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FINAL REPORT

The Role of Social Networks in the Evolution of Al Qaeda-Inspired Violent Extremism in the United States, 1990-2015.

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Contents

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EXECUTIVE SUMMARY

1. Purpose of Study: This report analyses the networks and organizations that mobilize and direct Americans for jihadist action, or that raise money in the US for Hamas and Hezbollah. The study employs a quasi-experimental method using a control-case design, comparing the network structures of American terrorism offenders inspired by Hezbollah with those of Sunni extremist groups aligned with Al Qaeda, and in recent years ISIL.

2. The Problem: How and why do foreign terrorist organizations recruit Americans to their cause? Three answers have been proposed to this question:

- Homegrown terrorism is a tactic developed by the foreign terrorist organization to further its strategic interest in attacking Western targets. Command and control is essential to all terrorist organizations.

- Homegrown terrorism is essentially "leaderless". The root cause of militancy lies at home. US militants may declare allegiance to foreign terrorist organizations, but this is just a matter of aspiration.

- Terrorist groups are comprised of leaders and foot soldiers, and tailor their operations to meet strategic goals, including, perhaps most importantly, keeping their numbers up. An emphasis on recruitment requires an open structure; fundraising requires centralized control over the flow of money; plotting attacks needs a covert and decentralized and covert organization.

2. Data and Methodology: The data were collected as part of the *Western Jihadism Project* (WJP), a database of Western nationals associated with terrorist plots related to Al Qaeda and aligned groups, including ISIL, from the early 1990s to the end of 2015.

- Over the past twenty-five years, close to 800 residents or citizens of the U.S. have committed terrorism offenses inspired by one of the many Islamist terrorist groups that have been active in this country. Of these, about 560 may be described as "homegrown" terrorists: American citizens or residents who have been arrested or have died in incidents related to Al Qaeda and its many affiliates and successors. Foreigners who have attacked the United States, e.g. the September 11 hijackers, or have been brought to trial in the United States, are excluded from this estimate, and are not considered in this study.

- Data were also collected on Americans convicted on charges related to Hamas and Hezbollah in order to assess differences in network organization that are related to the particular objectives of international terrorist groups operating in the United States. All data were collected from court records and other public documentation. Data collection procedures were designed to facilitate social network analysis through the comprehensive coding of information about communications and relationship between known terrorist offenders.

- The study uses a method termed social network analysis (SNA). Developed by sociologists to study informal network dynamics, it has proved to be helpful in ascertaining structures, variations and patterns of change in terrorist organizations.

3. Key Findings: 2015 ended with a record number of arrests in the U.S. related to Salafi-jihadist inspired terrorism, the highest count since the 9/11 attacks. The 2013 Boston Marathon Bombings and the ability of home-based if not necessarily homegrown militants to carry out successful mass shooting

attacks in 2015 and 2016 are further indications that the country faces a significant and growing threat from Americans who are inspired by the Salafi-jihadist ideology and who are guided by recruiters acting on behalf of foreign terrorist organizations.

- Islamist terrorism in the United States has taken many different forms. These range from the pyramidal hierarchy of the Brooklyn-based cell in the 1990s to the family-based criminal fundraising schemes run by Hamas and Hezbollah and the recent decentralized pop-up cells of Americans who have become enamored of the Islamic State's propaganda.

- The 1993 Brooklyn-based cell was markedly hierarchical and typical for an enclave-based terrorist organization that combines proselytizing and recruitment with planning and mobilization for terrorism. It was therefore vulnerable to prosecution and suppression, and its legacy for jihadist terrorism in the Untied States was minimal. Only actors who escaped abroad were able to carry on.

- Hamas and Hezbollah have used the United States as a base for raising funds, and occasionally as a safe harbor for important operatives. They retained the character of diaspora organizations focused on supporting organizations in the Middle East and eschewed domestic recruitment and mobilization for violent action in the United States. Highly centralized and vertical networks, they tend to organize around large-scale family-based fraud conspiracies involving siblings, parents and children, spouses, in-laws, uncles, cousins, and even more distant relatives. While the cells lacked broader connections within the United States, they were linked to the mother organizations in Lebanon or Gaza, often through nodes placed outside the United States.

- The number of Americans who die abroad in connection with terrorist actions on behalf of foreign terrorist organizations has risen sharply in recent years. Homegrown American militants nearly always first want to go abroad to fight. Later, they may be turned around to carry out attacks at home—or if they are frustrated in their ambition to go abroad, choose to commit acts of terrorism at home. After the 9/11 attacks, jihadist recruitment in the United States recovered only slowly, facilitated by travel to Al Qaeda affiliates in Pakistan, Yemen, and Somalia, and a web-based proselytizing and recruitment strategy. In the last two years, travel to territories controlled by ISIL produced an uptick in deaths.

- Recruitment networks funneling people abroad look very different from the networks of the past that were intent of organizing attacks at home. The Islamic State's recruitment structure presents a classic pattern of what is known as a star network, i.e. a communication network in which all nodes are independently connected to one central unit, here the recruiters for the Islamic State. Flat, dispersed, and highly connected through the central hub, all traffic goes through the leadership based abroad. The peripheral nodes may be comprised of just one person linking up via a home computer or the node may be a pop-up cell of friends and family communicating with the central hub. But characteristically those on the periphery have little awareness of each other.

- The new network structure associated with social media recruitment prioritizes recruitment over exercising control and command of violent plots. It is inaccurate to say that it exemplified "leaderless" terrorism as all information and action scripts run through the central hub of the network, comprised of recruiters and middle-men acting on behalf of the ISIL.

- Jihadist recruitment has reached into small and mid-sized cities in every state of the country. The impact of online recruitment is evident in the diversity of American terrorism offenders, who today have come from forty different ethnicities and all races. In 2015 investigations related to

the Islamic State were in progress in all fifty states. Given the extraordinary diversity of the American homegrown terrorism offenders, no common denominator and no common set of grievances, or even common motivations, can explain what makes a few individuals opt to join groups espousing violent jihad.

4. Inferences and Recommendations For Policy:

Family members and spouses are often the first to know when a person is about to do something. American homegrown terrorists rebel against the nation and their parents, and against the American Muslim community.

