The University of Chicago

Like, Comment, and Surveil
The Social Consequences of Crime Alerting Apps

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Abstract

Smartphone applications related to the crowdsourced generation and dissemination of crime data have gained rapid popularity among concerned citizens in the United States. Despite the relative ubiquity of this technology in our daily lives, few studies have explored what possible effects these apps could have on users' attitudes and behaviors surrounding crime and suspicion, as well as the effects of these apps on society as a whole. This study seeks to provide an overview of some of the major risks and opportunities associated with these apps by pulling from a wide variety of sources, including app reviews, field observations, interviews, user-generated content, and the publications put out by these platforms, while also pulling from prior research and reporting in this field. Drawing from this diverse dataset, this study makes three key findings: First, I find that these platforms can, under the right conditions, promote social organization around public safety. Second, I find that these apps are designed in such a way that they can foster a culture of excessive suspicion and paranoia, which in turn allows for bullying and racial profiling to flourish on these platforms. Third, I find that these apps often position themselves as an alternative to law enforcement and other official public safety strategies, even as they seek partnerships with these agencies to improve their legitimacy. This may have concerning implications as it relates to vigilantism, while also sowing confusion among users and leaving them susceptible to certain forms of manipulation. Lastly, this study lays out several recommendations for policymakers to capitalize on the opportunities provided by this technology while mitigating its risks.

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Introduction

We often take it for granted that vigilance is a valuable trait in a community. Slogans like "if you see something, say something" have been adopted by public safety departments around the world, reminding us to always take a moment to scrutinize our surroundings for suspicious activity. If only we all were a little more vigilant, the thinking goes, we would be able to prevent the next big terrorist attack. Sure, it might not be likely, but on the off chance that this stranger does mean harm to you or others, it is better to be safe than sorry. If there was an app that could make you, your family, and your wider community safer through the spread of information related to local crime, why would you not download it?

In a widely circulated PSA from the 1980s created by the Ad Council on behalf of the U.S. Department of Justice, McGruff the Crime Dog proudly describes the actions that residents of Hartford, Connecticut were taking to protect their neighborhood from crime (Advertising Council 1980; O'Keefe 1985):

> Hey, McGruff here. See that guy? He's stealing that bike. Now, see that lady? She's calling the cops! This is Mimi Marth, part of the eyes and ears patrol of Hartford, Connecticut. There's one hundred and twenty-six of them, regular people like you and me, working together against crime.
>
> Here's another one, Albert Bell. Yesterday, it was his turn to patrol. Halfway down the block, Albert sees a strange man nosing around the Barnetts' basement window. So Albert calls the cops, fast. And the cops pick the guy up, fast. Way to go, Albert! You know, when it comes to preventing crime, people like Mimi and Albert really make a difference. So could a person like you. (McGruff the Crime Dog/NCPC 2014)

Messaging like this regarding the importance of vigilance and community action in preventing crime has been around for a long time, and as technology has advanced the opportunities for individual community members to engage in crime prevention activities have only increased. For example, in 2016, an app called Vigilante was launched in New York City with an advertisement

that evokes a similar image to the McGruff ad campaign. In the video, which claims to feature real users of the app, a woman calls 911 to report being followed by a suspicious individual. While police are still far from the scene, the app notifies local users of the call, some of whom begin to record the incident on their phones, while others rush to the woman's location. The "suspicious man" begins to attack the woman but is stopped when, despite being warned not to interfere, Vigilante's users approach the attacker and scare him off (Vigilante 2016).

A concerned viewer might be given pause by these videos. What makes McGruff's target "strange" or Vigilante's "suspicious"? Both seem intent on encouraging viewers to report certain activities and individuals but remain relatively vague on what those activities or individuals might be. Indeed, the goal of addressing crime and suspicious activity may lend itself to popular support, but it is not immediately clear whether a consensus exists on what these terms mean. Nevertheless, Vigilante, an app that was later rebranded as Citizen (Murrell 2020), seems little concerned with this complication in an accompanying blog post, titled "Vigilante Manifesto." Here, the app's makers asked:

> What if everyone within a quarter mile of every reported crime were immediately made aware of it? What if there were a camera on every crime? What if transparency existed - if we all knew where crime was occurring and how it was being resolved?
>
> Would crime as we know it still exist? Could we restore trust between law enforcement and community [sic]? Could we eliminate bias and injustice? (Citizen 2016)

Citizen, alongside its competitors Nextdoor and Neighbors, is a crime alerting app that allows users to report crime and suspicion in their community and receive real-time notifications about crime and other dangers in their area. These platforms have grown rapidly in popularity, now ranking among the most downloaded apps in the United States (Bertoni 2020), with the

potential to radically alter how we address public safety. With the goal of informing their users and connecting communities, these apps promise to empower everyday people to make informed decisions regarding their personal safety and the safety of those around them. If individual community members are able to report suspicious activity and access real-time crime information, the thinking goes, they can play a larger part in America's wider public safety strategy.

At the same time, these kinds of individual engagements with crime prevention can come with grave and serious consequences. On February 26, 2012, Trayvon Martin, a Black teenager, was returning home from a trip to the store when he was approached by George Zimmerman, a neighborhood watch coordinator who had earlier reported to 911 that Martin was behaving suspiciously. Zimmerman shot and killed Martin, an act for which he was charged with murder but never convicted (CNN Editorial Research 2022). Later, on February 23, 2020, Ahmaud Arbery was murdered while jogging through Satilla Shores, Georgia when three residents confronted and shot him, claiming that they believed he was tied to a series of recent thefts in the neighborhood (New York Times 2020). These are just two high-profile examples out of many where Black people were killed or otherwise harmed by their neighbors based on so-called suspicion, a prime example of how people's biases can infect their understanding of vigilance. When individuals feel empowered to act on their suspicions and play a more active role in monitoring their communities, the risks of racial profiling and vigilantism cannot be forgotten.

The neighbors need not directly intervene in the situation to cause harm, either: there are countless other examples of white bystanders calling the police on Black people whose behavior they claimed as suspect (Victor 2018; Asare 2020; Bates 2018). Indeed, regardless of the caller's intentions, the end result is the same, as marginalized community members face violence and

aggression from those around them. It is worth asking, then, what social consequences might arise from the use of crime alerting apps, and what policymakers can do to ensure that these platforms are safe and productive spaces for community members to organize.

This paper seeks to address these concerns through the collection and analysis of a wide variety of qualitative data in order to develop a full and nuanced understanding of this rapidly changing landscape. These sources include user reviews of these apps, user posts and interactions through these apps, publications, and advertisements created by the companies developing these apps, field observations, and two interviews with experts in this space. I also draw my findings from the existing literature related to lateral surveillance, social disorganization, and crime deterrence. Given the relatively recent creation of this technology, very little research exists relating directly to the effects of these apps, and this paper is the first to approach these questions from a public policy perspective.

Ultimately, I find that these apps show significant potential in giving community members new ways to organize around crime prevention. Nevertheless, I also find a number of key shortcomings in the existing apps, including the exploitation of users' fears related to crime, the frequency of discrimination and racial profiling, and problems related to vigilantism and the undermining of official public safety strategies.

Literature Review

Criminological Theory

Criminologists have written extensively on the importance of community vigilance as a method of reducing crime. One line of thinking posits that the ability of a community to carefully monitor its members is a vital step to intervening against antisocial behavior and promoting

positive norms, particularly among young people. This is highly relevant, given that criminologists have long observed that crime is highly associated with youth (Hirschi and Gottfredson 1983; Farrington 1986), with crime rates peaking in adolescence and early adulthood (Rocque, Posick, and Hoyle 2015). In their seminal work on social disorganization theory, *Juvenile Delinquency and Urban Areas*, Shaw and McKay discuss the challenges faced by parents and other community members in competing with gangs for the socialization of youths, citing in part the "anonymity" created by urban areas (Shaw and McKay 1942, 439). In essence, they argue that communities that experience higher rates of crime do so because they lack the necessary social structures, or social organization, to effectively monitor community norms and raise their children with the same values. Sampson and Groves later wrote that Shaw and McKay's social disorganization model rested first and foremost on "the ability of a community to supervise and control teenage peer groups" (Sampson and Groves 1989, 778). In that same study, the authors found that the presence of unsupervised groups of teenagers was highly correlated with many types of crime (Sampson and Groves 1989).

