Digital analysis

Peacemaking potential and promise

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In recent years there has been a rapid growth of information and communication technologies and digitisation of elements of both armed conflict and peace processes. Digital tools are increasingly being deployed for political analysis, providing significant opportunities for innovation, promising to transform conventional approaches to analysis that often require a physical presence in conflict-affected contexts. They not only allow for remote operations, but enable participatory data gathering and analysis that can reduce information shortages and support peacemaking efforts, including early on in a peace process.

This article discusses how peace organisations can use digital technologies to inform planning and process design at the pre-formal or early stages of peace processes. It outlines three key advantages of digital analysis: to mitigate risk and reduce costs of data collection; to increase diversity of data sources; and to enhance the ownership of analysis and make it an integral part of the dialogue effort. The article further explains how advances in digital analysis can help collect data on relationships between groups, which is essential for understanding conflict dynamics and for mapping peace pathways. This potential of digital technologies is balanced by discussion of three key challenges: using digital data to understand both online and offline worlds; maintaining or enhancing meaningful participation in data collection and analysis; and keeping peace support actors engaged with increasingly automated data analysis processes.

Three advantages of digital conflict analysis

Digital conflict analysis provides three distinct advantages for early or pre-formal peacemaking. First, digitisation allows for remote data collection, which can reduce the security risks and costs associated with locally based data gathering. This enables more comprehensive, flexible, and sustained analysis that can provide valuable insights. Considering the Covid-19 pandemic, major events that negatively impact mediation entities' capacities to conduct in-person data collection further emphasise the value of remote digital analysis. In some cases, the need to maintain activities is balancing out concerns over data security. While mediators need to minimise the risks of data theft or leakages, the Covid-19 pandemic has seen an increasing willingness to use digital tools and navigate the associated risks.

Second, digital data collection and analysis can increase the diversity and quantity of voices considered, overcoming some of the barriers presented by physical data collection to enable a more comprehensive analysis. This can further help to mitigate data collection problems posed by the increasingly fractured nature of contemporary conflict and the myriad armed and other actors involved.

Conventional offline methods often only allow a limited number of people to join the process, and thus struggle with selecting representative informants. They are often stymied by physical security limitations and travel restrictions. By contrast, digital technologies can collect information from many conflict parties, communities, nonviolent movements, businesspeople, and others. This can be done through a variety of methods including mobile phone apps, interactive voice response surveys, WhatsApp surveys, online forms, chatbots or SMS systems. Although digital data collection can serve to reach many more people, mediation teams should consider digital access challenges (such as gender, age or geographic differences in access to and literacy around technology and fiscal connectivity costs) when designing data collection. In addition, they also should be mindful of the 'volume' challenge, further discussed below.

Third, digital analysis tools enable data to be scrutinised, visualised, and shared in new ways that are more accessible to different groups involved in a peace process, for example through visual data dashboards. This allows for process design experimentation, with analysis becoming a distinct part of dialogue and facilitation processes, for example through the visualisation of conflict narratives and alternatives, as well as the visualisation of scenarios. This dynamic use can help to overcome the tendency for analysis to be separated from the peace process it is designed to inform, in which analysis becomes a 'check-box' exercise, often as part of funding proposals, rather than an essential tool to inform process design and implementation.

Between 'hard' and 'soft' facts – the promise of relational data
A comprehensive understanding of a conflict and context is crucial to identifying viable entry points for peacemaking. Contemporary armed conflicts involve multiple dimensions, presenting peacemakers with major analytical challenges in understanding the complex interplay between the security, political, economic, social, and cultural dimensions of conflict. Making sense of such complexity requires gathering and analysing 'soft' and 'hard' facts about conflict and peace indicators – factors which together affect the likelihood and character of the violence, conflict resolution and transformation.

Soft data provides insights into the attitudes of conflict parties and other key groups, which is conventionally collected through in-person contact such as interviews and workshops, as well as historical media data. This can be gathered by journalists and human rights organisations, peace activists, insider, or local mediators and, in some contexts, peacekeeping and regional organisation missions. Alternatively, generating analysis is often outsourced to private companies and consultants. Given that 'live' data

collection and initial analysis in conflict zones is difficult, this often becomes a bottleneck slowing down peacemaking design and implementation. As a result, peace initiatives often go ahead with insufficient or inaccurate information.