> *Establish a duty to report:* State and federal laws should make it a duty to report suspicions about imminent criminal activity related to terrorism. The legal construction may mirror current rules regarding the obligation to report child abuse if the family member, teacher, or community member has "cause to believe" that a risk to the public exists.

But what are bystanders supposed to *see*? There is a real risk that American Muslims will be unfairly stereotyped in the absence of a clearly formulated public education program that focus on signs of radicalization to violent extremism.

> *Focus on community education:* The growing involvement of converts and the diffusion of risk outside the metropolitan areas suggests a need to educate community leaders, teachers, prison wardens and social workers in the detection of the signs of dangerous radicalization.

The number of Americans participating in lethal attacks abroad has increased. For this reason and because of the intimate connection between perpetrating an attack at home and going abroad—in whatever order— the expression of a desire to go abroad to fight for a jihadist organization should be treated as an immediate risk to homeland security.

> *Disrupt and intercept travel to foreign terrorist organizations and insurgencies:* Withdrawal of passports is one tool.

Preventing the development of hidden communities of extremism should continue be a high priority. Radicalization takes place in online and offline networks and peer groups.

> *Profile the networks:* Social network analysis may provide a fuller picture of an individual's risk profile if it is used to profile all contact points, ranging from social media networks to offline engagements with other militants.

The focus should be on top-down suppression of the purveyors of extreme political violence rather than bottom-up elimination of militant social media activists. Many would-be terrorists are caught online. That does not mean that they radicalized online. Moreover, online data have proven of value to law enforcement.

> *Suppress Internet Producers of Online Violent Extremism:* Policy should focus on targeting and suppressing the recruiters rather than retail-level consumers of terrorist propaganda.

1. INTRODUCTION

How do terrorists organize? According to the 9/11 Commission Report, it took a tight and complex organization to recruit and infiltrate the hijackers into the United States, and to plan and oversee the simultaneous hijacking of multiple airplanes. The investigation also concluded that the network was for the most part based abroad, and they found no evidence of substantial financial support for the hijackers from within the United States.[1] There was, however, a local support network that had been years in the making and questions continue to arise about the presence of advance men who may have paved the way for the hijackers. The role of Anwar al-Awlaki is a continuing mystery, for example. A Zelig-like figure, Awlaki turned up repeatedly as the hijackers moved around the country before the attacks. Was he or wasn't he in on the 9/11 conspiracy?

The term "homegrown" terrorism entered the language with the July 7, 2005 attacks on the London Underground.[2] A House of Commons inquiry into the planning of the attacks determined that the suicide bombers were self-financed by means of credit cards and a car loan fraud and had put the bombs together by themselves. The inquiry concluded that, "the extent of Al Qaeda involvement is unclear." A parallel inquiry conducted by the Intelligence and Security Committee also discounted Al Qaeda's role.[3] The 2004 attack on suburban trains in Madrid was blamed on disgruntled immigrants, supposedly with no direct Al Qaeda involvement. The problem with second-generation Muslim immigrants turning to terrorism was initially seen as a European problem. In a Foreign Affairs article from 2005, Robert Leiken expressed the consensus at the time: Europe's angry Muslims were becoming a security problem for everybody.[4]

But the explanatory paradigm quickly fell apart. Religious discrimination could hardly explain why American Muslims and growing numbers of converts also joined the ranks of the militants, and it became clear that there was only a tenuous relationship between deprivation and support for terrorism or participation in terrorist actions.[5] Evidence accumulated that these conspiracies had been directed and planned by Al Qaeda. According to American intelligence officials, material seized during the May 2, 2011, raid in Abbottabad, Pakistan, showed that Bin Laden had been involved in directing "every recent major Al Qaeda attack" against the West. The Madrid train bombing from 2004, the London Underground bombings in 2005 (both the one that succeed on July 7 and one that failed two weeks later, on July 21), and a failed attempt in

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2006 to bomb the New York subway system, were centrally directed by Al Qaeda cadres and with the involvement of Bin Laden from his exile.[6]

Then, in 2014, what used to be known as Al Qaeda in Iraq broke away from the Al Qaeda mother ship and proclaimed a new caliphate, the Islamic State, on Europe's doorstep.[7] A year later, the Islamic State began to send armed commandos to the streets of Europe's cities, vowing to "take the insurgency" to the Western democracies. For a decade it was bombs, bombs, and more bombs. Recently, mass shooting attacks have become more common. In Europe, coordinated groups of attackers have returned from Syria on orders from the Islamic State. In contrast, the San Bernardino and Orlando attacks involved only one or two gunmen who declared their allegiance to Abu Bakr al-Baghdadi, but had no evident direct contact with the Islamic State.

We now know a great deal about these groups. Social scientists nevertheless disagree about the importance of central leadership and direction in terrorist networks.[8] How do foreign terrorist organizations mobilize Americans to carry out attacks on their behalf? This is the question addressed in the present report. A companion study developed and tested an empirical model of homegrown radicalization. That study is published separately.[9]

Research Questions

The key research questions addressed in this report are:

- What is the role of networks and organizations in mobilizing and channeling Americans for jihadist action?
- What are the structural characteristics of the American Islamist extremist networks?
- How integrated are those domestic networks with the global Islamist extremist movement and with the core leadership of Al Qaeda and other foreign terrorist organizations?
- How do jihadist leaders balance conflicting organizational objectives?
- What role does internet-based proselytizing and recruitment play in stimulating homegrown terrorism?

The study employs a quasi-experimental method using a control-case design, comparing, in the first instance, Hamas, Hezbollah, and the Sunni extremists aligned with Al Qaeda. The Al Qaeda-aligned group was then divided into three cohorts—the pre-9/11 network responsible for the 1993 World Trade Center bombing and several other conspiracies (actualized and foiled); the

Al Qaeda-inspired network in the United States after 9/11; and the social media generation of homegrown Al Qaeda-inspired networks from the last five years. The data was collected specifically for this study drawing on a novel data collection methodology used by the Western Jihadism Project, which was initiated in 2006 by Dr. Jytte Klausen.

The following sections outline three different theories about how terrorists organize to recruit and mobilize homegrown militants. The Hezbollah, Hamas, and jihadist networks operating in the United States over the past twenty-five years are discussed. Case studies model the leadership structures of the Brooklyn-based conspiracy behind the 1993 World Trade Center bombing and the post-9/11 jihadist networks and then the shift to online recruitment and the use of social media for coordination in and around 2010. A final section analyzes the "foreign fighter" phenomenon and puts the migration of Americans to join ISIL's "Islamic State" in historical perspective.

