Perception of Pegasus in Rwanda: A Dive into Privacy Concerns

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Abstract: This study explores the perceptions, fears, and nuanced opinions of Rwandans regarding the presence and potential misuse of Pegasus spyware, a globally controversial surveillance tool. Utilizing a mixed-method approach, we conducted a comprehensive survey involving 1,000 respondents, both within Rwanda and in diaspora, representing diverse age groups and genders. The research findings reveal a pervasive awareness of Pegasus among the respondents, with 80% expressing strong concerns about its potential misuse for surveillance. Moreover, a substantial 95% of respondents believe that the Rwandan government either currently uses or has previously employed Pegasus for surveillance purposes, while 70% assert that its deployment in Rwanda raises significant worries about privacy and individual rights. Notably, 80% of respondents associate the presence of Pegasus with a negative impact on freedom of speech and expression. Drawing from these findings, our study recommends a multifaceted approach, including stringent regulatory measures, technical safeguards, and an informed public discourse on surveillance technologies. It emphasizes the need for collaborative efforts involving governments, the private sector, and citizens to ensure the responsible and ethical deployment of surveillance tools like Pegasus, extending beyond Rwanda's borders to address global concerns. This research contributes to the ongoing global conversation about the delicate balance between national security imperatives and the preservation of individual privacy in the age of advancing digital surveillance technologies.

Keywords: Pegasus surveillance, National security, Individual privacy, and Surveillance technologies.

1. Introduction

The digital dawn has ushered in an era of unbridled possibilities, facilitated seamless connectivity, and fostered global discourse. Yet, nestled within its myriad boons, lies the Pandora's box of surveillance and privacy infringements that continue to agitate the global conscience. The narrative of digital surveillance unfurls across a complex tapestry, with governments and entities wielding it as a double-edged sword. On one edge, it promises national security and a bulwark against nefarious activities; on the other, it harbours the potential for misuse, often spiralling into invasive scrutiny and privacy encroachments. In the heart of such global debates, emerges the tale of Pegasus, a sophisticated spyware developed by the Israeli firm, NSO Group Technologies. Envisaged as a potent tool to combat terrorism and bolster national security, Pegasus has instead found itself ensnared in controversies, ranging from unsanctioned surveillance to gross privacy violations. Its capabilities to infiltrate smartphones and extract information have rendered it a potent tool, yet with a dark side that has evoked global concern.

The discourse around Pegasus transcends beyond mere technological and privacy realms, delving into geopolitical and human rights spheres. Nations, human rights groups, and citizens are entangled in a debate that questions the ethicality, legality, and the overarching implications of deploying such potent surveillance tools. The global narrative reverberates with a similar resonance in the heart of Africa, particularly in Rwanda, a nation with its unique historical, political, and social fabric. Rwanda, a country nurturing its developmental aspirations while grappling with the shadows of its past, finds itself at a critical juncture. The discourse...
around digital surveillance, epitomized by Pegasus, resonates deeply within its borders. The government's endeavors to ensure national security are often seen through a lens of scrutiny, given the historical precedents and the fragile state of political dissent. This investigation seeks to unravel the Rwandan narrative surrounding Pegasus, a narrative intertwined with fears, aspirations, and the relentless quest for a balanced discourse between national security and individual privacy. Through a meticulous survey involving a diverse cohort of respondents both within Rwanda and in diaspora, this study delves into the perceptions, fears, and the nuanced opinions surrounding Pegasus and its implications in the Rwandan socio-political landscape. The ensuing discourse unfolds the Rwandan sentiment, echoing the global apprehension yet nuanced by its unique national narrative. It's a tale that unveils the delicate balance between the promise of security and the essence of privacy, a balance that nations worldwide grapple with in the face of advancing digital surveillance technologies like Pegasus.

2. Literature Review and Hypothesis Development

A plethora of scholarly articulations and media exposés have underscored the potential abuse of Pegasus for unauthorized surveillance. The software, while originally crafted with benign intents, inherently bears the propensity for misuse, thereby spawning a discourse of distrust among the populace. The hypothesis germinates from the premise that the awareness of Pegasus’s existence and its potential misuse might foster negative sentiments among Rwandans, ostensibly influencing their perception of privacy and freedom of expression (Human Rights Watch, 2021).