Sampson and Groves' influential findings have been questioned by various authors, who have criticized their statistical methods (Veysey and Messner 1999) and their use of unsupervised youth groups as both an outcome and predictor of social disorganization (Drakulich 2014). Nevertheless, the self-monitoring role of the community in mediating crime has been supported by numerous other scholars (Bursik 1988; Vélez 2014; Bellair 2000). These arguments, building off of the work of Shaw and McKay and Sampson and Groves, generally consider monitoring and supervision of the community to be a key step to exerting informal social control (Vélez 2014). Vigilance by community members towards the goings-on in the community empowers them to intervene when problematic behaviors arise. Parents, for example, will develop a

relationship with the parents of their child's friends in order to share the burden of behavioral monitoring, which in turn makes it easier to identify and correct bad behaviors. This structure is known as "intergenerational closure" (Coleman 1988, 106–7). In one real-world example, an intervention based directly on Shaw and McKay's model, the Chicago Area Project, observed some limited success in reducing delinquency by working with neighborhood groups to promote social organization (Kobrin 1959; Schlossman and Sedlak 1983).

Aside from allowing for greater social organization and the supervision of youth, vigilance is also commonly put forward as a direct deterrent to crime. Michel Foucault, in *Discipline and Punish*, uses Jeremy Bentham's Panopticon to illustrate the impact of surveillance on behavior, saying that "He who is subjected to a field of visibility, and who knows it, assumes responsibility for the constraints of power" (Foucault 1977, 202). Observation, or even the threat of observation, can have a strong deterrent effect, influencing the subject "even before the offenses, mistakes or crimes have been committed" (Foucault 1977, 206). Foucault's analysis of the power of observation has formed the backbone for its own branch of criminological work relating to surveillance (Haggerty, Wilson, and Smith 2011, 232), arising in parallel to the Chicago sociological school of Shaw and McKay.

The rationale of vigilance as a method of crime deterrence has also been backed up by the work of various economists. The economic model of crime, first posited by Gary Becker, places significant weight on the probability of being caught and prosecuted in predicting crime rates (Becker 1968). Vigilance, insofar as it increases the likelihood that an offender is caught in the act, might then be considered to have a strong deterrent effect on crime. While there has been considerable debate about what level of capture-probability is economically efficient (A. Mitchell Polinsky and Shavell 1979; Bebchuk and Kaplow 1992; Friesen 2012), there is little

doubt in the field of crime economics that would-be criminals are disincentivized by an increase in the probability of being caught (Levitt and Miles 2007).

Real-World Applications

In merging the theory of vigilance as a crime deterrent and the idea that crime must be addressed at the community level (Shaw and McKay 1942, 441–44), policymakers and community leaders have implemented various strategies to encourage the public to watch each other and their shared spaces, so-called "lateral surveillance" (Andrejevic 2006). One such strategy has been the neighborhood watch, a program in which "residents act as the 'eyes and ears' of the local police," and through which "information is shared about local crime problems, crime prevention tips are exchanged, and surveillance plans are developed" (Bursik and Grasmick 2001, 172). While some papers have questioned its efficacy (Rosenbaum 1987), a meta-analysis of eighteen studies found that the presence of a neighborhood watch can deter crime, focusing specifically on the incidence of burglary (Holloway, Bennett, and Farrington 2008).

A more formalized program in Chicago, known as Safe Passage, employed community members to stand on street corners near Chicago Public Schools to deter crime and violence. The community monitors were equipped with cell phones or radios and instructed to observe their surroundings and report any suspicious activity (Gonzalez and Komisarow 2020, 3). Several studies have since confirmed that this program lead to a measurable drop in crime in the areas being monitored (Gonzalez and Komisarow 2020; McMillen, Sarmiento-Barbieri, and Singh 2019; Curran 2019), although some found evidence of spillover to other neighborhoods or to non-monitored times during the day, suggesting that the overall effect on crime is inconclusive

(Curran 2019, 1395–1400; Gonzalez and Komisarow 2020, 9–12). Among the studies that differentiated between violent and property crimes, violent crimes saw a larger decrease in the affected areas (Gonzalez and Komisarow 2020, 8; McMillen, Sarmiento-Barbieri, and Singh 2019, 13–14). This kind of "place-based" crime prevention strategy has also been used by law enforcement in the form of "hot spot policing," which has been met with similarly mixed success (Rosenfeld, Deckard, and Blackburn 2014; Lazzati and Menichini 2016),

Other scholars have argued that neighborhood watches can be highly exclusionary, with the potential to exacerbate local conflicts and even increase crime and violence (Adeoye Johnson 2016; Rosenbaum 1987; Skogan 1988). For example, in an essay by prominent Northwestern University criminologist Wesley Skogan, he accuses community-based crime prevention organizations of dividing communities while ignoring the root causes of crime. He goes on to say that "when they are effective, crime-prevention efforts may redistribute resources in favor of those who are better off and work to the detriment of the poor" (Skogan 1988, 42). Other authors have noted that groups like these have the potential to radicalize their members against outsiders, with one arguing that "efforts to 'watch' for 'suspicious strangers' may become synonymous with watching for blacks or Hispanics" (Rosenbaum 1987, 121–22). Criticism has been especially severe after the killing of Trayvon Martin by George Zimmerman, a neighborhood watch member, with some describing neighborhood watch groups as a front for violent vigilantism (Adeoye Johnson 2016).

Discrimination and Radicalization on the Internet

Concerns about racism and equity surrounding vigilance are not limited to the neighborhood watch, though. Given the relatively recent introduction of apps like Citizen,

Nextdoor, and Neighbors, which aim to adapt some of the methods of the neighborhood watch to the internet age, the scholarly writing regarding their effects has been sparse. Nevertheless, a recent study by Kennedy and Coelho draws on social media posts and user reviews for Citizen and Nextdoor, along with the virtual guardianship app bSafe, to find that these technologies often stoke "fear and paranoia" among their user base (Kennedy and Coelho 2022, 133). Similar to the findings regarding neighborhood watch groups, Kennedy and Coelho also cite a significant risk of discrimination against "racialized and impoverished 'others'" (Kennedy and Coelho 2022, 136). To that end, one study of Nextdoor found that the structure and design of these platforms ("platform architecture") can have a substantial impact on discriminatory and "uncivil" behavior (J. Kim et al. 2022).

While content moderation and deplatforming have been employed as the primary tools through which digital media companies try to regulate this type of behavior (Ganesh and Bright 2020), these strategies are not without their drawbacks and limitations. For one, this technology is imperfect, and problematic content is bound to escape the attention of moderators. At the same time, numerous studies have found that users who are banned from posting or whose posts are removed from mainstream platforms may be driven to more fringe communities and extreme viewpoints (Pearson 2018; Prucha 2016; Ali et al. 2021; Horta Ribeiro et al. 2021). On the other hand, in one instance researchers found that Reddit users from communities that had recently been removed for hate speech saw dramatic drops in "hateful behavior" elsewhere on the site, suggesting that these actions can in some cases effectively disperse and diffuse harmful activities online (Chandrasekharan et al. 2017).

In light of these challenges, it may be worth re-evaluating the role of crime alerting apps in the public safety landscape. While much has been theorized surrounding the role of vigilance

in crime prevention, relatively few scholars have studied the real-world effects of this increasingly popular technology. Furthermore, among the studies that do analyze the impact of these apps, most draw from a relatively limited set of qualitative data, and leave much unsaid regarding users' perceptions and decision-making. Given the paucity of research on these apps alongside their widespread use, further investigation is critically needed to determine why people decide to download and engage with these apps and what risks these decisions pose for other community members. To that end, this paper seeks to build on prior studies by analyzing qualitative data from a wide variety of sources to construct a fuller image of the risks and opportunities posed by these platforms.

