

# CROWDING OUT THE LONEWOLF – CROWDSOURCING INTELLIGENCE TO PREVENT LONEWOLF ATTACKS

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## Abstract:

With terrorist networks turning toward lonewolf attacks as their choice modus operandi, homeland security forces are quickly realising that traditional top-down surveillance programmes are ill-suited to detect the subtle indicators of sporadic attacks perpetrated by legal residents with no known links with terrorist cells. This essay studies successes in commercial applications of crowdsourcing, and argues that crowdsourcing intelligence provides greater degrees of penetration and persistence in community surveillance, and is more attuned to detecting subtle signs against the local context. It then provides recommendations on building and sustaining a wide base of motivated and committed users in order to refine existing nation-wide initiatives into effective intelligence crowdsourcing platforms. The effective implementation of crowdsourcing as a novel intelligence tool will not only enhance intelligence collection on lone-wolf terrorism, but also engender a stronger sense of ownership for homeland security among the citizens, and portray a tougher deterrence stance against terror networks.

*Keywords: Surveillance; Subtle; Penetration; Community; Deterrence*

## INTRODUCTION

*“The most likely scenario that we have to guard against right now ends up being more of a lone wolf operation than a large, well-coordinated terrorist attack.”*

*- Barack Obama,  
44<sup>th</sup> President of the United States of America.<sup>1</sup>*

On the evening of 14<sup>th</sup> July, 2016, a rented 19-tonne cargo truck rampaged through the crowds of revellers celebrating Bastille Day on the Promenade des Anglais in Nice, France, taking the lives of 86 people and injuring 434 others.<sup>2</sup> What seemed like an accident at first turned out to be a devastating

lonewolf attack, planned and executed by a single person—Mohamed Lahouaeij-Bouhlel, a legal Tunisian resident in France. Subsequent investigations revealed that Lahouaeiji had become radicalised shortly before the attack, consulting websites carrying jihadist propaganda and expressing extremist views.<sup>3</sup> His friends noticed him growing a beard eight days before the attack and began showing them Islamic State of Iraq and Syria (ISIS) beheading footages in his phone, claiming that he had grown accustomed to such videos. Days before the attack, Lahouaeiji also persuaded some friends to smuggle large amounts of cash back to his family in Tunisia when previously he only sent small sums at regular intervals.<sup>4</sup> With the benefit of hindsight, these signs should have been

obvious red flags to the French intelligence agencies. However, unless Lahouaeiji had already been pre-identified as a high-risk individual, such subtle tell-tale signs of an impending lonewolf attack could hardly be detected by routine surveillance programmes. Such is the challenge of tracing and preventing a lone-wolf attack. With lonewolf attacks becoming more common and deadlier, homeland security forces have quickly realised that traditional top-down intelligence approaches, such as electronic surveillance, are ill-suited for detecting and preventing lonewolf operations as such operations often involve a single individual with little communication with the outside world on his attack plan.<sup>5</sup> This essay argues that a bottom-up approach involving the local community's participation through crowdsourcing could be an effective alternative to collect tell-tale signs of a brewing lonewolf attack, and could have the spin-off benefit of strengthening the citizenry's sense of ownership for homeland security. It also provides suggestions for transforming existing nation-wide initiatives into effective intelligence crowdsourcing platforms.

### THE EMERGENCE OF THE LONEWOLF CHALLENGE

The global security landscape was irrevocably altered following the iconic terrorist attacks waged on United States (US) home soil on 11<sup>th</sup> September, 2001. The collapse of the twin World Trade towers solidified the resolve of the civilised world and motivated an international military campaign against the perpetrator of this hideous crime. Dubbed the 'War on Terror', the protracted military campaign relentlessly targeted the top dogs within the Al-Qaeda hierarchy and significantly withered their assets and communications capabilities. While the War on Terror succeeded in neutralising Al-Qaeda's central hierarchy, it inadvertently pressured Al-Qaeda into evolving its tactics to one where it rallied