Digital Surveillance and Pegasus

Digital surveillance continues to be a topic of heated debate in the realm of privacy and national security. A manifestation of this debate is found in the Pegasus spyware, crafted by NSO Group Technologies, which while being a potent tool for ensuring national security, has also been a flashpoint for controversies surrounding privacy infringements. Smith (2018) expounds on the dual nature of digital surveillance, a characteristic that is epitomized by Pegasus. Meanwhile, Human Rights Watch (2021) highlights the alleged misuse of Pegasus by authoritarian regimes to monitor and suppress dissidents, journalists, and human rights activists, thereby infringing on individual privacy rights.

Awareness and Perception of Surveillance

Public awareness of surveillance technologies plays a pivotal role in shaping individuals' perceptions of privacy and freedom of expression (Jones et al., 2020). Echoing this, a study by Citizen Lab (2020) emphasizes how awareness of the existence and potential misuse of surveillance tools like Pegasus can foster concerns about privacy and unauthorized access to personal information.

Drawing from the discussed literature, the subsequent hypotheses are articulated to guide an in-depth exploration into the Rwandan milieu: Hypothesis 1 (H1): Leveraging the framework by Smith (2018), it can be hypothesized that heightened awareness of the existence and potential misuse of Pegasus will be positively correlated with increased concerns about privacy and individual rights among Rwandans. Hypothesis 2 (H2): Building on the insights from Human Rights Watch (2021), it is hypothesized that Rwandans, who presume the Rwandan government has employed or is employing Pegasus for surveillance purposes, will likely harbor greater concerns regarding the impact of Pegasus on freedom of speech and expression. Hypothesis 3 (H3): Extending the argument by Citizen Lab (2020), it is postulated that individuals, who discern a negative impact on freedom of speech and expression due to the presence of Pegasus in Rwanda, will be more inclined to advocate for measures ensuring transparency and accountability in the deployment of surveillance technologies like Pegasus. These hypotheses are rooted in the assumption that awareness and beliefs concerning the utilization of Pegasus can significantly mold perceptions and apprehensions regarding privacy.
and freedom of expression in Rwanda. This, in turn, may steer individuals' recommendations for alleviating the potential risks tied to such surveillance apparatuses.

**Other Surveillance Software**

Various surveillance software options are available in the market, each catering to specific needs in the realm of security and monitoring. Additionally, the video surveillance market in 2019 highlighted several key players including Hikvision, Dahua, Bosch, Axis, Flir, Uniview, Hanwha Techwin, and Avigilon. These entities have considerably influenced the market which was estimated to be worth $21 billion (Getkisi, 2019). iSpy, developed by iSpyConnect, is another profound security DVR software known for its advanced features. iSpy is compatible across Windows, Mac, and Linux platforms, and allows for connection to any webcam or IP camera, rendering it a versatile choice for diverse surveillance needs (TechPout, date).

### 3. Methodology and Sampling Techniques

Employing a bifurcated method entailing qualitative and quantitative research, a survey was orchestrated to gauge the perception of 1,000 respondents, 300 ensconced in Rwanda while 700 are dispersed in diaspora. The demographic concoction spanned across diverse age groups and genders, with a pronounced representation from the 25-34 age demography. The survey encompassed queries aimed at gauging awareness, opinions, and the perceived repercussions of Pegasus in Rwanda. The quest to discern the implications of Pegasus spyware on privacy and freedom of expression among Rwandans necessitates a rigorous methodological approach. This chapter delineates the methodology and sampling techniques employed in the study to garner a comprehensive understanding of the perceptions and awareness among the target populace concerning digital surveillance, particularly the Pegasus spyware.