This report also examines a methodological issue, the utility of social network analysis (SNA) in the study of terrorist organizations. SNA provides tools for the representation and assessment of the structure of social networks and the roles played in them by individuals. The methodology was widely seen as a solution to the problem of how to track "dark" networks but skeptics have argued that, in fact, SNA is ill suited to the study of covert networks because the inevitable problems with missing data create a high risk of faulty inferences.[10] Our study shows that, drawing on openly available sources, SNA can throw light on the structures of recruitment and organization of terrorist groups and evaluate the role played by various individuals, but that the methodology has inherent problems in dealing with "fuzzy" boundaries of cells and incomplete data, which are a given aspect of covert networks.

Terminology

The description "homegrown" terrorist refers to Americans—and other Westerners—who are inspired to carry out acts of terrorism or to support others committing such acts in their home country on behalf of a foreign terrorist organization driven by the Salafi-jihadist ideology. [11] The term implies that the radicalization process occurred while the individual lived in the United States or another Western democracy. The "homegrown" designation is not used to describe domestic terrorism involving extremist groups that lack an international dimension—e.g. the rightwing Sovereign Citizens, Christian anti-abortion terrorism, or eco-terrorism. Right-wing

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anti-government terrorism is usually referred to as "domestic terrorism", and adherents of these groups are usually described as "domestic" terrorists but not as "homegrown." Americans who go abroad to fight with jihadist groups in a country of which they are not citizens and to which they have little or no ancestral relationship are known as "foreign fighters." They too are commonly identified as "homegrown" Islamic terrorists, because they are assumed to have acquired their beliefs while living in this country.[12] However, the designation is not applied to every American resident who "does something" on behalf of jihadism. Individuals who grew up in Muslim majority countries and then come to the United States to carry out an attack are not referred to as "homegrown" terrorists.[13] The 9/11 hijackers lived in the U.S. before they carried out the attacks but they are not described as homegrown terrorists because they acquired their beliefs before coming to the country.

The terms Salafi-jihadi and jihadist are used here interchangeably to describe Sunni militancy inspired by Al Qaeda and aligned and affiliated groups, including ISIL. The terms "jihadist" and "jihadism" derives from *jihad,* which is usually translated as "struggle in the path of God." It is a key principle of the world religion. For the overwhelming majority of the world's practicing Muslims, it involves efforts to be a better Muslim and a better person. According to Al Qaeda and similar movements, however, jihad lays a religious duty on all Muslims to wage war against unbelievers "occupying" territory that in the history of Islam has been under Muslim control. The fusion of revolutionary action and religion is the essence of the movement, and it all hinges on a particular interpretation of the obligations implied by the Koranic injunction to embrace jihad. The suffix—as in jihad*ism*—clearly indicates the political rather than the religious nature of the ideology.

2. MODELING LEADERSHIP AND COORDINATION IN TERRORIST ORGANIZATIONS

How and why do foreign terrorist organizations recruit Americans to fight for their cause? Three answers have been proposed to this question, each of which identifies a different cause for the growth of homegrown terrorism, and proposes a different remedy.

Globalized Central Command

The broad assumption underpinning this approach is that "homegrown" terrorism is in fact

orchestrated by a foreign organization in order to further its strategic goals. One camp of researchers and analysts have contended that it is "all Al Qaeda," and that what we call homegrown terrorism is a direct legacy of Bin Laden's war on America.[14]

Business metaphors feature prominently in many assessments of how Al Qaeda operated when the organization was under Bin Laden's control. Al Qaeda has been described as a "trademark" or "a brand", and the associated groups as "franchises" or "affiliates."[15] This is congruent with Bin Laden's intention to transform his organization of Afghan Arabs who had fought in Afghanistan against the Soviet Union in the 1980s into a multinational corporation with a rapid deployment force capable of providing logistical support and expertise and discipline to local militants.[16]

Spectacular coordinated attacks like the 1998 East Africa bombings and the 9/11 attacks required vertical command and control structures. Critically important decisions were left to Bin Laden, who has been described as the "CEO of terrorism."[17] Some evidence suggests that in the 1990s Bin Laden's Al Qaeda was set up on a template resembling a Third World state bureaucracy, with directorates for requisition and finances, and employment contracts for foreign fighters stipulating their pay and vacation days contingent on status (married, not married), vouchers in lieu of monetary rewards, etc.[18]

> Hypothesis 1: Homegrown terrorism is a cost-efficient means to attack the United States and its allies. Control and command are in the hands of the terrorist leaders because terrorism is a means to the overarching goal, which is to force the United States and its allies to withdraw from Muslim countries.

If true, we would expect to see that centrally appointed leaders play a central role in pushing domestic attacks. Given the right data, it should be apparent that clandestine cells are spun into the control and command structures of international terrorist organizations. A clear division of labor may be observed between leaders and middlemen who are assigned to coordinate attacks, and the grunts who kill themselves while following orders. Adapting to the post-2001 environment, senior leaders and recruiters operate outside American jurisdiction, but local operatives acting on their behalf select targets, assign individuals to particular conspiracies, and secure the means used to carry out attacks.

If this assessment is correct, the root causes of homegrown terrorism lie in the epic contest for control in Muslim majority countries such as Saudi Arabia and Pakistan. In order to end homegrown terrorism we should either withdraw from that contest, as Robert A. Pape proposes, or prepare for a long fight to suppress the jihadist forces.[19]

"Leaderless" Terror Networks

Marc Sageman introduced the concept of a new type of networked terrorism in 2004, and developed it in an influential study that appeared in 2008.[20] Sageman contended that Al Qaeda "does not exist anymore." Western jihadists form their own "leaderless" local groups. They may act in the name of Al Qaeda and Osama Bin Laden – or today in the name of the Islamic State – but any connection to these movements is just a matter of aspiration. The root cause of their militancy lies at home.[21] The diagnosis suggests a remedy: if only grievances were addressed, Western Muslims would stop attacking their homelands.