individuals at the lowest level, with minimal contact with its reduced command structure.<sup>6</sup> More critically, the protracted War on Terror supplied ample footages of the injustices waged by the US and the West on the Muslim community, providing fertile ground for Al-Qaeda and its splinter groups to cultivate a ready base of aggrieved individuals into lonewolf jihadists.<sup>7</sup> Instead of investing resources into scouting, recruiting and training operatives, this rudimentary form of crowdsourcing allows the terrorist group to reach out to a wider population of would-be jihadists with little monetary and time investments while staying under the radar of surveillance programmes by negating the need for two-way communications. Noting the advantages of inciting lonewolf attacks, ISIS has become more prolific over the years in packaging its propaganda and making use of existing social media platforms to appeal to the young and impressionable minds. In September 2014, Abu Muhammad al-Adnani, the official spokesman for ISIS, urged followers and sympathisers to "kill in any manner...a disbelieving American or European—especially the spiteful and filthy French—or an Australian, or a Canadian or any other disbeliever."<sup>8</sup>



*United Airlines Flight 175 explodes after crashing into the South Tower of the World Trade Centre.*

As compared to yesteryears, the indoctrination of potential lonewolf operatives is given an additional boost by the use of the Internet and social media platforms as broadcast channels. In place of books, newsletters and manifestos, the speed and reach of the Internet today have enabled worldwide consumption of terroristic ideologies and methods by individuals in anonymity.<sup>9</sup> Disenfranchised individuals can easily scour accessible websites and online videos to reinforce their burgeoning beliefs, chat anonymously with like-minded individuals, and acquire tools and methods needed to perform mass murders. With the ease of accessibility to resources and guidance online, lone-wolf attacks can be easily hatched, planned, and executed all by a single individual in a short span of time with little communication.

These unique characteristics of lonewolf operations render traditional intelligence collection methods impotent.<sup>10</sup> As aptly described by the Head of Counter-Terrorism for the New York Police Department, "If the conspiracy to commit a terrorist act is a conspiracy of one, and the planning for that is unsophisticated...and is only happening in the mind of the offender, from an intelligence standpoint...that's very hard to detect."<sup>11</sup> Indeed, even invasive electronic surveillance is only viable if targeted at an already identified suspect, and it would be extremely resource-intensive and unsustainable for any intelligence agency to analyse every single Tweet, Facebook post and email floating in the cyberspace to sniff out early indicators. Hence, such means are unlikely to aid in the initial identification of potential individuals. Besides electronic surveillance, traditional human intelligence activities could be challenging without a clear hierarchy or structure to assign spies for monitoring and espionage. Community outreach programmes aimed at garnering domestic intelligence have also seen limited effectiveness.

As such programmes depend on personal interaction between law enforcer and the citizens, they are resource-intensive, and often suffer from limited reach, especially to individuals who are less visible, less accessible and more resistant to interacting with the figures of authority.<sup>12</sup> Limited penetration and persistence prevent such programmes from picking up day-to-day signs and indicators of an individual's early step toward self-radicalisation, such as Lahouaeij's sudden mosque attendance and growing of a beard.

With law enforcers and the intelligence community on the back foot against lone-wolf attacks, it is no surprise that terrorist groups have been able to lay claims to an increasing number of such attacks. From mid-2015 to mid-2016 alone, there were nine attacks in the West—ranging from a mass shooting by a single disguised tourist at a packed tourist beach, killing 38 and injuring 39 others to Lahouaeij's truck attack on Bastille Day in Nice.<sup>13</sup> The latest instalment to this ongoing trend involved yet another truck rampaging through a Christmas Market in Berlin, killing a dozen people.<sup>14</sup>