#### Methodological Approach

The study employs a bifurcated methodological framework incorporating both qualitative and quantitative research paradigms to offer a nuanced understanding of the research questions. The quantitative facet of the study is anchored on a structured survey aimed at eliciting responses from a total of 1,000 respondents. The survey comprises sections dedicated to gauging awareness, opinions, and perceived repercussions of Pegasus spyware in Rwanda, inspired by the design proposed by Johnson and Onwuegbuzie (2004). Adhering to the stratified sampling technique elucidated by Creswell and Creswell (2017), the study ensures representation across diverse demographic groups, including different age cohorts and genders. Employing Python software, both descriptive and inferential statistical analyses are conducted to delineate trends, correlations, and significant findings in line with the methods suggested by Field (2013). The qualitative dimension of the study seeks to delve into the nuanced implications of Pegasus. Semi-structured interviews are conducted with key informants including tech experts, human rights activists, and legal experts, as recommended by DiCicco-Bloom and Crabtree (2006). Focus group discussions, facilitated among selected participants, aim to foster a deeper understanding of communal perceptions and concerns regarding digital surveillance, following the guidelines by Krueger and Casey (2014). A thematic analysis is conducted to discern core themes and narratives around the perceived impact of Pegasus on privacy and freedom of expression, as delineated by Braun and Clarke (2006).

#### Sampling Techniques

The sampling process was meticulously designed to encapsulate a broad spectrum of perspectives from individuals both within Rwanda and in the diaspora. The population is stratified based on demographic variables such as age, gender, and geographic location, ensuring a pronounced representation from the 25-34 age demography. Of the total sample size of 1,000 respondents, 300 are based in Rwanda while 700 are...
dispersed in the diaspora. The diaspora population is accessed through online platforms and Rwandan community networks abroad. Data from in-country respondents is collected through face-to-face interviews and online surveys, whereas the diaspora respondents are reached through online surveys disseminated via email and social media platforms. This mixed-methods approach, underpinned by a stratified sampling technique, is aimed at providing a comprehensive insight into the diverse perceptions concerning the Pegasus spyware and its implications on privacy and freedom of expression in Rwanda.

4. Research Findings

The elucidation from the data unveils a unanimous awareness of Pegasus among the respondents. A conspicuous 80% resonated strongly with the potential misuse of Pegasus for surveillance, with 70% robustly affirming that its deployment in Rwanda spawns concerns pertaining to privacy and individual rights. A staggering 95% harbored the belief that the Rwandan government either currently wields or has previously wielded Pegasus for surveillance purposes, with 80% attributing a derogatory impact on freedom of speech and expression to the presence of Pegasus in Rwanda (The Guardian, 2021). The core endeavor of this study revolves around discerning the implications of Pegasus spyware on the privacy and freedom of expression among Rwandans. The data collated from the survey, interviews, and focus group discussions present a kaleidoscope of perceptions, awareness, and concerns pertaining to Pegasus and digital surveillance at large. This chapter delineates the key findings emanated from the data analysis, offering a comprehensive exposition of the research objectives.

Figure 1: Summary of Findings

The bar chart depicts Rwandans’ concerns about the Pegasus spyware and potential government surveillance. A unanimous 100% are aware of Pegasus, indicating its global significance and an informed Rwandan populace. Notably, 80% fear its misuse, and a significant 95% believe their government has employed or is using Pegasus for surveillance, revealing deep-rooted apprehension towards governmental surveillance.
practices. Additionally, 70% express concerns about Pegasus impacting individual rights and privacy, and 80% perceive a negative impact on freedom of speech. Overall, the data reveals a Rwandan populace wary of surveillance technologies and their implications on freedoms.

**Figure 2: Summary of Recommendations**

The pie chart visually encapsulates four pivotal recommendations directed at the Government of Rwanda concerning their use and deployment of surveillance practices, particularly the Pegasus spyware. Each section of the pie holds equal weight, indicating that all recommendations are of critical importance and should be given equal attention. The first section, enact a robust legal framework, underscores the imperative for a well-structured legal system. It advises the Rwandan government to institute laws that demand judicial oversight and specific approval for the deployment of advanced surveillance tools like Pegasus. By doing so, it ensures that the use of such technologies is within legal boundaries and is not arbitrary. The second slice, establish an independent oversight body, emphasizes the creation of a neutral and unbiased entity. This body’s role would be to monitor and ensure that the surveillance activities strictly adhere to the established legal norms, acting as a safeguard against potential misuses and overreaches.

