict on the impact of technology in one way or another. This is because the duality of technology emerges not only when practitioners, experts, and academics take part in the design and use of technologies, but also in the assessment of their impacts—practices that all connect the social and the technical. As we demonstrate through an illustrative overview of existing research, the notion of Janus-faced technology is produced by "tech-solutionist" and "tech-problematizing" stances that are compatible with the scholar's research interests and agendas, often grounded in assumptions about peacebuilding that are not primarily concerned with the technical domain.

Between Solving Problems and Problematizing Solutions

Arguably, one of the most tech-solutionist explorations of technologies for peacebuilding is conflict early warning, where the potential of "new" technologies to prevent the occurrence or recurrence of armed conflict has been explored and tested for more than three decades (Rupesinghe and Kuroda 1992), based on a scientific interest in predicting armed conflict and war (O'Brien 2002). This area of application, which has developed in proximity with traditionally more technology-focused security and intelligence fields, conducts research on computer-driven methods that help gather and analyze data to infer a country's risk of violent conflict. Importantly, the idea that technology could contribute to predicting conflict has evolved in close to a vision of international security governance that viewed the establishment of early warning systems as a part of larger international efforts to promote peace based on institutionalized rules and procedures (Engel and Porto 2009). However, much of the discussion in this field has focused on the limits of early warning technologies related to the political and institutional environment in which they are embedded. Piiparinen (2007, 358), for instance, argued that "early warning is always influenced and inhibited by bureaucratic calculations", and Wulf and Debiel (2010, 525) claimed that early warning systems are curtailed by "systemic disconnects" that are due to "weaknesses" and "political disagreements" within organizations. Meyer pointed to an "early warning–early response gap" (Meyer et al. 2010), thus bringing attention to the political barriers that may reduce the efficiency of sociotechnical systems aimed at early warning.

A second field in which technology is commonly viewed from a solutionist angle is peacekeeping, which relies on a broad range of military equipment, stretching from armored vehicles and helicopters to satellite phones and photo cameras. While the use of such standard operational equipment seems to be of little interest, research has focused on particular innovations, such as those related to big data analytics and remote sensing technologies, to strengthen situational awareness and carry out surveillance and reconnaissance missions (Karlsrud and Rosén 2013; Karlsrud 2014). Such research contributions are predominantly characterized by a pragmatic concern with how to increase the capacity of United Nations (UN) missions to implement their mandate. Consequently, research in this field has often been predisposed to operational concerns, including the challenges of analyzing large amounts of social media data (Karlsrud 2014) or the difficulties of generating

predictive analysis through machine learning tools and linking these to operational decision-making (Duursma and Karlsrud 2019). For example, in discussing the potential of geospatial technologies to enhance peacekeeping mandates, Convergne and Snyder (2015) point to various challenges of an "operational and political nature", such as the limited availability and quality of satellite data, the management of information flows, or resistance from UN member states.

More critical voices have also argued that while technologies are increasingly used for data collection and analysis, their outputs often remain unused. For instance, Read, Taithe, and Mac Ginty (2016, 1314), focusing on humanitarian and peacebuilding applications, claim that the use of technology has led to a "data hubris" because "the enthusiasm for the data is vastly outstripped by the capacity to meaningfully analyse it." At the same time, they highlight that the use of data technology risks enabling superficial local participation, where the focus is on data extraction, but little is done to enable local populations to use the data (and technologies). This trend is rooted in what the authors describe as the "technocratic turn," which accelerated the collection of data for the management and evaluation of projects. This particular concern with technocracy's role in shaping peacebuilding approaches has been voiced earlier by Mac Ginty (2012), who claimed that technocracy favors "generic," "western" expertise, which places Global South actors at the "receiving end" rather than into an active role, and "objectifies" locals through the increasing use of technology.

Against the backdrop of a disillusionment with the use of technologies by large international organizations and bureaucracies, a further strand of research has engaged with how participatory peacebuilding can be supported by ubiquitous technologies, such as mobile phone–based messaging platforms and social media. This includes optimistic reflections on the role of social media in enabling political mobilization and supporting change processes, particularly in the wake of the Arab Spring (Boulianne 2015). For instance, Kahl and Larrauri (2013, 2) point to opportunities of "participation" and "empowerment" that arise when citizens use new technologies to "engage and connect at the local level to mitigate conflict." Technology has also commonly been viewed as a catalyst for social and political change processes, opening political spaces or enabling accountable and transparent governance (Welch, Halford, and Weal 2015). Such claims demonstrate what Gaskell et al. (2016, 2) have called the "positive bias" among many practitioners and policymakers "in favour of the transformative potential of ICTs." Thus, these tech-solutionist stances view technology as an enabler of political transitions toward democratic systems, based on broader assumptions about the core aspects or principles of democratic governance, such as participation, transparency, or legitimacy.