Methods

This paper takes a qualitative approach with the intent of developing a framework for how the use of crime alerting apps shapes community dynamics, and how the actions of corporations and public safety officials can influence these dynamics. In particular, I studied the three most prominent crime alerting apps: Citizen, Nextdoor, and Neighbors. The qualitative data was collected from a wide variety of sources. To understand the perspective of users, this study primarily analyzes product reviews from the Apple App Store and the Google Play Store, as well as user posts and in-app interactions. The position of the firms behind these apps was further investigated by analyzing advertisements for these apps alongside other developer publications, including blog posts and materials that are freely available on the apps' official websites. Supplemental data was collected from field observations of the researcher's own experiences navigating these platforms for the duration of this study, alongside qualitative interviews with a researcher who has previously investigated some of the sociological effects of these apps and the Head of Community and Culture at Citizen. These interviews were conducted one-on-one over

Zoom, and subjects were asked a series of questions about their work and their organization in their professional capacity. Both subjects were given the option to remain anonymous but elected to be named in this study, as listed in Table 1 below.

Table 1: Interview Sources			
Name	**Affiliation**	**Date**	**Length**
Madelaine Coelho	Author (Kennedy & Coelho 2022); Ph.D. Student, University of Toronto	3 March 2023	28:46
Prince Mapp	Head of Community and Culture, Citizen	3 March 2023	13:55

The decision to perform primarily non-human subject research for this study was made to maximize the amount of analyzable data given the timeline available. The time and resource constraints of this BA thesis and a low estimated response rate largely preclude the possibility of statistically significant, generalizable research with human subjects in this field. Instead, using online posts by app users, this analysis was able to include the perspective of thousands of relevant parties. App reviews in particular were chosen as the primary form of user data because they could be easily collected and coded en masse using a Python script adapted from two software packages for scraping data from the Apple App Store and Google Play Store, respectively (Lim 2020; Mingyu 2022). A total of 106,462 reviews were collected, which were then filtered for relevancy based on the date of the review (only reviews from 2022 were included to reflect the rapidly changing nature of these platforms) as well as the content of the review (using a codebook to exclude reviews that were either non-descriptive or related only to technical specifications of the apps). Summary figures from this process can be found in Table 2

below, while more information on the reviews quoted in this paper can be found in Table 3 in the Appendix.

It should be noted that app reviews do not represent a random sample of app users, and may naturally skew towards more extreme experiences, both positive and negative. Nevertheless, this study does not aim to make a generalized claim as to how all users will experience these platforms but rather looks to highlight for future research some of the most promising and concerning outcomes that can arise. With this in mind, and given the depth of supplemental data used in combination with these app reviews, I do not expect any systemic biases in the app review data to undermine the integrity of this research.

Table 2: App Reviews

Filter Level	**Citizen**	**Nextdoor**	**Neighbors**	**Total**
Raw reviews	20,120	71,868	14,474	106,462
2022 only	3,046	13,720	794	17,560
Filtered for relevance	977	4,454	405	5,836

Concerning these other forms of data, user posts made in-app, field observations, and all developer publications were captured in screenshots and recorded by hand for analysis. This data was collected from December 2022 to April 2023. Because of the location-based nature of these platforms, user posts and field observations were largely localized to Chicago, where the research was being performed. Nevertheless, a brief review of this data from New York City, San Francisco, and Washington, D.C. revealed commonalities in users' in-app experiences, and the

findings from these sources are consistent with those other sources which were not location specific, as well as previous research performed on these platforms.

With regard to supplemental interviews, subjects were asked a series of open-ended questions, allowing the subjects room to guide the direction of the interviews toward the themes that they see as most important to their organization's goals, successes, and setbacks. Follow-up questions varied based on subjects' responses to further draw out these themes. These interviews were recorded and transcribed for further analysis. Once the data had been collected from all sources, the researcher performed textual analysis to identify key themes that were present across the different media, which were then organized into several primary categories in the following findings section.

Findings

In analyzing the many consequences that arise from the use of these platforms, this study breaks its findings into three parts. First, it examines the role of crime alerting apps as a promoter of social organization. Users report various benefits to community organizing and collaboration around issues of public safety, although these effects may benefit some users over others. Second, it identifies a culture of paranoia and fearmongering on these apps, which may be the result of the engagement-driven design of these platforms. This in turn enables bullying and racial profiling to flourish, which are met with inadequate content moderation. Lastly, this study observes that these platforms position themselves as alternatives to official public safety strategies, a decision with wide-ranging implications including the risk of vigilantism. At the same time, these platforms often indirectly associate themselves with government agencies and

police departments to promote their legitimacy, leading to confusion among users alongside several other risks to public safety.

Crime Alerting Apps as a Promoter of Social Organization

Users are, in large part, drawn to these apps out of a desire to promote their own safety by increasing their awareness of crime in their community. As one Citizen user put it, "this app makes me feel a whole lot safer than before I joined [Citizen]. I actually know what is going on around my neighborhood…" (User I 2022). A Nextdoor user cited similar concerns, stating that "I feel safer in my neighborhood. It can be a little nerve racking... listening to the news, but as a single women [sic] I feel more connected & comfortable just knowing I'm more informed and aware of both the good, and not so positive things going on in my area" (User II 2022). This desire to know what's 'going on' in one's neighborhood is an extremely common refrain among reviewers. In fact, 817 of the reviews analyzed use this exact phrase, representing almost 14% of all reviews included in this study. While some users praise these apps for increasing their access to this kind of information, and others are critical that these apps do not go far enough to inform their users, a plethora of reviews cite awareness as the primary goal of the user. A number of users went as far as to label them alternatives to mainstream and local news outlets, claiming "Nextdoor is a marvelous substitute for local news when it comes to fires, explosions, lost pets and family members, pictures of stolen bicycles and cars, and creepy people in the neighborhood" (User III 2022). Another stated that "I routinely read local news wherever I am staying/living, and Nextdoor is an aspect of that consistent local research" (User IV 2022). These reviews indicate the extent to which some users rely on the information shared over these platforms in navigating their surroundings. In this case, crime alerting apps appear to be serving

a vital purpose in keeping their users informed and knowledgeable about their community, particularly as it relates to crime and other dangers.

These findings are in line with many of the publications and advertising materials that Citizen, Nextdoor, and Neighbors put out. Neighbors, for example, mirrors the language of its users on the front page of its website, claiming that the app empowers people to "connect with your neighbors and stay up-to-date with what's going on in your neighborhood" (Neighbors by Ring n.d.). Citizen uses a similar refrain, encouraging users on the Apple App Store to "download Citizen to feel safer at home or out. Get real-time safety alerts and live video of incidents happening near you, updates on natural disasters or protests, and know if your loved ones are near a dangerous incident" (Citizen 2023a). In both cases, the app's developers position their product as a facilitator of information to help its users make safe, informed decisions as they navigate their surroundings.

They also both highlight a social element in this process, be it by checking in on loved ones or connecting with neighbors. Nextdoor leans particularly heavily into this last point, writing in the 'about' section on its website that "Nextdoor is where you connect to the neighborhoods that matter to you so you can belong. By bringing neighbors and organizations together, we can cultivate a kinder world where everyone has a neighborhood they can rely on" (Nextdoor n.d.). Neighbors adopts a similar position, quoting one Dallas resident as saying that "the app has a strong effect of bringing neighbors together by sharing information and creating a sense of community" (Neighbors by Ring n.d.). Both Nextdoor and Neighbors, and to a lesser extent Citizen, load their promotional materials with terms like 'community', 'together,' and 'connect' that evoke images of a united network of users who collaborate to address problems of crime and violence.