Moving to the third segment, Implement a transparent mechanism for reporting, the focus shifts to the principle of transparency. The recommendation urges the Rwandan government to set up clear and open mechanisms, enabling public reporting of surveillance endeavors. Moreover, it should provide means for redress if there are instances of misuse, promoting accountability and fostering public trust. Lastly, the Foster international collaborations segment advocates for a collaborative approach. By aligning with international entities and standards, Rwanda can ensure its surveillance protocols meet global human rights benchmarks. This not only amplifies its commitment to safeguarding individual liberties but also balances the scales between national security and personal freedoms. In summation, the pie chart presents a comprehensive and multi-faceted set of guidelines for the Rwandan government, highlighting the nuanced approach required to navigate the intricate realm of digital surveillance.
Table 1: Recommendations for Rwandan Citizens

<table>
<thead>
<tr>
<th>Recommendations for Citizens in Rwanda</th>
<th>Recommendations for Rwandan Diaspora</th>
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<tbody>
<tr>
<td>Stay informed about the latest digital surveillance technologies and their</td>
<td>Remain connected with local news outlets to understand the evolving</td>
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<td>implications.</td>
<td>surveillance landscape in Rwanda.</td>
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<tr>
<td>Practice safe digital habits and employ encryption tools to protect personal</td>
<td>Use secure communication channels, especially when communicating with</td>
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<tr>
<td>communication.</td>
<td>family and friends in Rwanda.</td>
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<tr>
<td>Engage in public discourse about surveillance and its impact on personal</td>
<td>Advocate for digital rights and responsible surveillance practices on</td>
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<tr>
<td>freedoms.</td>
<td>international platforms.</td>
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<tr>
<td>Advocate for transparency and accountability in government surveillance</td>
<td>Collaborate with international bodies and human rights organizations to</td>
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<tr>
<td>practices.</td>
<td>voice concerns.</td>
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<tr>
<td>Educate and create awareness among peers about the significance of digital</td>
<td>Contribute to global discussions on the ethical implications of surveillance</td>
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<td>rights and privacy.</td>
<td>tools like Pegasus.</td>
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5. Discussion of Findings

In the study on Rwanda's perceptions of the Pegasus spyware, a unanimous 100% of respondents were aware of Pegasus. A significant 80% felt the potential for its misuse in surveillance, and 70% expressed concerns about its impact on privacy and individual rights. Alarmingly, 95% believed that the Rwandan government has, at some point, employed Pegasus for surveillance. Furthermore, 80% felt that the presence of Pegasus negatively affects freedom of speech and expression in the country. These findings highlight profound apprehensions among Rwandans regarding digital surveillance and its implications on personal freedoms and democratic values.

Awareness of Pegasus

The findings unveil a unanimous awareness of Pegasus among the respondents. This awareness is emblematic of the global discourse surrounding digital surveillance and its intricate interplay with individual privacy and freedom of expression. The respondents' awareness is also reflective of the broader narrative surrounding the utilization of Pegasus by various governments for surveillance purposes, as reported by numerous media outlets including The Guardian (2021). The research findings underscore a unanimous awareness of Pegasus among respondents in Rwanda, reflecting a broader global discourse on digital surveillance and its implications on privacy and freedom of expression. This awareness is not insular but aligns with the global narrative surrounding Pegasus' utilization by various governments for surveillance, as highlighted by media outlets like The Guardian (2021). The unanimous awareness among Rwandans resonates with the international concerns regarding the ethical dimensions and ramifications of digital surveillance, epitomized by Pegasus spyware. This awareness, fueled by global reporting and the consequential discussions on digital rights, indicates a level of digital literacy and engagement with global digital rights issues among the respondents in Rwanda. It lays a crucial foundation for fostering informed dialogue concerning the balance between national security and individual freedoms in the digital era within the Rwandan context.
Perception of Misuse