## VALUE PROPOSITIONS FOR CROWDSOURCING DOMESTIC INTELLIGENCE

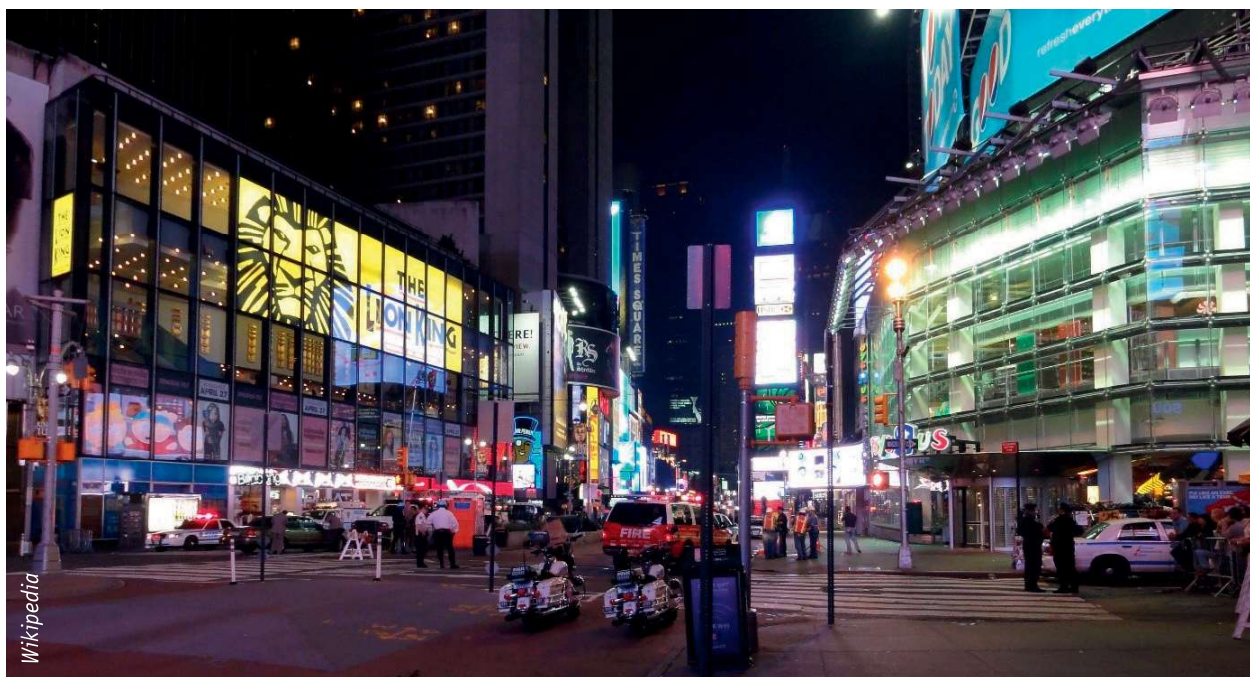
The continuing onslaught of lone-wolf attacks is a worrying trend, and the repeated success of similar modus operandi (e.g., mass shooting by a lone gunman, or a truck rampaging through revellers) underscores the inadequacy of current top-down intelligence approaches in preventing such tragedies. With the intelligence community seemingly at its wits' end, parallels could be drawn from commercial arenas to better understand and appreciate the value propositions of adopting crowdsourcing as a bottom-up, community-based intelligence approach.

The term 'crowdsourcing' was first coined by Jeff Howe, and was later defined by Daren Brabham as 'an

online, distributed problem solving and production model that leverages the collective intelligence of online communities to serve specific organisational goals.<sup>15</sup> Crowdsourcing differs from outsourcing in that it involves the participation of masses, instead of a single assigned entity. The concept of leveraging on the wisdom of crowds is not a new one. In fact, Francis Galton had already demonstrated the strength of collective wisdom more than a century ago in 1907. At a crowded country fair, Galton held a contest where he had 800 people guess the weight of a slaughtered and dressed ox. While no one individually knew the weight of the dead ox, the median of their individual guesses was more accurate than any of the cattle experts' estimates solicited separately from the crowd.<sup>16</sup> While Galton had to physically gather a crowd, crowdsourcing in the 21<sup>st</sup> century could easily reach millions by riding on the Internet and popular social media platforms.

In the present day, the strength of crowdsourcing information had already been harnessed to a great

utility in commercial applications. Leveraging on traffic information supplied by road users, Waze, a mobile navigation application for use on smartphones, is able to provide accurate real-time information on traffic flow, congestions, road conditions and obstructions, accidents, and even ad-hoc speed traps.<sup>17</sup> Another successful case study was the Defense Advanced Research Projects Agency's (DARPA) Ten Red Balloons experiment held in December 2009. In a contest for a \$40,000 prize, teams had to locate ten red balloons randomly placed around the US. The winning team from Massachusetts Institute of Technology (MIT) located all ten balloons in less than nine hours, a task which DARPA had originally estimated would take approximately two weeks.<sup>18</sup> Riding on Twitter and by developing a pyramid reward scheme where rewards were given to the ones who supplied the balloons' locations and also to the ones who referred the balloon finders, the team was able to quickly establish a self-propagating base of motivated and involved users. The speed and accuracy in which this task was accomplished reinforced the effectiveness



*Police cordoned off Times Square after finding a bomb in a car.*



of distributed problem-solving for scenarios that are directly applicable to intelligence gathering.