Many of the apps' users re-emphasized the benefits that crime alerting apps can have for community engagement around these issues. One Nextdoor user wrote that "[I] enjoy the way it's brought the community to a more central place you can't otherwise get to in person… the ability it had to raise awareness in real time for personal and property protection and safety." (User V 2022). Another user labeled Neighbors as "a great tool that enables neighborhoods to work together to fight crime" (User VI 2022), while a third user described how they utilized Citizen to "inform myself, friends, and family about some of the subtler things going on around my town and trends in certain areas" (User VII 2022). In this last case, the user highlights how the use of this technology can have spillover effects in the community, with users communicating with non-users to disseminate what they learned through the app, in this case as it related to "house fires… home invasions, shootings, hit-and-runs, etc." (User VII 2022).

This process of connecting with one's community, particularly around public safety and crime prevention, builds directly on the social disorganization theory of Shaw and McKay. They outline social disorganization as the inability of local communities and institutions to enforce their collective value system via social control (Shaw and McKay 1942, 177–83). In other words, by empowering their users to discuss and organize around perceived problems and dangers in their communities, apps like Citizen, Nextdoor, and Neighbors could facilitate meaningful change in the communities that adopt them. This community aspect also applies to the theory of collective efficacy, which builds off of the work of Shaw and McKay, as well as other social control theorists, to answer the question of why communities differ in the extent to which they are able to organize (Sampson, Raudenbush, and Earls 1997). Specifically, Sampson et al. describe collective efficacy as "social cohesion among neighbors combined with their willingness to intervene on behalf of the common good" (Sampson, Raudenbush, and Earls 1997,

918). To the extent that these apps are able to bring communities together to address problems of crime and violence, the existing theory would suggest that they could offer an important social service.

There are a number of real-world examples of meaningful community organizing related to these platforms. In Chicago, for instance, Citizen recently established a partnership with My Block, My Hood, My City (Citizen 2022b), a prominent nonprofit organization that "targets unjust systemic barriers and invests in quality youth programming and community development initiatives" (My Block, My Hood, My City n.d.). Citizen is also a common tool for violence interrupters who use its real-time notifications to help them address instances of violence before they can escalate further, according to Prince Mapp, Citizen's Head of Community and Culture and a former violence interrupter himself (Mapp 2023). Demeatreas Whatley, also a former violence interrupter with Cure Violence, further emphasized Citizen's importance for violence interruption in a local news report for Chicago's WGN-TV (Unruh 2020). In these instances, experts in community safety and organizing make a convincing case for how these apps can leverage collective efficacy to promote safety and discourage crime and violence.

That is not to say that these companies' focus on neighborhood organizing is immune from criticism. Kennedy and Coelho, for example, find of Nextdoor that:

> Despite being 'for neighbors,' administrators evoke images of a particularly narrow and exclusionary neighborhood with beautiful landscaping and enough outdoor space for barbecues, garage sales, and children playing. Our analysis of Nextdoor user reviews affirms that some individual users come from a privileged socioeconomic position that reflects the company's intended audience. (Kennedy & Coelho 2022, 135)

If the majority of the organizing taking place on these apps is concentrated in privileged areas, which may already have a high level of social organization, the use of this technology could have little practical impact. On the contrary, Kennedy and Coelho point out that in some cases

organizing in these kinds of communities can be exclusionary, to the detriment of others who "can easily be identified as not belonging and deemed suspicious" (Kennedy & Coelho 2022, 135). Furthermore, Rosenbaum identifies this shortcoming more generally in any effort to organize and increase informal social control in a neighborhood, stating that these efforts are generally more successful in areas which are largely white and high-income and that "efforts to 'watch' for 'suspicious strangers' may become synonymous with watching for blacks or Hispanics" (Rosenbaum 1987, 121–22). It should be noted, then, that efforts to organize communities around crime cannot be seen as unambiguously good, but should be looked at critically for how they affect the character of a community and its residents, as well as the experiences of those outside of that community.

Paranoia and Fearmongering

As businesses whose major service is to notify users about potential crime and danger, Citizen, Nextdoor, and Neighbors pride themselves on their ability to send users instant notifications. The company behind Citizen, for example, advertises on its website that "Citizen alerts go out within seconds of a 911 or user report" (Citizen n.d.). Nextdoor and Neighbors both use similar language related to 'real-time' alerts in promotional materials for their platforms, but the consequence of this strategy is a deluge of emails and app notifications sent out to users. One Nextdoor user described their push notifications as "abusive" and "spam" (User XII 2022), while another wrote that "you'll get harassed and inundated with a barrage of notifications" (User XV 2022). I experienced firsthand the sheer quantity of notifications that these platforms send out, receiving up to 30 crime-related notifications per day from a single app, alongside countless emails with eye-catching subject lines like "Neighbors Be Very ALERT and Careful," "ARMED

ROBBERY CREW VICTIMIZING THE FOLLOWING SOUTH SIDE NEIGHBORHOODS," and "(Chicago) Two Armed Robberies, Two Suspects at Large." These alerts may notify users about dangers that they may want to be aware of, but they also often extend far beyond incidents that could pose a real danger to users.

Indeed, the frequency of geographically irrelevant safety notifications was a common complaint in the app reviews studied for this paper. For example, one Citizen user reported that "I also almost exclusively get notifications on alerts going on OVER 10 MILES FROM ME. I rarely see anything within a 5 mile radius much less 1! Why is my page bombarded with notifications that are nowhere near me??" (User XI 2022), while another wrote that "most of this app is taken up with random salacious bits of crime from across the country rather than anything local" (User XVI 2022). Another Neighbors user claimed that they "keep getting notifications for areas I believe are out of state" (User XIII 2022). These notifications may be attributable to technical glitches or user error, but for apps whose primary function is ostensibly to keep users safe by notifying them of incidents in their vicinity, it is worth noting that these apps often fail in this regard. On the other hand, some users suspected that the inclusion of irrelevant crime alerts may have been done by design. One Citizen user, for example, wrote that "It's like they're worried you won't want the App if they don't constantly get your attention even if it's something that doesn't relate to you" (User XVII 2022). In other words, this user believes that Citizen is looking to increase user engagement through these notifications, and may be alerting users to irrelevant incidents when necessary to "constantly" engage with users. Another was more explicit in their allegations, stating that "This garbage fills your notifications with every petty crime even miles away in an attempt to convince you to be afraid of everything" (User IX 2022).

In this way, the notification system employed by these apps may be more oriented around capturing users' attention than imparting useful information or making them safer.

What these notifications do still achieve, then, is placing crime front and center in the minds of the users. In particular, many app reviewers express feelings of increased fear and anxiety surrounding crime in their neighborhood as a result of the information that these apps put out. One user reported that "everyone I know who mentions Citizens [sic] says they don't like it because of how anxiety inducing it can be" (User X 2022). Another Citizen user argued that "there's a 'major catastrophe' every 20 minutes. You become paranoid and eventually desensitized after a few months" (User XIV 2022). A third user agreed, writing that "sure it makes you aware, but paranoid" (User XIX 2022). A similar sentiment was felt by the users of Nextdoor, one of whom wrote:

> This app brings fear mongering to the next level. Even scarier, it's local and most of us trust our neighbors and wouldn't think twice to question their first hand experiences. Next Door [sic] seems to thrive on fear when it could be a very useful neighborhood resource. I nearly didn't move back to the city I love for all the anxiety it stoked in me… Downloading it to look for contractor referrals ended up being an instant reminder of the trash it promotes to scare people out of ever leaving their homes. For your mental health… don't download this app. (User XX 2022)

These and many similar reviews relating to all three apps point to a large contingent of users who feel more concerned or distressed about crime in their neighborhood as a result of these platforms, the information they share, and how that information is disseminated.

It should be noted that these users do not represent the totality of the user base: others reported a more mixed response to this information. For example, one Citizen user discussed how these apps can reduce fear in moderation but could worsen it when used too often, writing "[Citizen] gave me peace of mind for one incident I witnessed, and a load of anxiety after that. Use cautiously and sparingly. I have to go sort out some paranoia now" (User XXI 2022). Others

reported only positive consequences for their sense of fear and anxiety, with one Nextdoor user writing that "I get very anxious and this app lets me build those connections so when I'm out and about I'm actually looking forward to talking to people instead of being on the verge of panic" (User XXII 2022). Nevertheless, those reporting heightened fear far outnumbered the others among the reviews analyzed in this study.