A conspicuous 80% of the respondents resonated strongly with the potential misuse of Pegasus for surveillance purposes. This finding underscores a prevalent apprehension among the respondents regarding the deployment of sophisticated surveillance tools like Pegasus. The perception of misuse echoes global concerns regarding the ethical implications of deploying such spyware, especially in the hands of authoritarian regimes. The data reveals a notable concern among respondents in Rwanda, with 80% resonating strongly with the potential misuse of Pegasus for surveillance purposes. This sentiment is not confined to Rwanda but mirrors global apprehensions regarding the ethical deployment of such potent spyware, especially by authoritarian regimes. The respondents' perception of misuse underscores a broader narrative that surveillance tools like Pegasus, though potentially useful for national security, may pose significant threats to individual privacy and freedom of expression if misused. This prevalent concern among respondents in Rwanda accentuates the necessity for robust regulatory frameworks and informed discourse to govern the deployment and use of sophisticated surveillance technologies like Pegasus, balancing between the imperatives of national security and the preservation of individual rights and freedoms in the digital epoch.

Privacy and Individual Rights Concerns

A substantial 70% of respondents robustly affirmed that the deployment of Pegasus in Rwanda spawns’ concerns pertaining to privacy and individual rights. This suggests a notable apprehension among the populace regarding the encroachment of digital surveillance on personal privacy and freedoms. The data corroborates the burgeoning discourse on the need for robust regulatory frameworks to govern the deployment and utilization of surveillance technologies. The study unveils that 70% of respondents in Rwanda express substantial concerns regarding the deployment of Pegasus, indicating a notable apprehension towards digital surveillance encroaching on personal privacy and individual rights. This data mirrors a broader global discourse on the ethical implications of sophisticated surveillance technologies. Respondents' concerns highlight a collective apprehension in Rwanda about potential infringements on privacy and individual rights through misuse of tools like Pegasus. Additionally, the data underscores a growing discourse in Rwanda on the necessity for robust regulatory frameworks to govern the deployment and utilization of such surveillance technologies. This emphasizes the need for informed public discourse and stringent regulatory frameworks in Rwanda to ensure the ethical deployment of digital surveillance technologies while safeguarding individual rights and freedoms.

Government's Use of Pegasus

A staggering 95% of respondents harbored the belief that the Rwandan government either currently wields or has previously wielded Pegasus for surveillance purposes. This finding underscores a pervasive perception of government surveillance, which may be rooted in historical or contemporary political dynamics. The data reflects a significant sentiment among respondents in Rwanda, with 95% believing that the Rwandan government either currently uses or has used Pegasus for surveillance purposes. This finding highlights a pervasive perception of government surveillance in Rwanda, potentially rooted in the nation's historical or contemporary political dynamics. The perception might be influenced by global narratives on governmental misuse of Pegasus, intertwining global surveillance concerns with local perceptions in Rwanda. This sentiment underscores the critical need for transparency, accountability, and robust regulatory frameworks governing digital surveillance technologies' deployment and utilization in Rwanda. It emphasizes the importance of fostering a culture of openness and public discourse concerning government surveillance practices to ensure the ethical use of surveillance technologies while upholding individuals' fundamental rights and freedoms.
Impact on Freedom of Speech and Expression

A significant 80% of respondents attributed a derogatory impact on freedom of speech and expression to the presence of Pegasus in Rwanda. This finding is emblematic of the perceived chilling effect surveillance technologies can have on civic discourse and expression. The data underscores a significant concern with 80% of respondents attributing a negative impact on freedom of speech and expression to the presence of Pegasus in Rwanda. This finding encapsulates a broader apprehension regarding the chilling effect surveillance technologies may have on civic discourse and expression in Rwanda. The perception of surveillance, embodied by Pegasus, possibly instil a sense of self-censorship among individuals, thereby potentially stifling democratic dialogues. This concern resonates with global narratives on the ethical quandaries posed by surveillance technologies, emphasizing a crucial discourse on balancing national security interests with the preservation of fundamental democratic values in Rwanda. It underscores the necessity for an informed, inclusive dialogue, and robust regulatory frameworks in Rwanda to ensure that surveillance technologies are deployed ethically, preserving the integrity of democratic processes and individual freedoms.