Interestingly, tech-solutionist tendencies can also be found among scholars who are usually more strongly associated with the critical "post-liberal" and "hybrid peace" debates. For instance, Tellidis and Kappler (2016) aim to understand if technologies can empower marginalized actors, increase their representation in peace processes, and enable more locally owned peacebuilding. Taking as their theoretical starting point the critique of "liberal peacebuilding," the authors tend to split their discussion into how technology enables either "top-down" or "bottom-up" approaches, the former commonly associated with international actors and the latter with local actors (see also Tellidis 2020). As such, in problematizing technology, the authors' exploration of power relations between peacebuilding actors mirrors the binaries of the post-liberal peacebuilding debate. Consequently, technology appears as a mere extension (or attachment) to existing practices, with limited agency in influencing peacebuilding dynamics. This is most evident in claims such as "one must guard against the fact that ICTs are the panacea for the maladies of peacebuilding" (Tellidis and Kappler 2016, 82) or that "ICTs have (…) a lesser determining role than commonly expected" (Tellidis and Kappler 2016, 87).

Further venturing into critique, some scholars have focused on the role of technology in international intervention broadly speaking, particularly showing concern with the effects of neoliberalism or late liberal governance and its emerging principles. Particularly, Mark Duffield (2016, 147) has warned that the use of digital technology for conflict resolution and humanitarian action enables new forms of remote governance aimed at producing forms of resilience that will "lock in" the "negativities of actually existing capitalism," through "experimental systems of welfare abandonment" that operate in a context of pervasive surveillance. Duffield claims that increased connectivity has led to a "cybernetic rationality," which reproduces social and economic inequalities through techniques of remote governance that enable new forms of "survivalism" and a "making do" approach to dealing with conflict and crisis. In examining the effects of digital humanitarianism in places such as Syria, Duffield (2016, 147) looks critically at how technology reduces the need for direct engagement and exchange and thus leads to forms of humanitarianism without "terrestrial" presence.

Comparably, Richmond and Tellidis (2020, 940–43) argue that "digital governmentality," operating through a combination of "surveillance capitalism" and "older power structures," vested in the nation state and capitalism will reproduce preexisting imbalances of power. The authors observe a "shift" from "analogue" to "digital" versions of peace in international relations and are guided by an interest in how digital approaches may enhance "critical agency" across networks and scales. In line with their theoretical grounding in postcolonial theory and the study of neoliberal governmentality, they conclude that digital peacebuilding risks leading only to cosmetic changes in the international system, for instance, because potentially emancipatory technologies such as crowdsourcing become co-opted. The authors also flag the risk that critical efforts are curtailed by authoritarian attempts to use digital infrastructures to gain stronger control over conflict-affected populations, inter alia through digital surveillance, censorship, and internet blackouts. As they argue, the trend toward digital peacebuilding, however, rests on "apolitical engagements that do not do justice to subaltern political claims for peace with rights, justice, and sustainability" (Richmond and Tellidis 2020, 946).

More Than a Pawn? Recognizing the Social Embeddedness of Technology

The above discussion of the emerging field of research on digital technologies in peacebuilding does not claim to be comprehensive. However, it demonstrates the social embeddedness of technology—both in the realm of practical application and in the realm of knowledge production. However, rather than making the sociotechnical an explicit focus of research, we find that the assumptions that inform tech-solutionist or tech-problematizing accounts often remain unacknowledged. These assumptions often focus on particular aspects of international governance, political systems, and economic markets variously composed of, for instance, international bureaucracies, oppressive governments, protest movements, and Big Tech companies that use the same "tools" for different purposes. Moreover, research on digital peacebuilding also seems to be guided by ontologies and related theoretical frameworks that circumscribe the field of relevant research concerns, such as with their role in enabling effective governance, democratization, participation, "bottom-up" versus "top-down" peacebuilding, technocracy, or neoliberalism.

Moreover, research on digital peacebuilding is also commonly colored by theoretical assumptions not only about what constitutes "peacebuilding" but also what forms of peacebuilding are desirable. Of course, normative struggles over the "right" peacebuilding approach have a long history in both the research and the practice of peacebuilding (Lemay-Hébert and Kappler 2016; Donais and McCandless 2017; Jütersonke et al. 2021), and particularly critical approaches do not shy away from taking particular theoretical angles that take normative stances.