> Hypothesis 2: Homegrown terrorism is a bottom-up phenomenon. The cells are self-directed "bunches of guys," as Marc Sageman called them, whose relationship to Al Qaeda and the international terrorist movement started by Osama Bin Laden is "aspirational." Al Qaeda may endorse their acts of violence but the homegrown terrorists are volunteers to a movement that is essentially "leaderless."[22]

If true, we would expect domestic cells of homegrown jihadists to be autonomous and to have little or no connection with each other or to an organization abroad. Each cell is capable of acting on its own, following a manual that explains "how to do things." For tactical reasons the international terrorist organization is content to allow these cells a large degree of independence and freedom of action.

Sageman borrowed his description of homegrown terrorism as "leaderless" from a dissident Al Qaeda strategist, Mustafa Setmarian Nasar. A critic of Bin Laden, Nasar was a Syrian better known as Abu Musab al-Suri ("the Syrian"). He is now believed to have died in the Syrian civil war. Al-Suri launched the concept of "leaderless" terrorism in his book, *The Call for a Global Islamic Resistance* (ca. 2004). Using case studies of the jihadist movement and other secular terrorist movements, such as the IRA and the neo-Marxist groups operating in Europe in

the 1970s, from whose mistakes and failures he drew lessons, al-Suri criticized the hierarchical chain of command favored by Bin Laden and recommended "leaderless" resistance as the optimal organizational form for the global jihadist movement:[23]

> We know the way of building pyramid organizations and we have seen that it is dangerous because if any member of the pyramid is captured, then anyone with him on his level, under him, or above him will also be captured until the whole pyramid organization is destroyed.

But al-Suri was by no means an advocate of a Bakunin-style leaderless insurrection. Independent cells were to be guided by trained operatives dispatched by the terrorist organization's command center. The goal was to protect the leaders and to build resilience against suppression. The rest of the organization should embody, ideally, the organizational structures of a centralized command on the Leninist model, with a public outreach section modeling itself on a social movement, and a military wing fielding networked commando cells for the purpose of conducting terrorist operations. Again, quoting al-Suri:

> [It is essential] that the *Da'wah* [proselytizing] to organize others, media work, and fund collecting are all public and thus incompatible with covert (secret) operations and can never ever be combined. Bringing these opposites together in our dynamic, Jihadi history led to real disasters.[24]

The "leaderless" paradigm took a knock as evidence emerged that major attacks attributed to homegrown cells had, in fact, been planned in Al Qaeda training camps located in Pakistan. But might the leaderless concept have become the reality at a later stage, when terrorist recruiters took to YouTube and then in quick succession to social media platforms like Twitter, Facebook, and many others? Anwar al-Awlaki, whose meteoric rise as an inspirational force in the homegrown movement owed a great deal to his charismatic presence on YouTube, advocated an entirely self-directed form for imitative terrorism. "Don't wait for permission", Awlaki preached, "do something." Showing the influence of his education in the United States, Awlaki (or his editorial assistant, Samir Khan, also American) provided a definition in the Fall 2011 issue of

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Inspire, an English-language e-zine: "It allows Muslims to train at home instead of risking a dangerous travel abroad: Look no further, the open source Jihad is now at hand reach [*sic*]." Self-help manuals for the aspiring terrorists were disseminated in *Inspire*. One issue with instructions for "How to Make a Bomb in Your Moms Kitchen" has featured prominently in arrests made in recent years.

The Terrorist Tradeoff

Jacob Shapiro has argued that terrorist groups control their members in the same way as business leaders manage their organizations.[25] Terrorist organizations are rule-driven and are comprised of leaders and followers. Leaders tell followers when and how to fight and how to die. They build up networks to organize across borders. Online, they use networked contagion to spread their message.[26] There are leaders and foot soldiers. Foot soldiers are expendable, but must be replaced. Since terrorist actors play different roles within the organization and within each level of hierarchy in the networks, no one-size-fits-all model can explain what motivates each and every member of the organization.[27]

Recent leaks of intake interviews conducted by Islamic State managers in 2014 provided clues to the bureaucratic structures underpinning the terrorist organization's control over the rank and file.[28] The efficient and consistent coordination of complex illegal operations across countries would seem to require a centralized command and control structure whereas proselytizing and recruitment are better served by the openness associated with social movements.[29]

> Hypothesis 3: An operational priority of these terrorist movements is to sustain the flow of recruits. Like international corporations, they must maintain a central headquarters while developing strategies for publicity and recruitment that are adapted to very different local markets.

If true, recruitment comes before other organizational needs. To stay in business, a terrorist organization must grow, replace losses, and if possible expand its ranks, while preserving its core strategic objectives.[30] A corollary is that "leaderless" or autonomous organization is itself the

result of a deliberate decision on the part of leaders *not* to exercise direct control over local branches.

Terrorist organizations need a base, even if temporary, where the leaders and the fighters can meet and train, and establish households under their control. But the jihadists aspire to a global reach. Western democracies are at once targets and sites for resource mobilization. Western civil liberties provide opportunities to find safe harbor for operatives and openings to proselytize and fundraise. Operating both in jihadist heartlands and in the West, these organizations thrive on the transformations associated with globalization—increased openness of societies, migration, and the ease with which ideas and influences can be disseminated online. Ideology is in itself a powerful tool for the coordination of violence because it promotes a series of detailed and specific scripts for violent actions; what Charles Tilly called violent rituals.[31]

3. DATA AND METHODOLOGY

Social network analysis (SNA) was developed by sociologists to study informal network dynamics. The methodology is conceptually simple, but in practice often becomes complicated. It builds on the insights of structural sociology, with which it shares some core assumptions. For some time the methodology has been thought to represent a breakthrough in the study and assessment of "dark" organizations. Valdis Krebs used SNA to chart the social organization of the 9/11 hijackers, drawing on publicly available information about their travels and co-habitation in the United States before the attacks. A RAND study concluded that the methodology promised to reveal "who really is connected to whom."[32] SNA was quickly adopted in counterterrorism and counterinsurgency circles, and instructions for how to use the methodology were incorporated into the U.S. Military Counterinsurgency Field Manual in 2007.[33]

The basic idea is that social interaction is a conduit for building social capital, influence and power. In any network some actors are "rich" and others are "poor" because of connections and placement in the social organization of the network. In abstract terms, a network is a series of points, or "nodes", interconnected by communication paths. Communication paths can be asymmetrical, as in "A is a spiritual leader of B" [A ⬅ B]. Or the relationship can be symmetrical, exemplified by the statement "A and B travel together" [A ⬅ ➡B] (See Figure 1 for SNA basics).

