DIGITAL PEACEBUILDING

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Combatting Violence Against Women using Blockchain Technology

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Executive Summary

Violence Against Women (VAW) poses a significant global challenge affecting approximately one in three women worldwide. VAW intersects with geopolitical conflict by exacerbating structural violence and supporting violent extremism. Additionally, high levels of VAW can destabilize economies by impeding development efforts and undermining social welfare programs, potentially leading to both intra- and interstate violence. Blockchain technology is a promising tool for addressing VAW through secure, transparent platforms for recording incidents, sharing data, and empowering victims. Its potential lies in collecting and integrating targeted data into early warning systems, promoting financial inclusion, and utilizing digital identities to empower marginalized women. However, challenges like complexity, cost, and privacy concerns must be addressed. This approach necessitates gender sensitivity, considerations of accessibility, and implementation of robust security measures.

Introduction

Elevated rates of VAW can result in both domestic and cross-border conflicts. Employing blockchain technology can help identify these trends and support victims. To prevent this type of violence, the World Health Organization and United Nations (UN) Women have created a framework based on the most successful interventions that stresses prioritizing the safety of women and challenging unequal gender power dynamics.[1] Even with their insight and interventions, prevalence of VAW is still alarmingly high. Throughout history, we have relied on new and innovative technologies to solve our most complex problems. Over the last decade technology has fundamentally changed the way we live, work, and interact with the world around us, helping to shape the future of our society and economy. To date, one emerging technology still holds untapped potential as a transparent, trustworthy, efficient, and secure method to track, share, and exchange resources and data. This report focuses on how blockchain, commonly known as the foundation behind cryptocurrency, can help combat the major global concern of VAW. Blockchain technology offers unique solutions to track incidents or precursors of VAW and empower women through economic opportunities and community building. Careful consideration and proactive measures for implementation, however, are necessary to maximize its benefits and mitigate risks.

Violence Against Women

Violence Against Women (VAW) is "any act of gender-based violence that results in, or is likely to result in physical, sexual, or mental harm or suffering to women, including threats of such acts, coercion, or arbitrary deprivation of liberty, whether occurring in public or in private life."[2] Worldwide analysis shows nearly 1 in 3 women have experienced physical and/or sexual violence by an intimate or non-intimate partner or both. In 2018, that equat-

1 "Violence Against Women Prevalence Estimates, 2018." World Health Organization Department of Sexual and Reproductive Health and Research, March 5, 2021. https://iris.who.int/bitstream/handle/10665/341604/WHO-SRH-21.6-eng.pdf?sequence=1.

2 United Nations General Assembly. *Declaration on the Elimination of Violence Against Women*. 1993. https://www.un.org/en/genocideprevention/documents/atrocity-crimes/Doc.21_declaration%20elimination%20vaw.pdf.

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ed to 736 million women aged 15 years or older.[3]

The UN has identified a need to stop VAW and ensure a universal application of equality, security, liberty, and dignity of all human beings.[4] VAW is a hindrance of nations achieving not only these goals but also in development and peace. Some factors associated with experiencing VAW according to the World Health Organization are:

- lower levels of education;
- harmful masculine behaviors, including having multiple partners or attitudes that condone violence;
- community norms that privilege or ascribe higher status to men and lower status to women;
- low levels of women's access to paid employment; and
- low levels of gender equality (discriminatory laws, etc.).[5]

> ***"The best predictor of a country's peacefulness is its level of VAW."***[6]

VAW and Geopolitical Conflict

Violent Ideology

VAW, rooted as a societal norm, perpetuates a culture of structural violence that is not only tolerated but also legitimized. This normalization allows violence to permeate daily life, often becoming an accepted means of conflict resolution. Consequently, this environment fosters both intra- and interstate violence.[7] Additionally, endorsing VAW has been identified as a key indicator of support for violent extremism.[8][9] While Rottweiler, Clemmow, and Gill (2024) contend VAW itself does not directly cause violent extremism, they argue it significantly increases one's susceptibility to exposure to and involvement in violent extremist activities. For instance, in Asia, individuals who endorse VAW are three times more likely to support violent extremism.[10] Conversely, those who support gender equality tend to exhibit a more positive attitude towards diplomacy and a willingness to compromise.[11]