Given the liminal and Janus-faced character of technology, it is easy to make arguments for how technology contributes to either *this* or *that* without properly accounting for what made the difference. In consequence, technology is commonly viewed as a mere *tool* of peacebuilding efforts. Put differently, it is perceived and studied comparable to a pawn in a chess game, subject to the agency of human actors and their organizations or projects that define and implement peacebuilding approaches, and as having a minor role in determining dynamics and outcomes of peacebuilding.

However, technology does have agency in international relations, as recent research suggests (Hoijtink and Leese 2019b). Therefore, greater efforts should be spent on understanding how technology generates effects on conflict-affected societies, not in isolation or submission to, but in conjunction with particular governance and political agendas. Our discussion above hints to the social embeddedness of technology, and the need to reflexively engage with assumptions about the dual use of technology in our effort to understand the dynamics and outcomes of digital peacebuilding. We approach this challenge by building on reflections on the social embeddedness of technology by Saskia Sassen (2002) and further developed in ulterior empirical and conceptual work (Volkoff, Strong, and Elmes 2007; Boeri 2015; Marres 2017; Timcke 2021). Sassen (2002, 365) notes the "complex interactions between the digital and material world," where society and culture are shaped by and mediate technology, with the potential to shift the nature and scale of social orders.[3] In her words, a "purely technological reading of technical capabilities inevitably neutralizes or renders invisible the material conditions and practices, place-boundedness, and thick social environments within and through which these technologies operate" (Sassen 2002, 366.) The sociological aspects of technology have recently been explored by international relations scholars concerned, for instance, with digital diplomacy (Eggeling and Adler-Nissen 2021; Hedling and Bremberg 2021; Adler-Nissen and Eggeling 2022) or digital multilateralism (Vadrot and Ruiz Rodríguez 2022). This emerging body of work points to the necessity and benefits of investigating the mutual relationship between social practices and digital technologies in efforts to make sense of how digitalization affects global politics and international affairs. Yet, research on peacebuilding currently lacks a methodological framework that can systematically shed light on the social embeddedness of technology in efforts to prevent, resolve, or transform conflict. The remainder of this article will aim to fill this gap.

A Critical–Reflexive Framework for Engaging with Digital Peacebuilding

As we outline above, existing research displays a variety of stances about the role of technology in peacebuilding, ranging from problematizing to tech-solutionist, and underpinned by various theoretical and normative assumptions about what peacebuilding entails. This renders a more comprehensive discussion of the dynamics and effects of digital peacebuilding difficult. In the following, we aim to connect these seemingly disparate perspectives, by bringing to the fore the theoretical and normative underpinnings that shape both the research and the practice of digital peacebuilding. Our aim is not to assert a homogenizing view on digital peacebuilding, but to offer a methodological approach that is more unifying, comprehensive, and reflexive.

To study the social embeddedness of technologies for peacebuilding, we suggest asking more systematically about how competing interests and divergent motives, stemming from research, policy, and practice, relate to different

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[3]This embeddedness is also reflected in literatures emphasizing the coproduction and co-construction of technology and society where technological change both creates and is impacted by social and political change (e.g., Jasanoff 2004a; Harbers 2005; Boeri 2015).

understandings of what technology is and what it does in peacebuilding. Studying these dynamics within sociotechnical systems requires that, as researchers, we do not advocate for particular theoretical claims that aim to capture the causal relations between technology and society. Instead, we propose a methodology that helps to pursue a reflexive engagement with the many possible claims. Critical reflexivity, as a meta-theoretical stance, converges the commitment of critical theory to produce a "perspective on perspectives" and the commitment of critical constructivism to shed light on the impacts of the social construction of knowledge and reality, by suggesting to study the coproduction of fact and value claims, as well as the agendas, paradigms, and effects they produce (Neufeld 1993; Hamati-Ataya 2013). To be clear, this does not mean that our research is free, or independent, from theory. A reflexive approach to the study of digital peacebuilding does not advance Cartesian-style theories that aim to make generalizations about a world independent from human thought and perception. However, it rests on a metatheoretical foundation that presupposes that practices of knowledge production are closely entwined with the world that we study, which warrants their status as the primary object of research (Jackson 2011, 157). We as researchers do not stand outside or above the dynamics that we study but take part in a reflexive discourse that contributes to a "meaningful understanding of how knowledge-producers are located in, affected by and productive of international structures and relations of power" (Hamati-Ataya 2013, 682).