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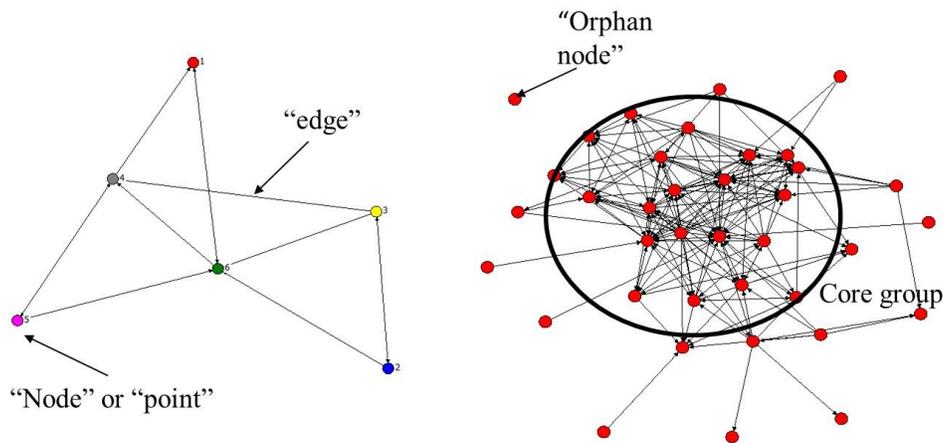
Figure 1. SNA Basics

A key advantage of social network analysis is that information about communications between persons in a network, and between persons and entities (places, events, websites, or organizations), can be coded in a formalized manner and visualized by means of software that graphs patterns of social interaction. The focus can be on the position of individual actors ("egocentric" analysis) or on the properties of the networks themselves, focusing on the clusters and components that comprise the overall network. The researcher may analyze the roles played by individual nodes in the network and also assess the properties of the network as a whole (dense/diffuse, flat/hierarchical, etc.). SNA "metrics" are algorithms used to describe and analyze the roles and positions of individual points in the network or the properties of the network itself. A list of commonly used metrics and their definitions are listed in the appendix in Table A-2.

SNA is demanding of data. Researchers working in SNA have to decide who to include and who to exclude from the set of actors that is to be analyzed. This can be tricky, particularly in the case of covert networks where the researcher cannot always know whether the most salient actors have been identified and included in the study. Mathematical studies have found that SNA metrics are tolerant of missing data and will yield robust predictions of the most important actors even if the boundaries change.[34] But this is no comfort when the researcher cannot even assess

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an error margin. (To paraphrase Donald Rumsfeld, the known unknowns are less of a problem than the unknown unknowns.)

A more general point is that researchers working from open sources can describe as "terrorists" only those groups and individuals that have been so designated in public, by government and courts, or by their own acts and statements. Naming people as terrorists in the absence of a public designation exposes the researcher to legal jeopardy and accusations of scientific malpractice. Charting terrorist networks from open sources documentation must therefore be an exercise in archival excavation. Despite these limitations, this study will show that social network analysis can be helpful in ascertaining structures, variations and patterns of change in terrorist organizations.

Data Collection Methodology

The data used were collected as part of the *Western Jihadism Project* (WJP), a database of Western nationals associated with terrorist plots related to Al Qaeda. The data collection methodology is a variant of *clio-metrics*, the quantitative analysis of micro-level data derived from narrative records, a method that is used in quantitative historical sociology to map protest movements and political violence.[35] Researchers working from archival records have laboriously translated bits of data into quantitative records that can be subjected to statistical analysis. The method has successfully been used to analyze social rebellions in 17th and 18th century France and Britain, the slave economy of the South, and the development of the civil rights movements in the United States in the 1960s.

To support the present project, data were collected from court records and other public documentation that identified American citizens and residents who committed terrorist offenses inspired by Al Qaeda and associated and successor movements, most notably ISIL, from the early 1990s to the end of 2015. Data were also collected on Americans convicted on charges related to Hamas and Hezbollah in order to assess differences in network organization that are related to the particular objectives of international terrorist groups operating in the United States. About 250 Al Qaeda leaders and international operatives of Western origin or with current or previous residence in the United States or a Western state were also identified, and included in the data collection. In all, records have been coded for nearly 5,000 individuals from twenty Western democracies and about 20,000 relationships and hundreds of terrorist organizations and

terrorism-related entities, ranging from extremist web sites to local and international organizations.

The data derive from three types of publicly available documents: primary sources such as court records, indictments, judgments; reports published by government researchers or academic teams; and communications issued by extremists, such as testimonies, social media productions, and websites. Social media postings made by militants themselves are deemed to be deliberate publications and are therefore not subject to privacy concerns.

Relational analysis requires relational data. Data collection procedures were designed to facilitate social network analysis. A codebook was developed for recording communicative acts between terrorism offenders and between the offenders and collective terrorist entities, such as foreign terrorist organization, local organizations such as web sites and extremist bookstores and mosques. Relationships were coded to indicate symmetrical and asymmetrical relationships, for example "adherent of" (asymmetrical) or "brother of" (symmetrical). Every data point has been coded manually. The coding of demographic information about terrorism offenders was combined with coding of micro-level data about individuals and their networks.

Assessing Data Bias

Data bias is as always a concern. There is a perception that social network analysis can make the innocent or the merely curious look like dangerous terrorists. That concern is misplaced. For practical and legal reasons, only contacts made in the pursuit of terrorist actions were coded. (For instance, a relationship between brothers was coded only if both brothers were known terrorist offenders.) The coding criteria will very probably produce an underestimate of the true size of the local networks.[36] Which way does the bias go? The advantage of relying on court records is that the data and the relationships recorded are verified as purposive acts of communication and contact carried out in the pursuit of activities that are deemed to be terrorism-related. The disadvantage is that it has to be assumed that we are recording only a fraction of the actual communications carried out in connection with known terrorist actions—and that individuals who may have participated, but in non-criminal (or non-public) ways, are missing. One way to assess the impact of bias is to ask the counter-factual question: Would we expect a less hierarchical pattern to emerge from a data file of, for example, secret surveillance records? Typically, the assumption would be that secret data is more revealing of leadership than public

data. If so, relying on public data may be assumed to underestimate the real size of the networks and the degree of hands-on direction exercised by bosses and coordinators in clandestine networks.