Economic Instability

Increased investment in human capital, greater job opportunities, and higher levels of education—all aspects of economic stability—are believed to reduce susceptibility to conflict.[12] However, these areas are often lacking sufficient resources or attention in nations with high rates of VAW. This is due to limitations of women's participation in the workforce, disruption of livelihoods, and the diversion of resources away from productive activities. A case study examining the impacts of VAW in Vietnam determined the economic loss can counteract the positive impact of government spending on social welfare programs, thereby acting as an internal destabilizing force.[13] VAW imposes both direct and indirect costs on communities and governments which could also lead to economic instability. Direct costs include providing services for survivors and investing in prevention programs, while indirect costs stem from reduced tax revenue due to lower household incomes and decreased economic output for businesses. These economic impacts extend to various societal functions such as healthcare, criminal justice, women's shelters, victim support centers, social services, and social insurance systems.[14]

Democratic Erosion

Democracy is key in preventing conflict and VAW can quickly erode democracy. One of the fundamental aims of democracy is to safeguard and uphold human rights.[15] When women are not adequately protected, it can undermine trust in institutions and the rule of

3 "Violence Against Women Prevalence Estimates, 2018."

4 United Nations, "Declaration."

5 "Violence Against Women Prevalence Estimates, 2018."

6 Sara Davies et al. "Bridging the Gap: Early Warning, Gender, and the Responsibility to Protect." *Cooperation and Conflict* 50, no. 2 (2015): 230. https://doi.org/10.1177/0010836714545689.

7 Mary Caprioli "Primed for Violence: The Role of Gender Inequality in Predicting Internal Conflict." *International Studies Quarterly* 49, no. 2 (2005): 165. https://doi.org/10.1111/j.0020-8833.2005.00340.x.

8 Melissa Johnston and Jacqui True. "Misogyny & Violent Extremism: Implications for Preventing Violent Extremism." *Monash Gender, Peace, & Security* (2019).

9 Elin Bjardnegard et al. "Women, Peace, and Security: The Sexism and Violence Nexus." *UN Women* (2020). https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2020/New-insights-on-WPS-The-sexism-and-violence-nexus-en.pdf.

10 Johnston and True, "Misogyny & Violent Extremism."

11 Mary Caprioli and Mark Boyer. "Gender, Violence, and International Crisis." *Sage Journals* 45, no. 4 (2001): 509. https://doi.org/10.1177.002202701045004005.

12 Macartan Humphreys. "Economics and Violent Conflict." *Harvard University* no. 2 (2003). https://hhi.harvard.edu/sites/hwpi.harvard.edu/files/humanitarianinitiative/files/economics_and_conflict.pdf?m=1615499917.

13 Srinivas Raghavendra et al. "The Macroeconomic Loss due to Violence Against Women: The Case of Vietnam." *Feminist Economics* 23, no. 4 (2017): 62-89. https://doi.org/10.1080.13545701.2017.1330546.

14 Elis Envall and Annika Eriksson. "Cost of Violence Against Women." *National Board of Health and Welfare*, Sweden 2006.

15 "About Democracy and Human Rights." OHCHR and Democracy. Accessed March 8, 2024. https://www.ohchr.org/en/about-democracy-and-human-rights.

law. The Syrian uprising in 2011 highlighted the systematic use of VAW by governmental security and military forces as a tactic of political suppression and intimidation against communities and political activities.[16] VAW in the realm of politics detracts from the integrity of democratic processes that are meant to be free, equitable, and inclusive. It restricts women's engagement as voters, advocates, and election officials, thus detracting from the principles of democracy.[17]

Blockchain Technology

A blockchain is a highly secure, reliable, and dispersed network that allows people to record transaction activity, store data, and exchange value in a distributed record book (ledger) that cannot be modified. It is not controlled by any central authority, but instead maintained by all computers within the network.[18] It revolutionizes the way transactions are recorded, verified, and executed, offering a secure, transparent, and decentralized alternative to traditional centralized systems. Blockchain platforms can be public (fully viewable by anyone) or private (viewable only to certain individuals or groups). Permission settings can also be adjusted to allow anyone to edit or require permission to do so.[19] Private, permission controlled blockchains do not move far from the current centralized models, however while this technology is still piloted and tested, it prioritizes the safety and privacy of users. Generally, when speaking broadly of blockchain, a public system is being referenced.

BonkersArt. n.d. Blockchain types- public, private, hybrid and consortium vector illustration. https://stock.adobe.com/images/blockchain-types-public-private-hybrid-and-consortium-blockchain-icons-and-infographics-vector-illustration/530893417?prev_url=-detail.