In the study of technology, such a stance is mirrored in Sheila Jasanoff's concept of coproduction. The concept was originally used to demonstrate that science does not produce objective "facts" about the world, but that the production of knowledge is intricately linked to the production of notions of how the world ought to be. As Jasanoff (2004b, 2) puts it, coproduction is a "shorthand for the proposition that the ways in which we know and represent the world (…) are inseparable from the ways in which we choose to live in it." As Jasanoff and Simmet (2017, 754) put it elsewhere, "seeing the world in a particular way (how things are) gets coupled to commitments to particular norms and values (how things ought to be)." Thus, to ask about coproduction means to ask about how our views on the world (including on technology) coalesce with how we want the world to be. It is therefore unsurprising that in digital peacebuilding, fact and value claims about technology and society become intertwined. A reflexive approach to the study of sociotechnical systems can shed light on these dynamics, in which claims about the good, the bad and the real become irreducibly intertwined (compare to Law 2009, 155), including by accounting for the involvement of science, academia, and expertise in the practices of knowledge production that underpin digital peacebuilding.

Building on Jasanoff's work, Katja Lindskov Jacobsen and Linda Monsees (2019, 26–27) suggest a narrower reading of coproduction for the study of technology that more explicitly focuses on the production *of* technology by society and the production of society *by* technology. Building on this double perspective, we ask how technologies for peacebuilding and peacebuilding with technology are coproduced. More concretely, we propose to shed light on three interrelated dimensions: (1) *claims* about technology and the problems it aims to solve; (2) the technology *agendas* that arise from such claims; and (3) the technology *effects* that emerge—all which contribute to, and are influenced by, power relations in digital peacebuilding. We consider that these three dimensions can be studied separately, yet they are related. From the construction of problems and solutions (*claims*), digital peacebuilding programs, projects, and practices emerge (*agendas*), and these have broader, enduring, and sticky outcomes (*effects*). This assumes that digital technologies, if thought of as tools or machines, are both embedded within existing power relations and can shape these relations, as they are designed, developed, used, and maintained by humans. The remainder of this section discusses these three principal steps in greater detail, makes suggestions for how they can be operationalized, and

demonstrates their merits for empirical research, focusing on efforts to counter dangerous speech on social media as a practical field of digital peacebuilding.

Claims: Blind Spots in the Co-Construction of Problems and Solutions

We suggest to first consider how different actors make and construct *claims* about problems in conflict-affected contexts (usually pertaining to the conflict itself, or aspects of it) and the solutions requiring digital technologies that are proposed to address these problems (usually as part of digital peacebuilding efforts). Today, new technology is commonly framed as a solution for nearly every conceivable social problem. The concept of tech-solutionism, associated with Morozov (2013) and later developed and expanded by others, suggests that the reliance on technology to solve problems "poses new challenges that are often overlooked if we have acritical faith in it" (Martins, Lavallée, and Silkoset 2021, 605; see also Miklian and Hoelscher 2018; Johnston 2020; Stilgoe 2020). Research in fields adjacent to peacebuilding, such as critical security studies, shows that our understanding of the nature of a problem at stake will have fundamental implications for the solution that is developed, yet this understanding of the problem is also affected by the solutions already at hand (Martins and Jumbert 2022). These dynamics can have powerful effects. For instance, in reflecting on the effects of the "digital turn" in fighting sexualized violence, Kristin Bergtora Sandvik and Kjersti Lohne (2020) draw attention to how the framing of problems and solutions creates particular benefits and burdens that are unevenly distributed among technology users and targets of technology-enabled interventions. Our own illustrative analysis of efforts to counter hate speech points to how digital peacebuilding may generate blind spots about the nontechnical dimensions of conflict.

We first suggest asking how digital peacebuilding practices co-construct problems and solutions on a discursive level. This requires shedding light on how digital peacebuilding produces or alters understandings of conflict, how these correspond to assumptions about an adequate peacebuilding response, and what purpose is attributed to technology in this response. There are two interrelated operating logics that merit our attention: the first one dealing with the formulation of the problem and the second dealing with the formulation of the solution. However, the relationship between the two requires further scrutiny. Conventionally, we would assume that solutions follow problems, that is, that technologies are specifically constructed to respond to particular challenges that emerge in the context of peacebuilding efforts. Yet, many technologies employed in peacebuilding are not developed from scratch but are either delivered "off-the-shelf" or slightly adapted and redesigned before their deployment. Therefore, for a technology to be "the solution," the "problem" needs to be understood as something that can be fixed by the very technology. There is thus a risk that, as highlighted by Jack Stilgoe (2020, 22), "in making social problems amenable to engineering solutions, the problems are changed in ways that suit innovators." That said, we should explore how problematizations of conflict take place against the backdrop of available solutions, in efforts to find peacebuilding problems amenable to a technological fix. Importantly, making claims about armed conflict and how technology may help to overcome it requires the agency to voice these claims, and to be listened to, in the first place.