Some users went further, speculating that fear among users about crime was the result of intentional fearmongering to drive up engagement. One Citizen user claimed that "[Citizen] doesn't show proximity of major events… forcing one to open the app to see if gunfights and building blazes are close by or miles away… [the] developers always desperately crave more app interaction" (User XVIII 2022). Here, the reviewer identifies the fear caused by Citizen and similar apps as more than a necessary consequence of this technology, but the result of a deliberate choice to get people to use the app more. Another Nextdoor user wrote that "I see the same horrible clickbait posts in my email inbox multiple times in a day. The emails are designed to open the app when you click 'read more', which is irritating when you just want to read the rest of the sentence" (User VIII 2022). Beyond the irritation of receiving repeated unwanted messages, by calling these emails 'clickbait' the user is suggesting that these notifications are intentionally misleading and exaggerative in order to increase engagement with the platform.

These companies have a clear profit motive to drive up engagement. Nextdoor, for example, brings in revenue primarily through advertising, or "sponsored content," on its platform, which relies on maximizing views and user interactions (Nextdoor n.d.). Madelaine Coelho reinforced this point in our interview, explaining that Nextdoor began to focus on crime in its marketing after it discovered that these subjects were very effective at attracting users and building engagement (Coelho 2023). Citizen, on the other hand, earns money through sales of its

"Citizen Premium" service (Citizen 2023d), which for $19.99 per month gives users access to a "protect agent" for live monitoring, advice, and emergency response when users feel unsafe, a service that Citizen describes as "911, Supercharged" (Citizen n.d.; 2022a). Citizen will periodically prompt users to sign up for the service when opening the app. Citizen also runs a separate $4.99 subscription service called "Citizen Plus" which grants users some additional functionality, including the ability to access historical crime reports and to filter for alerts in specific areas and around family members, but without live monitoring (Citizen 2023f; 2023e).[1] Given that these services are advertised primarily within the app to existing users, Citizen also stands to benefit from more user engagement, particularly engagement that is driven by fear and which might convince users to pay money out of a desire to feel safer. The Neighbors app is less transparent about its profit structure although, given the fact that it functions as a vehicle for promoting Ring video doorbells, and is backed by Ring's parent company Amazon, it may not need to generate revenue on its own. Indeed, the home page of the Neighbors app includes links to various Ring and Amazon products, and thus it, too, stands to benefit from attracting more eyes to the screen.

The presence of fear-inducing mechanisms on these platforms is also one of the key findings of Kennedy and Coelho's 2022 study, who added that it is often the lack of resolution to these alerts that can worsen anxiety about crime among users. In other words, "these individuals wanted updates regarding arrests, charges, and the names of wrongdoers" (Kennedy & Coelho 2022, 133). Nevertheless, they also caution that "it is possible those with high levels of fear and anxiety might have been more likely to download the app and/or write a review" (Kennedy & Coelho 2022, 133). Indeed, users of Citizen, Nextdoor, and Neighbors are not chosen at random,

[1] It should be noted that Citizen has also long considered implementing a private, on-demand security force for its paid users, with a brief pilot program taking place in Los Angeles in 2021 (Gandel 2021) and plans for a similar trial in Chicago (Cox 2022).

but likely self-select based on a pre-existing fear of crime. To what extent these apps directly heighten users' fears of crime rather than attracting users who already experience high levels of fear remains an open question, one that deserves further consideration as research advances in this field. Nevertheless, the evidence analyzed in this study indicates that, at the very least, a significant cohort of users do self-report increased paranoia and anxiety from the usage of these apps.

Regardless of the source of the anxious environment on these platforms, one consequence is clear: many users claim to have witnessed or experienced discrimination, with at least 138 reviews (2.4%) explicitly alleging racism. One Nextdoor user explained that "the race-baiting, racial profiling, and 'stranger danger paranoia' Nextdoor is renowned for promoting, still continues. It's quite common in my 'neighborhood' for users to post an image of someone walking down a sidewalk, and then the dog pile begins. 'Looks like an illegal!' 'Shoot first, ask questions later!' Crazy!" (User XXIV 2022). Another wrote that "I've witnessed racism, violent threats, and overall bitterness combined with entitlement more than anything… I'm aware this may be a product of the human race itself, but Nextdoor's poor response to the serious matters is enough to make me delete this app for good" (User XXV 2022). With regard to Citizen, one user added that "I'm just floored by the amount of racism in the comments. I want to know what's going on in my city, not degrading comments about minorities with false narratives. Telling people to be kind and respectful is not enough" (User XXIII 2022).

These reviews represent only a small sample of the concerns users raised regarding harassment, discrimination, and violent rhetoric used on these platforms, a phenomenon I personally observed over the course of this research. For example, in one Nextdoor discussion regarding a series of robberies, users entered into a debate on the merits of 'stop and frisk'

policing, with one user defending the strategy on the following grounds: “Show me where there are groups of any other ‘skin tones’ engaged in the street activity we need stopped right now. Answer: you’ll hardly find them.” This kind of language was even more common on Citizen, where many comments included wording that could easily be construed as racist. For example, under one report of arson, a user commented “typical i bet its [sic] some ghetto trash.” In another feed related to a recent shooting, one user by the name of Lilomis made a series of comments including “These animals won’t stop,” receiving seven likes, “Get the monkeys off the street and put him in jail where they belong,” receiving two likes, and “Somebody needs to get those monkeys off the street. Shooting needs to stop,” receiving four likes. The latter two comments were called out by other users as racist but were never removed by Citizen’s moderation team. Below a separate alert relating to a series of armed robberies, users left comments featuring explicit calls to violence such as “People need to start carrying and take these Animals out!”, which received forty likes, while another user wrote that “They should get the death penalty, even if they’re 12,”[2] which received ten likes. Indeed, while comments like these are relatively easy to find under any major Citizen alert, they represent only a fraction of the problematic comments on the app, many of which are deleted by Citizen’s moderation system shortly after being posted. It is hard to assess the true scale of the racist and otherwise socially unacceptable posts on these platforms, but these interactions no doubt rise beyond the level of isolated incidents.

The presence of racism and discrimination on these platforms is also well documented in prior publications on this subject. Nextdoor, for example, has been the subject of numerous allegations related to racial profiling over the years, most notably in 2015 when Oakland

[2] It should be noted that while this user may be referring to the alleged robber’s age, “12” is also a common shorthand to refer to the police, although it is unclear why the user would suggest the robber is a police officer.

residents complained of "posts labeling Black people as suspects simply for walking down the street, driving a car, or knocking on a door" (Levin 2015), a controversy which forced the app's founder and CEO Nirav Tolia to implement significant changes to how users post about crime and "suspicious activity" (Hempel 2017). Nevertheless, follow-up reporting found that racial profiling on the app remained rampant after these changes (O'Donovan 2017), a problem that was particularly evident amid the protests following the murder of George Floyd (Kelly 2020). Similar concerns have been raised regarding Citizen (Lin, March 2 2020, and A.m n.d.; G. Kim 2021), an app which Matthew Guariglia of the Electronic Frontier Foundation described as "a digital superhighway for racial profiling" (Gandel 2021). One former Citizen employee went as far as to describe a portion of its users as "insanely racist, which comes out in comment sections that are especially vile even by the standards of internet comment sections" (Cox and Koebler 2021). Neighbors, too, has seen its fair share of scrutiny, with one investigation finding that people of color are the subjects of a majority of posts referring to suspicious activity (Haskins 2019).