Advantages

One major advantage of this technology is its increased trust with its users due to its immutable nature. All changes are documented within the blockchain, and any unauthorized changes are revoked. Blockchain also provides great transparency. Because there is no central authority, data is maintained on every computer within the network allowing all parties to engage with the data. Additionally, if data on one computer is compromised, it will remain intact on all other computers. Blockchain is also very secure. It uses both asymmetric encryption and hash functions to protect its data. It allows for streamlined processes, faster transactions, and is accessible to anyone with an Internet connection.

Disadvantages

The intricacies of blockchain technology pose significant challenges for individuals outside the field to understand.[20] This could potentially hinder governments and humanitarian organizations from embracing its potential due to misconceptions and a lack of trust. Moreover, the development and implementation can be prohibitively expensive. Factors such as scalability, interoperability, and high data storage costs have prevented widespread adoption.[21] Additionally, while blockchain utilizes a robust public and private key encryption system (asymmetric encryption) for transactions, ensuring high levels of security, the absence of a mechanism to provide additional security in cases of private key loss or accidental publication is a notable concern.[22] Latency issues may also arise due to the nature of blockchain storing a complete record of all information and updates on all nodes as new blocks are added.[23] This can be frustrating for users and delay services. Final-

16 Khuloud Alsaba and Anuj Kapilashrami. "Understanding Women's Experience of Violence and the Political Economy of Gender in Conflict: The Case of Syria." *Reproductive Health Matters* 24, no. 47 (2016): 5-17. https://doi.org/10.1016/j.rhm.2016.05.002.

17 Garielle Bardell. "Violence Against Women in Politics: IFES Submission to the OHCHR Special Rapporteur." *International Foundation for Electoral Systems* (2018).

18 "What is blockchain technology?" Chainlink, May 24, 2023. https://chain.link/education-hub/blockchain.

19 Theresia Thylin and Maria Fernanda Novela Duarte. "Leveraging Blockchain Technology in Humanitarian Settings – Opportunities and Risks for Women and Girls." *Gender and Developmen*t 27, no. 2 (2019): 317-336. https://doi.org/10.1080/13552074.201627778.

19 Ibid.

21 Yujie Zheng and Wai Fong Boh. "Value Divers of Blockchain Technology: A Case Study of Blockchain-enabled Online Community." *Telematic and Informatics* 58 (2021). https://doi.org/101563.

22 Laurie Hughes et al. "Blockchain Research, Practice, and Policy: Applications, Benefits, Limitations, Emerging Research Themes and Research Agenda." *International Journal of Information Management* 49 (2019): 114-129. https://doi.org/10.1016/j.ijinfomgt.2019.02.005.

23 Fran Casina et al. "A Systematic Literature Review of Blockchain-based Applications: Current Status, Classification, and Open Issues." *Telematics and Informatics* 36 (2019): 55-81. https://doi.org/10.1016/j.tele.2018.11.006.

ly, worldwide regulation is needed as this technology knows no boundaries. Code written in one country under one set of laws and regulations may impact citizens of another with a different set of laws and regulations.[24] To effectively implement this technology, we need mass adoption and worldwide regulation.

Recommendations

Track Incidents of VAW

Blockchain technology can provide platforms to help with data collection on VAW for early warning systems, providing aid, and intervention. Integrating data on a country's level of VAW into existing early warning frameworks can significantly enhance the predictive capacity for a range of systematic VAW and other crimes, including genocide, war crimes, ethnic cleansing, and crimes against humanity.[25] Blockchain technology holds promise as a secure and tamper-resistant platform for recording incidents of VAW.[26] By reducing the risk of unauthorized alterations and providing a complete audit trail,[27] blockchain instills confidence in women that their information will remain intact and confidential. Additionally, the immutable nature of blockchain allows victims to capture data as time-stamped evidence, which could be instrumental in legal proceedings.[28] Furthermore, blockchain applications facilitate secure and transparent data-sharing platforms, enabling national and international organizations, as well as other stakeholders, to share anonymized data on VAW, trends, and resources. This collective sharing fosters a better understanding of the prevalence and impact of VAW, thereby informing evidence-based interventions.