4. A CHANGING THREAT PICTURE

No single measure provides a complete picture of the threat posed by the operations of foreign terrorist groups and their followers. Capacity to carry out violent actions, the casualty count, and numbers of arrests are, however, obviously crucial indicators.

The focus here is on violent jihadist networks, but the operations of Hamas and Hezbollah in the U.S. are also discussed. Based upon the available information about particular arrest events and the charges filed against the perpetrators, all arrest events were classified by type and by affiliation to the array of jihadist groups and Al Qaeda affiliates operating in the United States, and to Hamas and Hezbollah. We identified nearly two hundred separate—or semi-separate—conspiracies involving U.S. citizens and residents since the early 1990s (see Table 1). The data may be taken as a measure of the overall threat from Islamist militants based on the United States. The 9/11 attacks were seen as having originated abroad and were not included in the analysis.

Over the past twenty-five years, close to 800 residents or citizens of the U.S. have committed terrorism offenses inspired by one of the many Islamist terrorist groups that have been active in this country. [37] Of these, about 560 may be described as "homegrown" terrorists: American citizens or residents who have been arrested or have died in incidents related to Al Qaeda and its many affiliates and successors. Foreigners who have attacked the United States, e.g. the September 11 hijackers, or have been brought to trial in the United States, are excluded from this estimate.

The jihadists, Hamas, and Hezbollah have all shown that they are capable of producing attacks causing massive civilian casualties outside the sites of insurgency. Hezbollah has conducted operations outside its natural territory in Shiite dominated areas in the Middle East. 84 people died and hundreds were injured in a truck bombing of a Jewish community center in Buenos Aires orchestrated by Hezbollah in 1994. Nevertheless, Hezbollah has shown no interest in bringing its conflict with Israel to the United States.

Table 1. Conspiracies committed by U.S. residents or citizens inspired or directed by foreign Islamist terrorist organizations, 1990-2015.

Organization	Plot Type	Number of Incidents	Plot Target	Plot Means	Years
Hamas	Material Support	7	Fundraising, Logistical Support, Supplies	Charities (3), Drugs (1), Fraud (2), Public Figures (1)	1997, 2001, 2002, 2004, 2013
	Violent Acts	2	High-Value Civilian Targets, Jewish Targets, Trains	Bombs (1), Guns (1)	1994, 1997
Hezbollah	Material Support	33	Fundraising, Supplies, Violent Attacks	Charities (1), Drugs (4), Falsifying Documents (2), Fraud (14), Robberies (3), Smuggling (7), Weapons Support (2)	1998, 2000-2013
	Recruitment	1	Recruitment	Smuggling (1)	2002
	Violent Acts	2	Jewish Targets, Misc., Public Figures	Bombs (1), Guns (1)	2007, 2011
Jihadists	Material Support	61	Foreign Fighter Recruitment, Material Support Misc., Organizations, Plot Fundraising, Recruitment Fundraising, Travel, Violent Attacks	Charities (9), Cyber Attack (1), Drugs (1), Financial Support (6), Fraud (20), Logistical Support (9), Propaganda (2), Terrorist websites (2), Smuggling (7), Weapons Support (4)	1999-2013, 2015
	Recruitment	12	Foreign Fighter Recruitment, General Recruitment	Propaganda (3), Recruitment (5), Violent Acts (4)	1998, 2001, 2002, 2006, 2009, 2011-2013
	Violent Acts	84 (66 Foiled, 18 Actualized)	Airports or Airplanes, Cultural Figures, Embassies, High-Value Civilian Targets, Infrastructure, Jewish Targets, Law Enforcement, Military, Misc., National Buildings, Trains	Assassination (4), Bombs (23), Cars (4), Guns or Grenades (26), Knife (2), Online Threats (3), Other (5), Remote Controlled Device (10), Suicide (7)	1990, 1993, 1999, 2001-2015
ALL		202			1990-2015

Explanatory Note: In the context of the present study, a terrorist conspiracy is identified following an attack, an arrest related to a terrorist action, or the exposure of a plan for illegal activity in support of terrorism. The incident count includes actualized attacks and foiled incidents, and also financial terrorism, terrorist recruitment, material support for terrorism, as well as plots involving so-called "lone wolves" and sting operations. No comparable official statistics or compilations of terrorist incidents are available but, to the extent possible, the data collection was cross-referenced against government lists of designated terrorists, FBI press releases, and the Department of Justice's National Security Division listing of terrorism-related cases. Americans who have been involved in foreign terrorist incidents or who are

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designated terrorists are included in the data collection. Conspiracies planned and executed from abroad are excluded. .The enumeration of the overall threat level roughly corresponds with lists produced by other researchers. An analysis of 26 homegrown incidents by the New York State Intelligence Center published in 2010 identified various types of bombs as the most common means used by Al Qaeda-inspired domestic terrorists in the decade following the September 11 attacks.[38]

Including more recent incidents in 2016, homegrown jihadist terrorists account for about 90 violent incidents in the United States. For some time bombs were the favored means. The 1993 World Trade Center attack was the first jihadist mass casualty attack on U.S. ground. Six people died in the attack and over a thousand were injured, mostly by smoke-inhalation. Since the September 11 catastrophe, multiple "homegrown" groups and individuals continued to plot domestic attacks using bombs. Several planned attacks on New York City could have replicated the disasters of London or Paris.

More recently, attacks have taken the form of shooting incidents. The San Bernardino and Orlando attacks replicated the mass-shooter tactics used by returnees from areas controlled by ISIL in Syria and Iraq, illustrating the power of mimetic emulation in the dissemination of terrorist modes of attacks. Shooting attacks have been increasingly common. In 2009 Nidal Malik Hasan, the Ft. Hood shooter, killed 13 and wounded more than 30 people. In late 2015, Syed Rizwan Farook and Tashfeen Malik, a married couple, killed 14 people and seriously injured 22 in a shooting attack against a Christmas party of country employees in San Bernardino, California. It has been suggested that the couple wanted to detonate a pipe bomb by remote control that would have hit the first responders, but the mechanism failed.