6. Conclusion

The findings from this study offer a robust elucidation of the perceptions, awareness, and concerns surrounding Pegasus spyware among Rwandans. The unanimous awareness of Pegasus, coupled with pronounced concerns regarding privacy, individual rights, and freedom of expression, underscore the exigent need for a nuanced discourse on digital surveillance, especially in the Rwandan context. The study unveils a unanimous awareness and pronounces concerns regarding Pegasus spyware among Rwandans, highlighting the interplay between digital surveillance, privacy, individual rights, and freedom of expression in the Rwandan context. The findings underscore an exigent need for a nuanced discourse on digital surveillance in Rwanda, balancing national security imperatives with fundamental democratic values. The data resonates with global narratives on the ethical implications of surveillance technologies, accentuating the necessity for openness, public discourse, and robust regulatory frameworks in Rwanda to govern the deployment and utilization of digital surveillance technologies like Pegasus. This will ensure that technological advancements in surveillance do not undermine democratic values and individual freedoms in Rwanda, fostering a conducive environment for informed dialogue and policy formulation.

7. Recommendations

The findings underscore a palpable trepidation among Rwandans vis-à-vis surveillance technologies like Pegasus. Recommendations burgeon from legal, technical, and societal vantages, advocating for stringent regulations, technical bulwarks, and an edified discourse on surveillance technologies. In summation, the judicious deployment of surveillance apparatus like Pegasus necessitates a concerted endeavor from governments, the private sector, and the citizenry, transcending beyond the Rwandan frontier to a global ambit (Citizen Lab, 2020).

The Government of Rwanda should enact a robust legal framework that mandates judicial oversight and approval for the deployment of surveillance technologies like Pegasus. Concurrently, a strong independent oversight body should be established to ensure strict compliance with the legal framework, alongside a transparent mechanism for public reporting and redress for any misuse. Furthermore, international collaborations should be fostered to align Rwanda’s digital surveillance landscape with global human rights standards, ensuring the protection of individual rights and freedoms in the digital age.
References


Appendix: The Opinion of Rwandans About Pegasus

Consent Form

Before you proceed with this questionnaire, please take a moment to read and understand the following:

Purpose: This questionnaire seeks to understand the opinions of Rwandans regarding the Pegasus spyware. The data collected will be used for research purposes only.

Voluntary Participation: Participation in this survey is completely voluntary. You can choose to skip any question or withdraw at any time without any consequences.

Confidentiality: Your responses will remain anonymous. No personal identifiers will be linked to your responses, ensuring your privacy.

Estimated Time: This questionnaire should take approximately 10-15 minutes to complete.

By proceeding with this questionnaire, you acknowledge that you understand the above terms and consent to participate.
Questionnaire

Demographic Information:
1. Age: [ ] Under 18 [ ] 18-24 [ ] 25-34 [ ] 35-44 [ ] 45-54 [ ] 55-64 [ ] 65 or older
2. Gender: [ ] Male [ ] Female [ ] Non-binary [ ] Prefer not to say

Awareness of Pegasus:
3. Were you aware of the spyware tool called Pegasus before participating in this survey? [ ] Yes [ ] No

Opinions about Pegasus:
4. Pegasus is a tool that can be misused for surveillance purposes. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree
5. The use of Pegasus in Rwanda raises concerns about privacy and individual rights. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree
6. I am concerned that my personal data or communications could be accessed through Pegasus. [ ] Strongly Agree [ ] Agree [ ] Neutral [ ] Disagree [ ] Strongly Disagree

Perceptions of Government Use:
7. Do you believe that the Rwandan government is currently using or has used Pegasus for surveillance purposes? [ ] Yes [ ] No [ ] Not sure
8. If you answered "Yes" or "Not sure" to the previous question, please briefly explain your reasons or concerns:

Impact on Freedom of Speech and Expression:
9. Do you think the presence of Pegasus in Rwanda has had any impact on freedom of speech and expression? [ ] Yes [ ] No [ ] Not sure
10. If you answered "Yes" to the previous question, please describe the impact you believe it has had:

Suggestions for Transparency and Accountability:
11. What measures do you think should be taken to ensure the responsible and transparent use of surveillance technologies like Pegasus?