Economic Stability

Blockchain technology can be utilized for monetary benefits by both individuals impacted by VAW as well as donors sending aid for VAW. This technology enables individuals without bank accounts to access financial services using only a cellphone.[29][30] This offers independence and privacy to those facing financial abuse, a common form of VAW. It can provide immediate access to funds when needed[31] and facilitates peer-to-peer transactions and remittances, providing opportunities for seamless financial interactions.[32] By eliminating the need for third-party intervention, blockchain enables lower-cost cash transfers.[33] This promotes financial inclusion, maximizes the impact of cash transfers, and reduces the administrative burden on both the senders and recipients of funds. Donors can similarly utilize blockchain to support specific causes, such as healthcare for victims of VAW, with increased transparency in fund allocation.[34] This allows for better-targeted aid disbursements and social investments.[35]

Community Building

Blockchain technology can support systems for digital identities as well as community support networks to help victims of VAW. Digital identity allows refugees, stateless women, or women in countries in which their right to be recognized is not protected by law, the ability to participate as members of society.[36]

> ***"As technologists, when we look at blockchain what we are promising is that you will have an identity. And if you're a refugee and you are stateless, it doesn't matter where you are, your identity travels with you."***
>
> -Atefeh Riazi, assistant secretary-general for the UN's Office of Information and Communications Technology

Having an identity is vital for political, economic, and social opportunity.[37] Blockchain can furthermore facilitate the creation of a decentralized community support network for victims of VAW to share their

24 Cathy Mulligan. "Blockchain and Sustainable Growth." *UN Chronicle*. United Nations, December 2018. https://www.un.org/en/un-chronicle/blockchain-and-sustainable-growth.

25 Davies et al. "Bridging the Gap."

26 Mulligan, "Blockchain and Sustainable Growth."

27 "Blockchain—What does it mean for the UN?" Emerging Technologies whitepaper series. *Unite* (2018). https://unite.un.org/sites/unite.un.org/files/emerging-tech-series-blockchain.pdf.

28 "Blockchain Technology Is Fighting Abuse & Exploitation." Mandated Reporter, November 18, 2022. https://mandatedreporter.com/blog/blockchain-technology-is-fighting-abuse-and-exploitation/.

29 Mulligan, "Blockchain and Sustainable Growth."

30 "Blockchain—What does it mean for the UN?"

31 "Blockchain Technology Is Fighting."

32 Thylin and Duarte. "Leveraging Blockchain."

33 Ibid.

34 "Blockchain—What does it mean for the UN?"

35 Thylin and Duarte. "Leveraging Blockchain."

36 Reshma Kamath. "Blockchain for Women Next Generations Sustainable Development Goal 5." *Asian Development Perspective* 9, no. 1: 92. https://doi.org/10.22.681/ADP.2018.9.1.88.

37 Ibid.

Case Study 1: Blockchain enabled Online Community Sensay

Sensay is a blockchain enabled online Q&A community that utilizes an AI-powered chat bot to help connect you to an expert based on the question you ask. It utilizes a cross-platform knowledge repository meaning it extracts data from various apps, such as Reddit, using OAuth. OAuth enables end users' account information to be used by a third-party without exposing account credentials. The data is still owned and controlled by its users. Sensay records the extracted data on the blockchain and its immutability allows users to prove they are the authors of the data. It offers incentives to maintain an active community by compensating its contributors for their input. It provides decentralized messaging support and protects data ownership increasing its trustworthiness with its users. This type of platform would provide victims of VAW a safe place to connect and find resources to assist them. Women with similar experiences can help each other find aid, discuss methods for moving forward, and provide emotional support through shared experience while also being compensated for their insights.

Source: Zheng and Boh. "Value Drivers of Blockchain Technology."

experiences, access resources, and provide mutual support in a secure environment. It can empower victims and amplify their voices in efforts to combat VAW. Due to its decentralized structure, there is no central authority to censor or suppress content allowing women to freely express their experiences without fear of censorship or reprisal.[38] Case study 1 by Thylin and Duarte revealed that because blockchain communities lack a central authority to decide how data is used, individual contributors are notably more engaged.[39] With no fear their data could be altered, deleted, or used in a way in which it was not intended, it instills confidence in the participants to engage.

Considerations

The implementation of blockchain technology requires specific considerations when it comes to equality, accessibility, and data privacy. Blockchain is an emerging technology and new technologies do not inherently benefit all equally.[40] It will be important to ensure inequalities are not being exacerbated by blockchain by including a gendered perspective when creating solutions utilizing this technology. This relates strongly to the creation of smart contracts as they automatically execute when agreed upon conditions are met. The predefined conditions need to be free from bias and discrimination.[41] Additionally concerning smart contracts, is the cost and time implications. If a solution that provides aid and resources to VAW needs an amendment for a smart contract, an entirely new block in the chain will likely be required.[42] This could prevent victims from receiving immediate assistance and thus losing trust in the system.