Digital analysis has until recently mainly been used in conflict early warning systems. These have predominantly focused on 'hard' indicators that could predict the onset or recurrence of armed conflict, along a variety of dimensions such as economic factors (blockades or sanctions, unemployment rates), environmental factors (rainfall, disasters), and insecurity (increased abductions, military mobilisation). Yet much of this data remains inaccessible to peace organisations and reveals little about the interests of and relationships between conflict parties, communities, and other stakeholders. By contrast, the distinct added value of digital tools for peacemaking lies in the scope to analyse and visualise current and potential relationships between conflict parties, civil society, the private sector, regional actors, and others.

Increasingly, peacemakers have instant access to public sources of information, including social media. Analysing large quantities of public social media content can ascertain the perceptions and preferences of groups and trace patterns of influence. Analysing radio content to assess public opinion can also be effective. Satellite imagery of movements of people, weather patterns or infrastructure development or damage can be added to build a more comprehensive contextual picture.

This combination of data collection methodologies and types offers myriad data points on social and political relationships underpinning conflict. It can also help make sense of the competing narratives, perceptions, or sentiments – vital at the pre-formal and early stages of a peace process. This data is 'relational', since it elucidates relationships between actors, in material, tangible and perceived dimensions.

> **Digital analysis tools enable data to be scrutinised, visualised, and shared in new ways that are more accessible.**

Network analysis (the mapping of connections between actors and groups) and 'text mining' (the process of deriving information from text), including the use of natural language processing (NLP), are rapidly advancing and hold promise for relational data analysis. But what does this mean in practice? The UN Department of Political and

Peacebuilding Affairs Middle Eastern Division provides one example. The Division is working with external tools that use data generated through online focus groups and apply 'sentiment analysis' to it – a form of text mining that automatically detects patterns in the text to measure trends in people's opinions. Content is coded according to various sentiments, to identify the mood of a conversation on a given topic. However, these tools come with significant challenges, further explored below.

Another example is the effort to identify digital influencers in relation to Syrian refugee integration in Lebanon. Commissioned by UNDP, Build Up used network analysis software like Networkx and Gephi to pick out and visualise networks of influence (see further reading). While the development of such tools requires time and resources, they can be used at early phases of mediation efforts to help understand complex conflict dynamics and to identify possible entry points for dialogue.

Triangulating online and offline data
The operational value of collected data depends on whether it can accurately inform mediators' understanding of parties' negotiation positions and behaviour. Although public online data can provide a useful addition to traditional data collection, its relationship to stakeholders' 'offline' behaviour and its ability to inform offline peace negotiations or 'talks about talks' needs to be further explored.

The use of NLP remains limited in its current applicability for mediation support as it is most beneficial when complemented by strong contextual analysis. Automated sentiment analysis often fails to capture the full complexity of conflict-laden discourse and can even be misleading, because individual speech is built on context and identity within complex and changing social systems. Furthermore, sentiments are often expressed through rhetorical devices such as jokes, sarcasm, and slang. This is difficult for a computer model to capture at all, let alone maintain pace within the rapid evolutions of online political speech.

In addition, publicly available information gathered through social media analysis may not be fully representative. During the social media analysis mentioned above, researchers seeking to understand perspectives of both Lebanese and Syrian communities in Lebanon found that publicly available information came predominantly from the Lebanese community. This was due to factors such as different digital platform preferences, as well as security and safety concerns that made Syrian communities reluctant to express their views publicly on social media. Public social media data was useful in capturing part of the story, but not all of it. Other demographic variables that can

foster exclusions such as by age, gender, sexuality, and location must also be considered when analysing public social media data, as differing access and attitudes towards social media will result in biases.

To mitigate this, there is a need to contextualise large amounts of publicly available data with data that is collected in a targeted manner. Digital technologies can support a more precise selection of target populations. For instance, online focus groups and surveys can serve to reveal participants' stances towards a negotiated settlement, or perceptions about other population groups. UNDP Lebanon used WhatsApp to collect perception data from 1,036 people, concerning topics ranging from local tensions to future priorities. Participants' phone numbers were collected from municipalities, NGOs and local community leaders and the survey was sent directly to people's WhatsApp, with recipients responding by voice or text message.