The developers of Citizen, Nextdoor, and Neighbors are well aware of these concerns. Nextdoor, for example, has produced numerous publications related to combating discrimination on its platform. For example, in an update from Nextdoor CEO Sarah Friar shortly after the murder of George Floyd, she writes:

> We will better educate our neighbors on what is — and is not — allowed on our platform, drawing a firm line against racist behavior, racial bias, and racial profiling and removing comments and members who violate the rules. We will accelerate our plans to strengthen our community through inclusive moderation. This will include improving the resources and support we provide to Neighborhood Leads who work to maintain civil and productive conversations on Nextdoor. (Nextdoor 2020)

Beyond these resources, Nextdoor and Neighbors both provide a relatively detailed set of community guidelines which include specific language related to racism and discrimination (Nextdoor n.d.; Neighbors by Ring n.d.). Citizen, on the other hand, offers its users only a few general categories of banned speech on their platform, with its entire list of guidelines coming in at under 60 words (Citizen 2023c). Furthermore, it can be hard to determine how and to what extent these policies are enforced. Nextdoor describes its moderation practices as "a blended balance of both technology and human review," using algorithmic detection, trained employees, designated community members (called "Leads" and "Review team members"), and general user feedback (Nextdoor n.d.). On the contrary, in the app reviews which mentioned moderation, users overwhelmingly perceived these deputized "Leads" as being the sole or primary source of community and content moderation. Neighbors, for its part, claims to manually review all posts and comments made to the platform before they can be published (Neighbors by Ring n.d.), as does Citizen for its users' live broadcasts (Citizen 2023b). Citizen comments, on the other hand, appear to be moderated in real time: it is not uncommon to see the number of comments on a new alert fluctuate rapidly as comments are posted and then quickly removed.

Nevertheless, as an ex-post solution to a systemic problem on these platforms, these moderation efforts can be too little, too late. Not only do plenty of problematic posts avoid the eyes of censors, as evidenced by the aforementioned discrimination, but this moderation style may lead to even more tension and suspicion among users whose posts are removed. For example, many such users allege bias and a political agenda within the moderation team. One user wrote "You cannot have honest conversations about say, crime in your community because it will be deemed racist and Nextdoor will remove you," (User XXVI 2022) while another commented that Nextdoor is a "garbage app where any posts that don't agree with the liberal

agenda get deleted as ‘against their guidelines’. Don't DARE post about rising crime in your neighborhood to warns [sic] others, ESPECIALLY about crime committed by a certain age [or] ethnic group” (User XXVII 2022). A Citizen user echoed similar complaints, writing “As usual this app is ran by woke liberals who won't bother to show details essential to safety and upstander action. They love censoring information that's deemed against ‘guidelines’” (User XXVIII 2022). Neighbors, too, is subject to these allegations, with one user writing “Was banned for being pro gun conservative. I have been the victim of censorship and prejudice and may no longer voice my opinion and exercise my rights as an American to free speech” (User XXIX 2022). To this end, other reviewers spread specific conspiracies related to the developers and moderators of these platforms to varying degrees of hyperbole. One user, for instance, upset with the platform’s moderation, accused Neighbors of “probably colluding with Russia” (User XXX 2022), while another references Nextdoor’s alleged bias in relation to the New World Order conspiracy theory (User XXXI 2022).

This turn towards fringe ideologies may hint at a deeper problem with this system: if the moderation on these platforms is leading users to feel that they are being outcast or persecuted, it may actually be promoting rather than suppressing extremism. This is particularly true if users who may have been radicalized on these platforms switch to less moderated and more ideologically homogenous spaces. One user, for example, wrote that they “can’t wait for truth social” (User XXXVI 2022), a platform which was until recently banned from the Google Play Store for failing to discourage threats of violence (Fung 2022). Indeed, many studies related to online extremism have shown that users who are banned or “deplatformed” tend to migrate to alternative communities where they can express even more hateful views (Pearson 2018; Prucha 2016; Ali et al. 2021; Horta Ribeiro et al. 2021), although these spaces often have a much

smaller audience than mainstream platforms, and thus this content may be less effective at radicalizing others (Rauchfleisch and Kaiser 2021). If, on the other hand, these platforms sought to foster a community that was not oriented towards paranoia and racial profiling, through strategic communication (See Ganesh and Bright 2020) and changes in platform design, these challenges might be avoided. Instead, by cultivating an environment that is prone to extremism and discrimination, and only attempting to moderate these attitudes after the fact, these businesses fail to prevent many of the most harmful effects of their technology.

Replacing Official Public Safety Strategies

Perhaps the most relevant and pressing consequence, from the perspective of public policy, is how these attitudes translate to real-world behaviors and undermine existing public safety strategies. For example, in some cases, these apps appear to have actively encouraged their users to engage in real-world vigilantism and marketed themselves as a platform for this kind of behavior, most notably in the case of Citizen. When originally launched in 2016, Citizen was known under the name Vigilante, only rebranding itself the following year after public outcry (Citizen 2017). An advertisement titled "Introducing Vigilante," which has since been deleted from the Citizen YouTube channel, features users rushing to the scene of a crime to approach and scare off the perpetrator, responding to the incident faster than the police are able to (Vigilante 2016). While the users in the advertisement are warned by the app to not "interfere with the crime"[3] and to "keep a safe distance," presumably to discourage violent or dangerous intervention, the actors in this ad arguably violate both conditions as they move almost within arm's reach of the assailant in order to end the ultimate attack. Given the explicit "Vigilante"

[3] It is worth noting that the exact alert sent out in the ad, "Suspicious man following woman," is not necessarily a crime, and this statement presupposes that the situation is in fact criminal and rises above the level of suspicion.

branding and the nature of this advertisement, sp0n, Citizen's parent company, appears to be appealing directly to individuals who are interested in playing a very active role in combating crime in their neighborhood.

In a separate blog post announcing the app's relaunch as "Citizen," the app's developers note that "we needed to make some changes" (Citizen 2017) but nevertheless highlight how popular and effective this original branding was, claiming that:

> On October 26, 2016, we released a prototype of our technology that we named Vigilante, available on the iPhone. Alongside the app, we published a dramatized video showing an assault incident thwarted by a group of people using the app.
>
> The response was overwhelming; within 48 hours we had downloads and in-app requests for service in all 50 states, in addition to dozens of countries around the world. **The importance and need for this app was quickly validated.** (Citizen 2017)

Even as they looked to change course, then, they doubled down on the idea that this "prototype" was a success, and that the Vigilante branding was effective at attracting their desired audience. To that end, the "changes" highlighted in this article relate only to the branding and terms of service for the platform, while the technology itself remained apparently unchanged from this earlier iteration (Citizen 2017). The current Citizen app, minus a few minor additions in the intervening years, is functionally the same as its Vigilante predecessor, and would therefore seem to appeal to the same intended audience in its design, if not in its branding.

This notion appears to have been reconfirmed during a high-profile incident in 2021, in which Citizen employees on a live broadcast falsely accused a California man of setting wildfires and offered a $30,000 bounty to any user who could offer information leading to his arrest (Paul 2021). Specifically, Prince Mapp, who was separately interviewed for this study, urged viewers to "Look for [the person's name]. Look for him. Family members of [the person's name]. He wasn't just brought on this world by himself, we need your help. We need you to help us contact

him and identify where he is. We need the scent of his clothing. We need this man off the street…" (Cox and Koebler 2021). This is despite the fact that sharing "specific personal information that could identify parties involved in an incident" is prohibited by Citizen's own community guidelines (Citizen 2023c). In the process of this search, Citizen sent out the man's full name and likeness to all users in LA, roughly 860,000 people (Paul 2021; Morrison 2021) with roughly 1.4 million users ultimately engaging with this content by the end of the incident (Cox and Koebler 2021).

According to leaked internal messages the decision to initiate this manhunt, and the $30,000 bounty, came directly from Citizen CEO Andrew Frame, who ordered employees to "FIND THIS FUCK… LETS GET THIS GUY BEFORE MIDNIGHT HES GOING DOWN" (Cox and Koebler 2021). While Citizen employees did not appear to have made any specific requests for users to engage physically or violently with the man they accused, the information and hysteria spread by Frame and the Citizen Team could have been "disastrous," as described by an official from the Los Angeles County Sheriff's Department (Morrison 2021). Indeed, in more internal communications Frame appears to have initiated this incident with the express intention of returning Citizen to its original goals under Vigilante, reportedly writing that "This is a great transition of Citizen back to active safety. We are not a news company. We are safety and we make this sort of heinous crime impossible to escape from. That needs to be our mindset" (Morris 2021).