It's also important to note that blockchain technology generally requires access to smartphones and connectivity. Women experiencing violence and unequal treatment may be prevented from this luxury. Healthcare workers, law enforcement, and other community services may be an available resource for women to utilize to report their violence however, this could still prevent them from gaining monetary assistance or capturing real-time evidence against their abuser. Case study 2, blockchain technology helping refugee women in Jordan, highlighted on the following page, shows there are unique solutions to help with this limitation. It is also crucial to recognize anonymity ends when an owner of cryptocurrency needs to use it for a service or product given that providing personal information is often required for legal and practical purposes.[43] This could lead to women being targeted or re-victimized. Current studies on security breaches within blockchain have been tied mostly to wallet security, specifically for cryptocurrency. This indicates a requirement for better protective measures at the end user device and interface.[44] Vulnerability scans, penetration testing, and regular audits can assist in better securing this technology.

Blockchain technology's transparency also rais-

38 Walid Al-Saqaf and Nicolas Seidler. "Blockchain Technology for Social Impact: Opportunities and Challenges Ahead." *Journal of Cyber Policy* 2, no. 3 (2017): 338-354. https://doi.org/10.1080/23738871.2017.1400084.

39 Zheng and Boh, "Value Divers of Blockchain Technology."

40 Thylin and Duarte. "Leveraging Blockchain."

41 Al-Saqaf and Seidler. "Blockchain Technology for Social Impact."

42 Hughes et al. "Blockchain Research, Practice, and Policy."

43 Al-Saqaf and Seidler. "Blockchain Technology for Social Impact."

44 Meiran Galis. "Council Post: Blockchain and Data Privacy: The Future of Technology Compliance." Forbes, February 20, 2024. https://www.forbes.com/sites/forbestechcouncil/2024/02/15/blockchain-and-data-privacy-the-future-of-technology-compliance/?sh=281bee2d74f8.

Case Study 2: Helping Refugee Women in Jordan with Blockchain Technology

The UN and World Food Program partnered in 2018 to implement a solution where funds were delivered to supermarkets for women to access. An iris scan linked to the UN High Commissioner for Refugees's biometric identity system and blockchain allowed women to have their identities validated without the need for connectivity or a cellphone. Both a virtual wallet and bank account identity were created on blockchain for every beneficiary. The blockchain provided a record of the money owed, what was withdrawn, and subsequently, what the agency would now owe the supermarket. This created an environment where the formal banking system only needed to settle with the supermarkets resulting in much lower transaction costs and quicker, more secure transactions for the women.

Source: Thylin and Duarte. "Leveraging Blockchain."

es data privacy concerns. Violence-related data on a public blockchain could be accessed by unwanted users, which includes abusers, and could lead to further abuse, intimidation, or retaliation against survivors. Posts and reports on blockchain would be anonymous, but the detail of the content could inadvertently reveal private information about individuals allowing abusers to target them. Additionally, if open community platforms are used for victims of VAW, malicious members could take up network capacity with useless contributions.[45] This could prevent other members from making contributions and diminish an individual contributor's sense of belonging within the group. Blockchain based platforms are also vulnerable to false reporting which could lead to aid being misdirected to fraudulent claims. The lack of central oversight could allow for abusive content to be shared with an inability to remove it leading to further normalization of VAW in the digital environment.

Conclusion

VAW represents a significant global challenge, affecting millions of women worldwide and undermining fundamental principles of equality, security, and dignity. The intersection of VAW with geopolitical conflict through violent ideology, economic instability, and democratic erosion highlights the urgency of addressing this pervasive issue. Blockchain technology offers promising avenues for combatting VAW by providing secure, transparent platforms for recording incidents, sharing data, and empowering victims. However, the implementation of blockchain solutions requires careful consideration of factors such as equality, cost, and privacy concerns. Recommendations for leveraging blockchain in the fight against VAW include providing a safe, anonymous platform for women to report their abuse, promoting financial inclusion, and fostering community building platforms. It is essential to adopt a gender-sensitive approach to blockchain implementation, ensuring that inequalities are not exacerbated, and to address accessibility issues and security concerns. Further research is needed on its effectiveness, but this technology has great potential. Governments and organizations such as Women, Peace, and Security should consider piloting blockchain programs to assist in combatting VAW.

Ralisetdes. n.d. Stop violence against women illustration. https://stock.adobe.com/images/stop-violence-against-women-illustration/466230867?prev_url=detail.

45 Zheng and Boh, "Value Divers of Blockchain Technology."