The Conflict Alert and Prevention Center (CENAP), a Burundian NGO, has also made use of digital tools for targeted data collection. CENAP used CSPro census analysis software to enumerate quantitative surveys on youth perceptions of the future of Burundi. A simple online visualisation dashboard enables young people and policymakers to explore and analyse the data collectively. This is complemented through focus group discussions to provide a more nuanced picture of young women and men's aspirations for the future.

Combining qualitative and quantitative techniques can enable peacemakers to better understand how attitudes reflect and affect political processes. However, this usually requires some time and preparation, particularly to identify, select or produce appropriate qualitative data sources. This can entail collecting data from a network of analysts through individual interviews or surveys to later feed it into a digital database. Peace process support actors may be concerned about confidentiality issues and the high degree of management needed to maintain such a network of analysts in a secure manner. As such, the promise of quick, easy, and accurate data remains somewhat elusive.

Participation in digital analysis
Digital data collection conducted *about* people but not *with* people risks being extractive, in turn threatening the legitimacy and value of the analysis. Where data is collected without the knowledge of the participants whose data is collected (eg sentiment analysis of tweets), there is a risk of undermining the analysis by missing nuances in perceptions of the conflict-affected population for the reasons discussed above. Extractive data collection processes in which participants are aware of their involvement can also be counter-productive, particularly

if expectations for that involvement are not met. Online focus groups, for example, where participants' views are not then integrated into a peace process, risk undermining the legitimacy of mediation efforts by raising the expectations of those whose data is collected.

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Digital conflict analysis promises a more comprehensive link between data collection and broader mediation efforts. However, it is crucial that the data is provided intentionally by participants. In many conflicts, data gathering can be an integral part of the mediation process, in which inviting people to share their grievances, needs and positions is a vital first step. The collected data (or at least parts of it) should thus always contain the 'voice' of those actors who have provided information to influence what they perceive to be an objectionable state of affairs.

Traditional conflict analysis has often been an internal exercise by peacemaking entities, largely conducted at the start of a project or funding cycle, and not necessarily always seen as a living document or process. Digital tools provide opportunities to collect data in a more inclusive and participatory manner. For example, participatory 'barometers' – data collection processes that measure perceptions of a population on specific issues – have been used in Guinea Bissau and Burundi to involve communities in collecting and analysing the contextual factors at the heart of conflict. Local organisations facilitated the coming together of communities and policymakers to analyse data collected from communities, providing not only a nuanced definition of the problems at hand, but also prompting constructive dialogue based on this information. The analysis was conducted through a simple online dashboard, which enabled communities with limited quantitative analysis skills to both understand and interpret the data (see further reading).

Despite these opportunities, identifying and interpreting the political processes that lie behind the collected data remains a challenge. Participatory digital data is not 'objective' evidence but requires further interpretation. All data, including social media data, is 'situated' – directed to a specific audience. For example, a tweet collected through a large-scale social media monitoring effort, in which a user expresses frustration to get a reaction from their followers, might not be the same

deliberated answer they would have provided if asked during a political dialogue. There is a human behind every data point, speaking from their point of view, interest, and circumstances. Even in the case of bots that are programmed to amplify specific messages or narratives, this point stands. These bots need to be identified and their data correctly interpreted: not as a direct representation of a single stakeholder's voice, but as the output of a political actor that aims to increase its visibility and impact.

Digital automated analysis – balancing benefits and risks
It is no longer sufficient to task political analysts with the manual screening of social media through their personal user accounts. The scale of digital data available requires significant capacity to analyse, understand and use it. Internet 'echo chambers', where opinions are magnified by repetition inside a 'closed' communication system, and 'filter bubbles', where personalised online experiences act to amplify particular beliefs, further complicate more conventional, interpretative forms of analysis. As such, manual analysis can only provide a limited picture of the online environment. Similar difficulties affect analysis of radio content, polling, or online comments.