For example, many digital peacebuilding initiatives focus on fighting hate speech online to reduce the risk of violence between different communities and improve relationships between them. These initiatives rest on the premise that, while social media use is a cause or driver of contemporary intercommunal conflict, it also provides possible solutions to it. The claim that technology plays a role in facilitating hate speech that leads to "intercommunal" or "interethnic" conflict has been documented well before the development of social media (see, for instance, Schabas 2000). Yet, more recently, academic research has pointed to the fact that

with growing social media use, mobilization for intercommunal violence has increasingly played out on these platforms, and it has highlighted the detrimental, catalyzing effects of hate speech and disinformation on these dynamics (for an overview, see Udupa et al. 2020). Intercommunal conflict, therefore, is increasingly perceived and researched as a problem of the internet age, while long-established knowledge about other causes or drivers, for instance, related to the colonial origins of these conflicts (Englebert, Tarango, and Carter 2002), or the role of socioeconomic inequalities (Østby 2008), seems to take a backseat. Instead, digital peacebuilding practitioners as well as academics problematize intercommunal conflict in a rather specific way, namely as driven by hateful language shared on social media. Against this problem understanding, countering hate speech initiatives can make claims about the merits of technology-centered solutions, such as social media monitoring and analysis. The co-construction of technology problems and solutions thus creates a blind spot that renders the nontechnical dimensions of conflict invisible.

The two claims form a compelling argument that neatly favors a technology-focused peacebuilding agenda: if intercommunal conflict is portrayed as something that primarily develops online, removing hateful language and disinformation from social media can be portrayed as the appropriate response. For example, the United States Institute of Peace (USIP)'s PeaceTech Lab (PTL) identifies social media as a key avenue for spreading both "peaceful" and "inflammatory speech," and therefore supports digital peacebuilding interventions in a variety of countries, such as Cameroon. The PTL website describes Cameroon as a country "known for violent extremism, including kidnappings, religious conflicts, and 'jungle justice'." However, rather than engaging with the non-technological dimensions of violence and conflict, the intervention was focused on addressing it online. To this end, PTL's local partner organization, the Local Youth Corner Cameroon (LOYOC), brought together diverse stakeholders for a "hands-on workshop on countering online hate speech" (PeaceTechlab n.d.). This example demonstrates that digital peacebuilding initiatives coproduce problems and solutions in that they strengthen a particular understanding of conflict—like intercommunal conflict manifesting through online hate speech—that matches a particular tech-supported conflict-resolution strategy, namely fighting hate speech online.

Agendas: Dynamics of Disruptive Change and Datafication

Next, we suggest looking at agendas to consider how the construction of problems and solutions amenable to digital peacebuilding shapes new policy and practice trajectories. We understand agendas as implicit or explicit plans of action that mobilize capacities to implement the identified technological solutions for a stated peacebuilding problem. Agendas define not only what is topical, but also what requires attention and resources from the peacebuilding community. However, across the peacebuilding sector, these agendas are not formulated or performed in a homogeneous manner. For instance, the UN Mediation Support Unit (MSU) (2019) mentions four thematic areas for the use of digital technologies, namely conflict analysis, engagement with parties, inclusivity, and strategic communications. In contrast, the Alliance for Peacebuilding (2021) puts emphasis on fighting dis- and misinformation, countering online radicalization and building social cohesion online, yet these themes and topics are constantly evolving. Therefore, rather than focusing on organizational agendas that may be heterogeneous and shifting, our attempt should be to describe the dynamics of agenda-setting in ways that let us interrogate power relations in peacebuilding. As an example, we focus on how digital peacebuilding agendas are shaped by dynamics of datafication, involving efforts to implement digital solutions in experimental alliances that aim to "datafy" peacebuilding problems and automate peacebuilding solutions.

Recent policy- and practice-oriented publications, while cautious, are outlining the potential benefits of mainstreaming "novel" and "innovative" uses of technology for peacebuilding (Kotsiras 2020; Marley 2020, 42; Hofstetter 2021). Yet, innovation requires technological experimentation, which commonly leads to the forging of new partnerships with "unconventional" peacebuilding actors, for instance, as part of PeaceTech "Labs" or "Accelerators" that test and develop technological solutions (UNDP 2015; PeaceTech Accelerator 2017). In such constellations, decentralized networks of peacebuilding organizations, research entities, and private sector actors promise to keep up with the "blistering pace" of innovation "from the bottom up"—while "moving" traditional stakeholders such as governments "aside." However, some of the limited empirical research on the implementation of digital peacebuilding programs suggests that while the use of technologies may afford some degree of efficacy, they often replicate—and depend on—more traditional locally driven peacebuilding practices (Gaskell 2019). For instance, Facebook created a "trusted partner" program, expanding their monitoring capacity by establishing privileged communication channels through which local initiatives can report harmful content (Meta 2022). While such partnerships demonstrate the continued importance of context-based actors, they may also be indicative of an increased dependence of local initiatives on global tech companies. Further, they maintain a division of labor that keeps ultimate control over peacebuilding data with social media platforms and tech companies, while engaging local initiatives merely in subservient and increasingly marginalized roles.