This kind of rhetoric raises serious questions regarding what exactly "active safety" entails and whether users may interpret this messaging and act on it in unintended and dangerous ways. Importantly, this study was not able to identify any real-world instances of individuals directly intervening with a crime in progress as a result of the information shared on these

platforms. That is not to say, though, that these concerns are entirely unfounded. Given the widespread access to real-time crime updates that these apps provide, there is no reason why a concerned citizen could not, in theory, use the information provided to engage in vigilante justice. Moreover, many of the notifications sent out by these platforms contain calls to action, including "stay vigilant," "use caution in the area," "be careful," and "be on the lookout." While these notifications encourage users to engage in seemingly benign behaviors, they nevertheless stress the importance of translating information obtained from these apps into real-world action, rather than engaging as a passive observer. While the jump from these kinds of actions to potentially dangerous or criminal vigilantism still represents a considerable leap — one not easily taken by the vast majority of users — even a small fraction of this population being influenced towards vigilantism could lead to serious consequences.

The phenomenon of vigilantism arising through community crime prevention strategies is not unique to these apps and has been a longstanding concern in the existing literature. Neighborhood watch groups, for example, have been extensively criticized as promoting vigilantism for their role in a number of high-profile killings, most notably the shooting of Trayvon Martin (Adeoye Johnson 2016; Finegan 2013). While apps like Citizen, Nextdoor, and Neighbors may look quite different from traditional neighborhood watches, these platforms have made a concerted effort to court these and similar groups onto their platforms. Neighbors, for instance, describes itself as "the new neighborhood watch" (Nick 2018) and claims to work directly with "block watches and other community groups, so peace of mind has never been easier" (Neighbors by Ring n.d.). Similarly, Nextdoor entered into a formal partnership with the National Neighborhood Watch Program (the national affiliate of many local neighborhood watch groups in the United States) to create a guide for establishing a "virtual neighborhood watch" on

its platform (Nextdoor and National Sheriffs' Association, n.d.). In fact, many users compare these apps to neighborhood watch groups. One Nextdoor user wrote that "I downloaded this for neighborhood watch type info," (User XXXII 2022), while another described Nextdoor as "kind of like neighborhood watch, yet a lot more opportunity in many ways" (User XXXIII 2022). The same goes for Neighbors, which one user argued "tries to be like a neighborhood watch" (User XXXIV 2022). These reviews, alongside the fact that a number of reviewers identified themselves as leaders of their own neighborhood watch groups, would seem to indicate that there is quite a large degree of crossover between the kinds of people who download these apps and the kinds of people who engage in crime prevention activity in the physical world, raising further questions about the risk of vigilantism on these platforms.

It is also important to note that even when a vigilante's actions are nonviolent and nondiscriminatory, these behaviors differ considerably from the kinds of social control and organization that many criminologists advocate for. An individual user taking matters into their own hands does little to help communities organize. Indeed, insofar as this individual's values may differ from those of the rest of the community, this person's actions may effectively decrease organization, and by extension crime, by further reducing trust and cohesion. This is also true for groups of people using these apps who, even when acting communally, still represent only a small piece of the neighborhood and wider community in which they inhabit.

Beyond specific vigilante behavior, these apps often present themselves as alternatives to official crime prevention systems. For example, on their website, the makers of Citizen state that "Citizen alerts go out instantly — this can be hours before Amber Alerts are even issued for children in danger. This speed has been critical in acting on important events like abductions and missing elderly people" (Citizen n.d.). They go on to say that "You used to have to call a police

tip line to help. Now you can use Citizen to broadcast live video, sharing relevant updates with others. You can also leave comments, which have helped locate missing people and share information about evacuation centers during natural disasters" (Citizen n.d.). In both cases, Citizen is presented as a superior alternative to official public safety systems, be they Amber Alerts or police tip lines.

Nevertheless, even as these platforms promote alternative crime prevention strategies, they also emphasize their close relationship with many official public safety agencies. Nextdoor, for example, operates a service called Nextdoor for Public Agencies which they argue "has become… mission-critical for agencies and residents to connect with each other in communities across the country" (Nextdoor n.d.). Nextdoor further claims that there are thousands of public agencies already using their platform (Nextdoor n.d.), including "governors, fire departments, police departments, and health departments" (Nextdoor n.d.). Neighbors employs a similar service, called the Neighbors Public Safety Service, which also allows for public safety agencies to engage directly with their constituents, sharing and receiving information related to crime and other happenings directly through the app (Neighbors by Ring n.d.). The Chicago Police Department, for example, posts relatively frequently to request video footage or tips to aid in its investigations, sometimes with a large cash bounty (Chicago Police Department n.d.). As a matter of scale, an advertisement released by Neighbors includes representatives from at least six different law enforcement agencies around the country offering praise for this service (Ring 2020), a small fraction of the roughly 2,500 law enforcement agencies that reportedly use Neighbors across the country (Neighbors by Ring n.d.).

Citizen's collaboration with local governments is less direct, as the app does not formally partner with outside groups or agencies. Nevertheless, the app advertises itself as a tool

developed for and in consultation with local officials and first responders. For example, the app's developers note in their post relaunching the app after its rebranding from Vigilante that "we have incorporated advice from, and are now in active communication with, officials from the City [and] representatives from the New York Police Department…" (Citizen 2017). To that end, the app recruited Bill Bratton, the former commissioner of the NYPD and the LAPD chief of police, to sit on its board of directors (Citizen 2020). While these partnerships would appear to contradict the positioning of these platforms as alternatives to official crime and safety channels, they may actually serve to complement the platforms' aims by adding legitimacy to the use of these apps. For example, prospective users may be more inclined to download these apps if they are under the impression that they are officially sponsored or sanctioned by their local government. One Citizen user wrote that they only realized the app was not being run by "official sources" after downloading the app and being confronted with a paywall, adding that "this is troubling for me b/c without official support, there is a potential for false alerts b/c of the lack of oversight (verification) which in turn is extremely dangerous in today's society" (User XXXV 2022). In this way, the confusion caused by the marketing of these platforms and their loose connections to public safety agencies and law enforcement may be effective at attracting users who would otherwise be uncomfortable with private interests in the public safety space. Once again, given the for-profit nature of these apps, the developers are incentivized to encourage users to download and engage with this technology as much as possible. If partnerships with public safety organizations help these companies build legitimacy and capture new users, even if this is done under confusing or misleading pretenses, these companies stand to benefit.

This lack of clarity regarding the relationship between these apps and public safety agencies can also create problems in how government agencies and individual law enforcement officers navigate these platforms. In one case, a Citizen user expressed dismay after they allegedly received a phone call from their local police department regarding their comments on the app, especially given the fact that they had not willingly shared their contact information (User XXXVII 2022). In another incident on Nextdoor, one user had this to say:

> While using NextDoor, I experienced a policeman sending me private messages trying to get me to agree to a date. I blocked him but he somehow managed to find a way to message me and was sending multiple messages a day. Given that NextDoor forces users to use their real names AND the app shows the street that we live in, I felt extremely unsafe knowing a cop could use that info to track me down. I changed my username and was banned from the app for that. Even after letting them know why I felt unsafe enough to change my real name, they didn't once listen to my concerns and didn't even acknowledge the safety issue…
> (User XXXVIII 2022)

The misuse of these platforms by law enforcement can not only represent a major violation of privacy and a breach of the public trust but may, as in the case of this last user, present a serious danger to users' safety. By engaging with users over the internet, police officers engaging in gross or criminal misconduct may be able to avoid the oversight that they are subject to in other spheres of contact. Indeed, given the lack of clear policies governing these interactions, users may be unsure of their capacity to ignore or end such contact. While it should be noted that interactions such as these may well be coming from malicious actors impersonating police officers, rather than officers themselves, this distinction does not eliminate the threat posed to public safety. Indeed, users may be more susceptible to such deception when their local police department has failed to publish guidelines regarding how and when their officers will engage with these platforms.