Many sectors increasingly seek systematisation and automation of analytical tasks in response to these challenges, including using machine-learning tools. However, efforts to use Artificial Intelligence (AI) for digital analysis for mediation are still in their infancy. This hesitancy is partly driven by the institutional cultures of many peace support organisations, which stress the human element of mediation, or seek to uphold mediators' authoritative position among the conflict parties, communities, and others.

Peacemakers also have ethical concerns about opaque 'black-box' digital applications such as neural networks, which mimic human brains by recognising patterns and 'learn' by themselves. Concerns range from data privacy to the legitimacy of the analysis as, like real humans, machines are prone to bias. Without understanding those biases, automated analysis risks being misleading. Tools such as StereoSet, which measures bias in applications used for text mining, can be of help for developers. Nonetheless, it is important that the results of automated analysis should be carefully assessed and interpreted to detect possible biases. Despite these concerns, applications in other fields show that machine-learning applications will augment rather than replace human expertise and can be designed in ways that keeps the mediator 'in the loop'.

In addition to these concerns, digital analysis tools pose several additional risks. Digital data collection tools must

be carefully selected and used to avoid privacy breaches, ensure confidentiality, and avoid leaking of data. Public scraping of data poses ethical challenges that risk undermining a mediator's legitimacy.

> **Participatory approaches can play a role in reframing conflictual and negative perceptions.**

There is also a risk of fragmentation and polarisation associated with enhanced participatory analysis enabled by digital tools and the representation of a greater range of perspectives in the data. To avoid this, careful facilitation is required to avoid further entrenching divisions between groups and to manage expectations. Inclusion of voice and perspective does not equate to everyone seeing their interests reflected or realised in the peace process. The sharing of data analysis through digital tools should also be carefully framed to avoid unintentionally supporting narratives that drive violence and repression. All these risks must be considered and mitigated through thorough design processes. Above all, data collection and analysis need to be as transparent and impartial as possible to avoid exacerbating conflict divides and to inform effective mediation that is impartial, professional, innovative and evidence based.

Looking ahead – integrating human and digital analysis
New approaches to digital data analysis are needed that can integrate human and machine capacities, guarantee diverse human oversight, and produce outputs that can immediately benefit a given peace process. The challenge is to develop analytical tools that can be trusted by mediators, conflict parties and communities affected by conflict, not only because they are able to provide accurate and trustworthy analysis, but because they inform strategies to move peace processes forward inclusively and sustainably.

However, more automated data analysis such as using AI requires time to develop – the machine needs to be trained on pre-existing datasets and established mediator knowledge. This means that efforts to prepare and improve digital analysis must start well before dialogue or facilitation starts or re-commences.

There are several steps that can be taken to move digital analysis forward as a viable tool for smarter peacemaking. Social media monitoring must go beyond simple keyword searches and data that is taken out of context by an over-focus on content. In turn, digital analysis must go beyond social media monitoring. Mediators should ensure that large-scale analysis of publicly available data is complemented with curated data sources, such as form surveys or online focus groups. A strong assessment of the 'information ecosystem' – the way in which information moves between people in a particular context, both on and offline – should be conducted as part of the context analysis in order to understand biases that affect publicly available data.

Participatory data analysis methodologies should be integrated into peacemaking process design wherever possible. Such analysis can help identify entry points to further dialogue – for example involving different groups – as well as providing a more nuanced analysis of the conflict. In particular conditions, participatory approaches can play a role in reframing conflictual and negative perceptions. Mediators should experiment with the array of digital tools available to support analysing relationships between individuals, groups and institutions, and visualising scenarios and peacemaking pathways.

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Mediation support organisations should build capacity for digital analysis in conflict-prone contexts as part of conflict-prevention measures. The creation of shared, open source data bases that collect relational data, similar to what exists for hard conflict data, such as the Armed Conflict Location Events Data databases, should be explored. Mediators could then tap into these capacities at an early stage. Analysts, peace organisations, communities, conflict parties and others can work together to explore feasible options for integrating automated analysis, machine-learning applications and human input and oversight to guarantee that digital analysis is done with and for the humans affected by conflict.