This has much to do with the dynamics of datafication. The data-gathering capabilities of digital technologies usually require classifications through which factors that relate to peace and conflict become machine-readable, and these have powerful effects on peacebuilding. When it comes to countering hate speech, standards of what hate speech is, how it can be detected, and how it should be dealt with are increasingly set through high-level international processes that aim to reduce conflict risks stemming from online hate, while streamlining this activity within a liberal paradigm of human rights (United Nations 2019). This suggests that digital peacebuilding approaches, such as countering hate speech, are not at all free or separate from the political context in which they are situated, nor from the normative premises this context provides. Importantly, local contexts may vary from place to place, and the cultural dynamics that shape online speech and fuel conflict may not fit squarely with superimposed global standards of acceptable and unacceptable speech (Pohjonen and Udupa 2017). In addition, conflict stakeholders commonly engage in struggles over what hate speech is, and authoritarian governments may employ stricter understandings of hate speech for repressive purposes (Udupa 2021, 12). Therefore, rather than viewing countering hate speech as a merely technological exercise, we should acknowledge the political nature of such efforts (Brown and Sinclair 2019) and shed light on how struggles over hate speech shape digital peacebuilding dynamics.

Importantly, digital approaches often come with a tendency to make sense of peacebuilding through data. We suggest interrogating the powerful effects of the datafication of peace, conflict, and peacebuilding, affecting both research and practice, which comes with the increasing use of digital technologies. As Isabel Rocha de Siqueira (2019) points out, data in the form of advanced statistics and indicators now premise the work of international organizations such as the UN and Organisation for Economic Co-operation and Development (OECD) (Independent Expert Advisory Group 2014). Such data- and evidence-based approaches are driven by tech-solutionist claims about how data collection, processing, and analysis capacities of digital technologies enable "new opportunities" in areas such as monitoring and evaluation, early warning, and prediction (Escobal et al. 2018). However, an overreliance on such systems would risk that participatory approaches to understanding drivers of conflict are de-prioritized and that

conflict-affected populations have no voice, because data are "scraped" from the internet without their active engagement (Hirblinger 2020, 13). In the context of hate speech monitoring, datafication comes in the form of social media data–centered interventions that aim to automate the detection and analysis of dangerous online content. For instance, the USIP-supported initiative in Cameroon developed and employed a lexicon with hate speech terms as a tool for helping "youth influencers" in the country understand what terms can be considered inflammatory (PeaceTechlab n.d.). Yet, such efforts impose an essentializing and narrow view on the complexity of online interactions. While portrayed as empowering local youth to act on hate speech, the use of a "hate speech dictionary" may considerably reduce their room for maneuver, by prescribing a code of harmful online behavior that must simply be implemented.

Moreover, digital peacebuilding agendas may also be characterized by a shift in authoritative expertise over peacebuilding. This shift deserves increased scholarly attention, because the academic fields of computer science and engineering, where most new technology emerges from, and the private sector companies that utilize these technologies, do not necessarily share the same concerns or objectives as conventional peacebuilding practitioners and experts. In the adjacent field of international development, "datafication" has led to an increasing involvement of the private sector in knowledge generation, reducing the relevance of publicly owned data and enabling new forms of intervention based on fine-grained representations of target populations (Taylor and Broeders 2015). This trend is also visible in international efforts to counter hate speech, where lexica developed through local initiatives may be commonly utilized to develop artificial intelligence (AI) and especially natural language processing (NLP) algorithms that support automated hate speech detection on social media platforms (Poletto et al. 2021). Yet, companies such as Facebook strive to automate hate speech detection as much as possible through the use of AI and there is a risk that human content moderators get increasingly shut out of the data gathering and analysis process (Facebook n.d.). Countering hate speech as a digital peacebuilding agenda is therefore characterized through a politics of datafication that relies on local initiatives to provide the knowledge necessary to codify the data and to make the peacebuilding problem machine-readable. Yet, as this process becomes automated, the authority over the analytical process, the AI models employed, and the data it generates are increasingly in the hands of those companies that are associated with the peacebuilding problem in the first place.