Policy Implications/Recommendations

The findings of this paper have clear implications for the need to address the shortcomings of crime reporting apps. As these platforms become increasingly popular in our communities, and as the use of these apps promotes a number of deeply troubling attitudes and behaviors surrounding crime and suspicion, policymakers should look carefully at what strategies they can pursue both to mitigate the worst consequences of this technology and capitalize on its full potential.

One clear and immediate measure to mitigate risk would be for police departments across the country to set clear policies for how, if at all, their individual officers and the department as a whole will navigate these platforms. As evidenced by the allegations of stalking and harassment outlined at the end of this paper's findings, a lack of straightforward guidance in this area can create a dangerous environment for the public. Whether or not these represent cases of police misconduct, or impersonation of a police officer by a malevolent third party, these interactions not only cause direct harm to the individuals affected but could damage the legitimacy of the entire police department. Setting guidelines for the use of crime reporting apps by police officers could simultaneously help to limit these interactions and allow the public to more easily identify fake accounts that pose as police officials. It can also help users to make informed decisions about whether or not to engage with this technology by knowing to what degree its use is sanctioned by their local officials.

At the same time, to limit the oversaturation of crime information on these platforms, municipalities can restrict access to certain information, like police radio transmissions. The Chicago Police Department, for example, recently encrypted its communications to restrict access to live crime information by police scanners, only releasing the unencrypted signal to the

public on a 30-minute delay (ABC7 Chicago Digital Team 2022). Citizen in particular is highly dependent on this technology for its information sharing, and the encryption of CPD's radio was so impactful on their operations that they published a petition and encouraged users to sign on to reverse the decision (Citizen n.d.). This can, therefore, be a highly effective strategy for slowing the spread of information, preventing panic, and stopping any vigilantism that may arise from live updates on these platforms. Nevertheless, policymakers must carefully consider the wider implications of limiting access to police radio for the rights of citizens to hold their police departments accountable. Numerous community activists and news media organizations have spoken out against these measures, and any decisions to encrypt or delay police radio transmissions ought to be done carefully, sparingly, and in dialogue with all affected parties.

Lastly, as policymakers continue to express interest in imposing regulations on social media platforms, the particular risks posed by Citizen, Nextdoor, and Neighbors may make them an attractive first target. One indirect regulatory method, which bypasses many of the most challenging concerns relating to free speech and the first amendment, is to increase transparency by requiring these platforms to publish their exact content moderation policies and practices (MacCarthy 2020). The State of California, for instance, recently passed such a law (California 2022), although many of its measures will not come into effect until 2024 (Gabriel 2022). Another, more direct strategy would see these platforms regulated as traditional news media companies and subject to the same rules and restrictions (Niklewicz 2017). The strongest of these proposals, which has gained much support in the United States, would see Section 230 of the 1996 Communications Decency Act revoked, effectively making these businesses liable as publishers for all user-generated content on their sites (Siripurapu 2020; Kern 2022). These proposals have nevertheless generated controversy, as a lack of Section 230 protections may

open up these companies to countless lawsuits and effectively prevent them from operating at all (Electronic Frontier Foundation 2023; Ashley Johnson and Castro 2021). Others, still, have proposed several amendments to Section 230 that would roll back some of its provisions and strengthen others to try to achieve the appropriate balance (Smith and Alstyne 2021; Kerry 2021). The correct method and magnitude of regulation needed remains an open question and will likely continue to be hotly debated for the foreseeable future. Nevertheless, given the great risks associated with crime alerting platforms as outlined throughout this paper, there is a pressing need for some form of regulatory oversight in this space.

Conclusion

This paper identifies a number of key social consequences that can arise from the use of crime alerting apps like Citizen, Nextdoor, and Neighbors. For one, I find that as a tool for community organizing around crime, these apps can help to promote social organization and collective efficacy in the communities in which they are employed. While in many cases this level of social organization is desirable, this may not always be the case, particularly if the community chooses to organize in a way that is exclusionary. Secondly, I find that many users report increased fear and anxiety concerning crime upon downloading these apps, a condition which may be encouraged by the design of the platforms to increase engagement. This also contributes to a discriminatory environment that Citizen, Nextdoor, and Neighbors have so far failed to appropriately moderate. Lastly, I find that these apps position themselves as alternatives to traditional public safety measures. This raises serious concerns about violent vigilantism and the devolution of public safety authority from the state to private corporations.

While this paper identifies what may be the most important consequences of these platforms, they no doubt represent only a small part of the changes that these apps have brought about in our communities. Future research in this field could look to expand upon these findings through interview methods or by examining users' emotional and psychological responses to the stimuli on these platforms. Additionally, the question of whether these apps actually reduce crime is no doubt an important one for policymakers to consider, and much more research is needed to appropriately answer this. Lastly, social scientists and policymakers alike ought to continue to grapple with and investigate the risks and benefits of a decentralized, non-governmental public safety apparatus and what this technology could mean for modern policing. There is no question that as these apps grow in popularity and ubiquity throughout the United States and the rest of the world the challenges and opportunities that they present will become increasingly far-reaching and hard to ignore. It is imperative, then, that researchers and policymakers begin to shift their attention to this field and all that it could mean for our society.

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Appendix

Table 3: Users Cited				
Alias	**Username**	**App**	**Location**	**Date**
User I	Flowers Grow	Citizen	App Store	7/14/22
User II	Tammy Mathias	Nextdoor	Google Play Store	9/18/22
User III	dtweeterh	Nextdoor	App Store	6/17/22
User IV	adamdesautel	Nextdoor	App Store	5/18/22
User V	Shannin	Nextdoor	Google Play Store	8/3/22
User VI	Jks5848	Neighbors	App Store	1/13/22
User VII	Christohansen	Citizen	App Store	2/15/22
User VIII	Knuckles049IH	Nextdoor	App Store	9/24/22
User IX	ferrus	Citizen	App Store	9/28/22
User X	Marcus Anderville	Citizen	App Store	9/17/22
User XI	lf127	Citizen	App Store	3/10/22
User XII	KGBguy	Nextdoor	App Store	7/10/22
User XIII	Stephani Johnson	Neighbors	Google Play Store	6/14/22
User XIV	Jimmy D 1972	Citizen	App Store	10/6/22
User XV	Phoenix2000	Nextdoor	App Store	9/20/22
User XVI	Martin Brugge	Citizen	Google Play Store	4/30/22
User XVII	Aimless Direction	Citizen	App Store	1/9/22
User XVIII	Dave Muggli	Citizen	Google Play Store	5/8/22
User XIX	Daniel ‚ÄúVishera‚Äù	Citizen	Google Play Store	2/1/22
User XX	ChaseChicagoUser	Nextdoor	App Store	9/2/22
User XXI	Lisa Koslowski	Citizen	Google Play Store	10/1/22

User XXII	April Channel (ApryleDarlene6)	Nextdoor	Google Play Store	6/3/22
User XXIII	johnrich's girl	Citizen	App Store	5/27/22
User XXIV	Randall Kowalik	Nextdoor	Google Play Store	8/16/22
User XXV	Wideopenthrottle	Nextdoor	App Store	9/8/22
User XXVI	marco romo	Nextdoor	Google Play Store	4/28/22
User XXVII	Akihito007	Nextdoor	Google Play Store	8/13/22
User XXVIII	violet fennec	Citizen	Google Play Store	6/23/22
User XXIX	Nerighbor number angry	Neighbors	App Store	6/7/22
User XXX	1_Whistler_1	Neighbors	App Store	7/9/22
User XXXI	N M	Nextdoor	Google Play Store	12/15/22
User XXXII	NewMommy2011	Nextdoor	App Store	4/19/22
User XXXIII	Char Mc	Nextdoor	Google Play Store	12/7/22
User XXXIV	Remmik_	Neighbors	App Store	8/27/22
User XXXV	AgilisOne	Citizen	App Store	10/8/22
User XXXVI	JT_STUD	Nextdoor	App Store	1/25/22
User XXXVII	Jsmnfnz	Citizen	App Store	9/14/22
User XXXVIII	Vonnii2	Nextdoor	App Store	2/21/22