Overall, American homegrown terrorists directed or inspired by Al Qaeda or other jihadist groups have since 2001 been relatively unsuccessful in their efforts to carry out attacks in the United States. Arrests have been effective in curtailing the impact of homegrown terrorism. Over fifty homegrown plots involving sympathizers of Al Qaeda were disrupted between January 2011 and December 2015. Another twenty jihadist conspiracies had to do with fundraising and material support for Al Qaeda and affiliated organizations. A further eight involved recruitment rings that sent volunteers to training camps and insurgencies abroad. Dividing the number of attacks resulting in fatalities by the total number of actualized incidents in the same period a lethality rate for jihadist domestic incidents of about .55 is obtained. In other words, just over half resulted in at least one death. The failure rate is .79, meaning that for every actualized incident four were averted through preventive intervention.

It has often been pointed out that more Americans have been killed by domestic terrorists than by Americans claiming inspiration from foreign Islamist-inspired groups. By way of comparison, Arie Perliger found that individuals belonging to the often xenophobic or racist family of American far-right groups killed 30-40 people annually in four out of five years since 2007. With the exception of the 1995 Oklahoma City attack, far-right terrorists also mostly kill on a small scale, with an average of one victim per incident, often law enforcement personnel.[39] The jihadists have in recent years similarly focused on attacking law enforcement officers but go after a far wider range of targets. Small-scale attacks involving assassinations, several shooting incidents at U.S. military recruiting centers and, in one instance, a Jewish community center, caused 7 fatalities.[40]

Fatality counts give a grim measure of terrorism incidents. Until the Orlando shooting (49 victims), no incident in the United States produced results on the scale of other attacks since 9/11 perpetrated by jihadists outside an insurgent conflict zone, e.g. the 2002 attack on Australian tourists at a Bali nightclub (202 victims), the 2004 Madrid train attacks (192 victims) and the 2005 London Underground bombings (52 victims), the 2008 Mumbai attacks (116) victims), or the November 2015 suicide attacks in Paris (130 victims).

Amateurism may be one reason for the relative failure—until recently—of American domestic cells to cause massive fatalities. The primitive bombs used by the Tsarnaev brothers in their attack on the Boston Marathon in 2013 killed three people but injured several hundred. Cell size may be another reason. [41] The Mumbai attack in 2008 was carried out by a group of ten attackers in 12 coordinated shooting incidents. The November 13, 2015 attack in Paris involved ten men working in three teams and an unknown number of assistants in the "back office." They killed 130 people and wounded nearly 400. One hundred and sixty four people were killed in the 2008 Mumbai attack and over 300 wounded by a group of ten attackers. At least four gunmen carried out the Westgate Mall attack in Nairobi in 2013, in which 63 people were killed. It would be tempting to conclude that small teams and single shooters commit small atrocities, and large atrocities require bigger teams. On the other hand, a single gunman killed 38 people in the Sousse beach resort attack in Tunisia in 2015. And then there is the case of the Norwegian far-right terrorist, Anders Breivik. Acting alone, he killed 77 people in a shooting attack.

The futility of using lethality statistics to indicate the threat level was amply illustrated in in June 2016, after this research was concluded, when Omar Mateen killed 49 people in a single

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attack. The reality is that Al Qaeda inspired attacks, and now also attacks inspired by ISIL and its "Islamic State", have presented a significant and growing risk to domestic security since 2001. The jihadists show a strong preference for mass casualty events, even if rarely successful, which goes some way to explain the far greater public attention paid to their crimes. Terrorism is in some measure a game of chance. No doubt exists about the continued intent on the part of ISIL and other international jihadist organizations to push for attacks in the United States. Therefore, constant and continued attention to the threat posed by homegrown terrorists inspired by the jihadist ideology is justified.

5. HIERARCHY: THE 1993 BROOKLYN FACTION

All the elements that a decade later produced an infrastructure for the development of thousands of "homegrown" militants in Western Europe were present in the United States in the 1990s: leaders and managers from the Egyptian cadre in Bin Laden's fledgling organization, transplanted extremists who had obtained legal status in the United States through marriage or by exploiting lax immigration enforcement, and local recruits eager to travel to Afghanistan and Bosnia to fight but also willing to bring the war home.

The 1993 World Trade Center attack was carried out by a group of Egyptian Islamist militants who had obtained legal residence in the United States. The cell responsible for 1993 World Trade Center bombing and the subsequent foiled attempt to bomb multiple targets in Manhattan was large, well organized, and surprisingly open about its activities. Their sheikh was the leader of an Egyptian terrorist organization and colluded with another Egyptian terrorist group headed by Ayman Al-Zawahiri. The Brooklyn-based group had bigger plans but its members were arrested before further attacks were carried out. It is commonly assumed that "dark" networks are highly decentralized and generally avoid communications between agents in the network in order to avoid detection. This was not the case for the 1993 World Trade Center cell. The members engaged in a measure of cloak and dagger but often meet in public, and the local attack cell was highly integrated with the broader proselytizing network based at mosques in Brooklyn and New Jersey. It was also enmeshed with Bin Laden's fledging Al Qaeda organization.[42]