Effects: (De-)Politicized Peacebuilding and Digital Peace

Last, we advocate for examining what effects digital peacebuilding agendas have on the world. We suggest shedding light on how digital peacebuilding agendas produce sticky outcomes, as they intersect with heterogeneous political contexts. For example, we may want to be particularly interested in how they politicize or depoliticize peacebuilding, and what kind of peace they might ultimately foster.

Discussions of digital peacebuilding have drawn on concepts such as "digital governmentality" to describe the overarching rationalities of government that are enabled through the use of digital technology (Richmond and Tellidis 2020; Richmond 2020). Yet, this concept was originally developed to capture the practices of surveillance capitalism that evolve at the interface of social media use, big data analysis, and social media targeting and to describe how surplus information is extracted from social media that "exile(s) persons from their own behavior" (Zuboff 2015, 85; 2019). Therefore, this angle may have relevance for highly digitized peacebuilding contexts where digital access is almost universal, social media use is pervasive, and "Big Tech" can operate primarily on market logics, but it certainly does not capture all effects of digital peacebuilding. When employed in many other settings, there is a risk of (re)producing a Eurocentric lens that views digital governing

rationalities as a primary product of neoliberalism and fails to capture the historically evolved, heterogeneous empirical realities of conflict-affected contexts, as well as the agency of peacebuilding organizations in responding to power imbalances. Finally, suggesting that digital peacebuilding creates practices, forms, or rationalities of government that are "artificial" or "post-human" would mean to isolate digital peacebuilding from its sociotechnological environment. However, this would create an artificial human–machine distinction, as digital technologies, including AI, continue to be developed, used, and controlled by humans (Hirblinger 2022).

It is important to acknowledge that the effects of digital peacebuilding agendas are not only locally conditioned by factors that are not primarily related to digitalization, but also locally diverse. Particularly in contexts with limited digital access and literacy, digital peacebuilding initiatives may rely on existing governing institutions, such as local governments and traditional authorities, to collect, analyze, and act on digitally generated data. For instance, pilots of text message–based early warning and alert systems rolled out by the United Nations Development Programme (UNDP) involved primarily elected officials, traditional authorities, and women (UNDP 2021, 27). Projects aimed at countering hate speech online also train volunteer communities, including women and youth groups, in an effort to intentionally involve traditionally marginalized groups (Search For Common Ground 2021). Moreover, many digital peacebuilding initiatives unfold at the margins of social and political movements and may use advocacy approaches and strategies from them and maintain close connections and shared objectives related to political change (Robertson and Ayazi 2019). This suggests that the sociotechnical systems involved in digital peacebuilding may not only be shaped by international organizations and the private sector, but also shaped by established national governing practices and civil society that variously politicize or depoliticize peacebuilding.

A lens more suitable for a reflexive approach may be to ask about whether digital peacebuilding leads to politicization—thus enabling an exchange between different positions and the claims that underpin them—or the opposite. Theories of agonistic peacebuilding suggest that acknowledging the political dimension of peacebuilding is particularly necessary, because enabling forms of political expression can foster relationships between conflict parties that may be adversary yet nonviolent (Strömbom and Bramsen 2022). However, politics today are difficult to disentangle from data (Bigo, Isin, and Ruppert 2019), and there is much to suggest that digital peacebuilding may have depoliticizing effects by creating new "antipolitics" machines that reduce legitimacy, stifle participation, and lead to public apathy (Ferguson 1994; Fawcett et al. 2017). Particularly, Big Data may contribute to the depoliticization of the public sphere and possible democratic deficits, where political participation is replaced with extractive and silent data analytics conducted by experts, and political deliberation is replaced with nudging people into certain types of behaviors through the use of indistinct, manipulative methods (Helbing et al. 2019). Yet, we also see the use of machine-learning tools to facilitate dialogue processes on unprecedented scales, such as mass online focus groups that aim to increase political participation (International Telecommunication Union [ITU] 2019, 88). And while Big Data analytics are often detached from the everyday lives of conflict-affected populations, we also see efforts to politicize big data by actors who demand algorithmic transparency and interpretability in pursuit of distinct political ends such as nondiscrimination (Krishnan 2020).

When it comes to countering hate speech, its detection and the subsequent response to it operate silently, with social media analysts in peacebuilding organizations and at social media platforms screening and removing content without public notice. These algorithmic detection tools used for content removal, as well as individual decisions to remove content, undergo little public scrutiny. Yet, digital peacebuilding initiatives also increasingly recognize the need for "counter-speech" that disagrees with harmful content and presents opposing views (Bahador 2021), while

aiming to stimulate public deliberation rather than stifle the freedom of expression. These dynamics and outcomes of algorithmically mediated peace processes therefore require further attention. We need to investigate both the intentionality that underpins the development and deployment of tech, and the concrete dynamics and outcomes of such employments—for instance, in terms of their visibility in the public sphere, and the public support or resistance they may produce.