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Applying crowdsourcing to the domain of security and intelligence collection might seem counter-intuitive at first glance, as the intelligence value of information is often associated with the confidentiality of its source, and limited exposure to the public. However, history is replete with examples where information volunteered by the public, in the form of tip-offs, had been crucial to thwarting lone-wolf terrorist plots. For example, the Times Square bombing in 2010 was averted when a local street vendor alerted two New York policewomen on street patrol to a smoking Sport Utility Vehicle (SUV).<sup>19</sup> Real-world events like these are testament to the utility of citizen intelligence in preventing lone-wolf terrorism.

In fact, a bottom-up, community-based intelligence gathering approach offers at least three direct advantages over traditional top-down surveillance methods in detecting and preventing lonewolf attacks. Firstly, mobilising the entire citizen taps into a much wider pool of resources, as compared to the limited manpower resources employed by law enforcement agencies. This allows the collection effort to grow exponentially in coverage, and provides more pervasive surveillance without the need for investments in invasive technology. The pervasiveness is necessary for picking up subtle signals which are often emitted by lonewolf terrorists. An analysis of past case studies indicated that although limited,

lonewolves do possess networks, and often provide clues to their violent intents in some form or manner, and these will more likely be noticed by local citizens within the lonewolf's community, as compared with national surveillance efforts.<sup>20</sup>

Closely linked to the advantage of pervasiveness is the advantage of persistence in a collection. Compared to community outreach programmes where law enforcers have limited touch-points with a small subset of individuals, motivated citizens are constantly embedded in the community, and can provide conscious observations of their surroundings and their fellow citizens at least 16 hours a day. This day-to-day persistence is important for painting a reliable baseline against which any subtle changes in behaviours, demeanours or ideologies could be detected as signals of a self-radicalisation process.<sup>21</sup>

The third advantage of involving the local community is local expertise, which is important in filtering abnormalities from normalcy. Law enforcers who are not an integral part of the local community could have difficulty in noticing out-of-norm practices. In addition, as compared to locals in the same neighbourhood, law enforcers are often seen as figures of authority and are less likely to receive unsolicited and unguarded information.

Other than these direct advantages, a bottom-up approach, through encouraging direct participation by the local communities, could provide an indirect advantage of strengthening the sense of ownership among the citizens for the fight against terrorism. By involving the citizens and motivating them to proactively provide useful information, a ground-up crowdsourcing initiative could ingrain in them the notion that everyone, and not just the law enforcers, has a part to play in preventing terrorism. With the entire nation mobilised against lone-wolf terrorism, a stronger deterrence stance is portrayed.



*A police officer speaking to a group of children in Des Moines, Iowa.*

### MAKING CROWDSOURCING WORK

The advantages of mobilising the entire nation against terrorism have not gone unnoticed by Singapore's homeland security forces. In the latest effort to strengthen the nation's resilience against a terrorist attack, a new national movement named SGSecure was officially launched in September 2016.<sup>22</sup> At the launch, PM Lee Hsien Loong highlighted that everyone should be a 'prepared citizen' by learning how to protect themselves and their families, and also by learning how to recognise signs of suspicious behaviours, identify suspicious items, and report it to the authorities. As part of this campaign, an SGSecure mobile application was also unveiled, providing members of the public with a one-stop portal to receive alerts during national emergencies, and also for them to provide information to the

authorities. Such a mobile application is a step in the right direction as it provides a platform for citizens to provide bottom-up information. However, other law enforcement agencies abroad have also developed similar online portals and mobile applications and yet most have failed to provide tangible enhancements to domestic intelligence collection. The SGSecure mobile application could take reference from commercial crowdsourcing successes, and enhancements such as incorporating two-way communication with the users, infusion of elements of fun as a form of intrinsic motivation, and the provision of tangible rewards as a form of extrinsic motivation.