Finally, we may want to inquire into the kind of peace that emerges from digital peacebuilding agendas, in terms of the effects on the lives of populations in contexts affected by conflict. Most digital peacebuilding activities are of primarily ideational nature; that is, they engage with information, knowledge, narratives, and so on. However, many also explicitly claim to prevent or mitigate violent conflict. Some do so by influencing decision-making and action, while others strive to improve community relations and livelihoods. When investigating the societal effects of digital peacebuilding, one can easily be misled by seemingly clear-cut distinctions between the "digital" and the "analogue" or "online" and "offline" worlds. When maintaining this distinction, we may be tempted to argue that digital peacebuilding leads to forms of virtual peace, constructed through machine-mediated representations of peace and conflict that are detached from the everyday experiences of conflict-affected populations. This also holds true for countering hate speech measures that aim to sanitize social media from violent or harmful content, without any attention to the cultural, political, or socioeconomic drivers that underpin it. Yet, these de-politicizing uses of technology that solely focus on digital platforms and content indeed also have non-virtual effects in that they perpetuate the material status quo.

Therefore, there are merits in exploring the effects of digital peacebuilding interventions from a "post-internet" (Mosco 2017) lens, characterized by an interest in the integration of digital technologies into the everyday lives of conflict-affected populations. However, causal mechanisms between, for example, efforts to monitor and fight hate speech and effects on the dynamics of violence are often difficult to determine (Rao 2014). Moreover, the material and immaterial effects of digital interventions are challenging to disentangle, not least because tangible and embodied experiences of peace and conflict continue to be digitally meditated through social media platforms in which peacebuilding actors engage in "strategic communication." Therefore, new methods and more empirical research are needed to scrutinize both the connects and disconnects between digital and analogue social practices, to better understand the kind of peace that emerges in the material–semiotic infrastructures that are utilized and produced by digital peacebuilding.

Conclusion: Toward a Reflexive Study of Digital Peacebuilding

Our reading of the emerging literature on digital peacebuilding leads us to suggest that there is a trend to study technology in what can be called a deterministic manner: to read it as a tool that serves preconceived peacebuilding approaches. Most authors attribute to technology a Janus-faced character and draw on theoretical and conceptual frameworks to study aspects of digital peacebuilding that commonly predate what is increasingly referred to as the digital turn. This is in line with other determinist approaches to the study of technology in international politics. Here, technology is viewed in both an essentializing and an instrumentalizing manner—as a tool with seemingly fixed properties (bad or good for peacebuilding) that can serve pre-given political or social purposes (for instance, empowerment or exploitation) (McCarthy 2017). And while most accounts somewhat recognize the social impact of technology in peacebuilding contexts, they nonetheless keep theoretical accounts of the technological and the social strangely detached from each other. We believe that the growing reliance of social and political life on digital, data-based governance merits a broader interpretation of the role of technology. Our proposal to focus on power relations in digital peacebuilding, based on a

tryptic framework concerned with claims, agendas, and effects, is an effort to move the debate forward.

The article presented an alternative research framework for the critical–reflexive study of digital peacebuilding, along with suggestions for how it may be operationalized. Our core prepositions are to engage with the knowledge-making practices that co-produce technologies for peacebuilding and peacebuilding with technology, and to ask how these translate into peacebuilding agendas and outcomes. Importantly, while we advocated to achieve critical reflexivity by taking a bird's-eye view of the embeddedness of technology and society, we certainly do not intend to claim that we must be—or can be—"theory-neutral." As academic researchers, we are embedded in several theoretical, epistemological, and ontological foundations that have instigated in us the inclination of being critical and reflexive. It is from within this positionality that our research agenda emerges. Indeed, as we have inferred in this article, reflexivity does not mean that we remain detached from what we study, that we conduct research from a neutral vantage point, or that we do not hold meta-theoretical convictions. On the contrary, it is our own entanglement in the topic of digital peacebuilding that has triggered a wish to engage with it in a critically reflexive manner.

In closing, our framework points to the possible effects of this growing digitalization of peacebuilding. These effects are multi-faceted and reflected not only in the lived experiences of populations affected by conflict but also in our interpretation of those effects. As we have highlighted, these material and immaterial effects of digital interventions are both profoundly important and difficult to disentangle, thus demanding further in-depth empirical inquiry. This article represents our contribution in reflecting on how such future research could unfold.

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