In comparison with Waze, or other commercial applications, crowdsourcing intelligence faces an uphill battle of amassing and retaining a ready pool of public users, especially if the threat of terrorism is

not clear and present in the public's consciousness. A series of contests with tangible rewards, similar to the DARPA's Ten Red Balloons experiment, could be initiated to generate interests and publicity in order to create the initial user base. This could also serve to validate the effectiveness of the mobile platform in coping with the online traffic, and also provide an indication of how useful crowdsourcing domestic intelligence could be in a local real-world context.

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Beyond the initial hype, we will need to sustain the public's involvement in this nation-wide intelligence collection effort. To do so, a two-way engagement is crucial as the citizens need to feel involved as part of the overall intelligence programme.<sup>23</sup> Without feedback on the actions that have been taken following the submission of a report, the citizens would feel less inclined to provide information in the future. In addition, transparency in the follow-up action would reinforce the notion that the citizens are treated as part of the nationwide effort, and not just an additional conduit of intelligence. Most of the existing applications, including SGSecure, fail to provide a clear and personal feedback to the citizen, and hence fail to elicit repeated interactions. In addition, a two-way engagement could also manifest as requests for further information by the law enforcement agencies. For example, if the police require more information regarding a suspicious red vehicle, this could be pushed out to the public

using the mobile application, and the public could be encouraged to provide any details with regard to this vehicle. In this way, stronger public involvement could be engendered.

Another crucial ingredient in successful crowdsourcing is a strong sense of commitment by the users. This could be engendered by a combination of intrinsic and extrinsic motivators. Taking a leaf from Waze's success story, a collection of virtual rewards, such as points, levels, badges and avatars, could be awarded to members of the public who provide useful pieces of information. These forms of gamification, 'the use of game thinking and game mechanics in non-game contexts to engage users in solving problems,' provide recognition to the users' contributions, and positively reinforce their commitment to the task, thereby spurring on further participation.<sup>24</sup> Linking this to popular social media platforms, such as Facebook and Twitter accounts, could also help to personalise the achievements, and also help reach out to a wider base of participation.<sup>25</sup> Other than superficial game mechanics, actual monetary rewards could also be a very strong motivator for repeated contributions. However, studies have found that tasks that are framed with intrinsic rewards and altruistic causes, such as helping others, have been found to be associated with higher work quality.<sup>26</sup> In the context of intelligence gathering to prevent lone-wolf attacks, a clear case for altruism and community self-protection is present. Hence, in combining intrinsic and extrinsic motivators, the use of intrinsic motivators should be weighted more heavily to avoid negative backlash in the public's sentiments.

Other than interactivity and reinforcements, successful crowdsourcing for intelligence should also include mechanisms where spurious information could be weeded out without heavy investments in intensive data analysis. This could take the form of peer review,



where members of public provide authentication or validation of the information posted by other members. This could also avoid overcrowding of data, and provide a means to prioritise follow-up actions by security forces. With the appropriate reinforcement mechanisms in play, the online community could potentially self-police the quality and validity of information provided.

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## CONCLUSION

With the rise of regional terror threat, and the proclamation by ISIS to establish a caliphate in our region, Singapore has to maintain constant vigilance against the threat of terrorism. With terrorist groups evolving their tactics to one where disenfranchised individuals are insidiously motivated to perform sporadic acts of terror, traditional top-down surveillance programmes will be less effective in picking up subtle signs and clues exhibited by self-radicalised individuals. To guard against 'crowdsourced' terrorism, a novel bottom-up intelligence gathering approach is needed. A well-designed, centralised crowdsourcing platform could serve as a one-stop portal for citizens to provide bottom-up intelligence to homeland security agencies for quick and responsive thwarting of potential lone-wolf attacks. The launch of the SGSecure national movement serves to build a strong foundation for such a crowdsourcing initiative by highlighting the threat of terrorism in the public's consciousness. With the correct mix of intrinsic and extrinsic motivators, coupled with the right dosage of publicity and public

education, crowdsourcing domestic intelligence would prove to be a viable strategy in detecting and preventing lonewolf terrorism, and in strengthening the nation's vigilance against terrorism.

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