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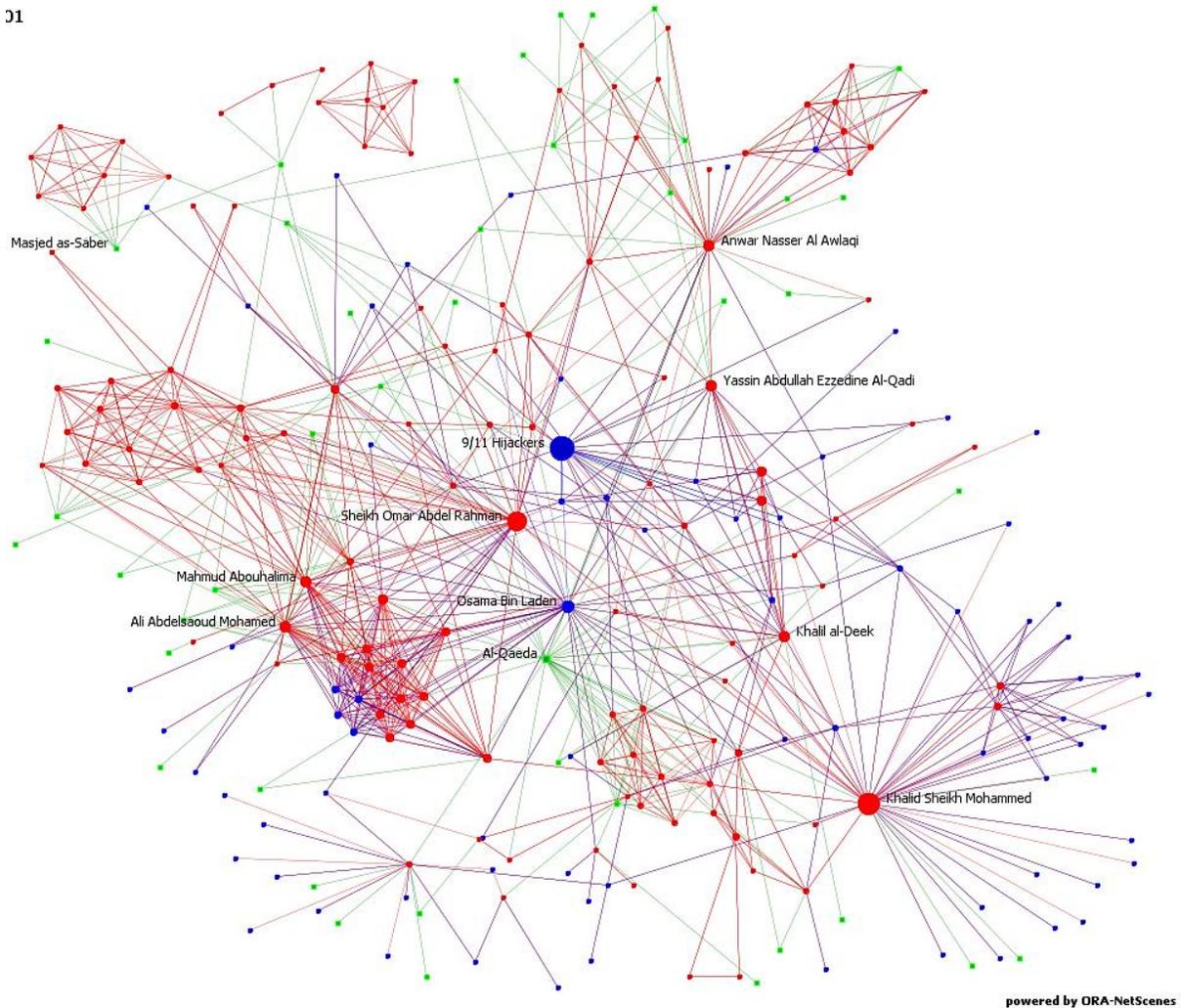
Graph 1. Jihadist Network 1993-2001.
Explanatory Note: Agents: 199, Organizations: 41, Isolates: 2, Isolate-connected ratio: .01 (2/199) Red = Americans; Blue = International operatives linked to Americans; Green = Organizations, both U.S.-based and international.

There was coordination between the two Egyptian extremist leaders, Ayman al-Zawahiri and Abdel-Rahman, and also with Ali Abdelsaoud Mohammad, a former Egyptian army officer who worked as a translator for Ayman al-Zawahiri and toured the United States in the 1980s to raise money for the struggle in Afghanistan (see Graph 1). After settling in the U.S., Abdel-Rahman continued to function as the leader of the Egyptian extremist group, *Al-Gama'a al-Islamiyya* ("The Islamic Group"). His extensive contacts stretched from Brooklyn to other violent conspiracies in the U.S. and Canada and further abroad to Egypt and Western Europe. These activities were hardly covert. Abdel-Rahman traveled widely, preaching in support of the

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violent jihad, until his incarceration in 1993. Mohamed was married to an American woman, became an American citizen, and worked as an instructor for the U.S. Army at Ft. Bragg in North Carolina. All this while he was also commuting to Afghanistan and later to the Sudan, taking care of Bin Laden's affairs. Mohamed and another man in the "Blind Sheikh's" entourage, Wadih el Hage, also a naturalized American citizen, moved on to plan the 1998 bombings of the U.S. embassies in Nairobi and Dar es Salaam. Both men are now serving life sentences in the United States.

Case Study 1. 1993 WTC

The Brooklyn cell began to plot violent actions immediately after the Egyptian militant sheik, Omar Abdel-Rahman arrived in the country. Meir Kahane, a militant Brooklyn-based rabbi, was killed in 1990 by a member of the clique around Omar Abdel-Rahman. The same year, members of *Jamaat al Fuqra,* a splinter group from the Nation of Islam, murdered Rashad Khalifa, a moderate imam in Tucson, Arizona. The murder was instigated by Abdel-Rahman, or a member of his immediate circle of acolytes.

An analysis of the 1993 World Trade Center cell and its follow-up conspiracy, the foiled Landmarks plot, reveals an integrated structure that centered on Abdel-Rahman. Thirty-five people were eventually convicted in a series of trials related to Abdel-Rahman. Seventy-three people linked to the broader conspiracy were later arrested and convicted, or died, in connection with other terrorist actions.

As a rule, different SNA metrics should be used to assess roles in a particular network, but in this case the same handful of people appeared—in a variable rank order—in nearly all the metrics, [43] and the different centrality measures yielded broadly comparable ranking of the most important individual actors. Foreign operatives who it later became clear operated on behalf of Bin Laden were top nodes in the network. Khalid Sheikh Muhammed and Ali Muhammad also featured in other attacks targeting the United States at home and abroad. The most spectacular of these was the 1998 East Africa Embassy bombings. It is shocking, even now, years later, to consider how freely these two master terrorists and their assistants moved within the United States.[44]

The go-to people in the network were Mohamed, al-Awlaki, Babar, Mousa Mohammed, Abu Marzook and Clement Rodney Hampton-El. Marzook is a senior member of the leadership

of the Palestinian Hamas, who was deported from the United States in 1997.[45] His appearance on the list illustrates the tenuous but nevertheless important bridges between the leaders of the ethno-national Islamist terrorist groups and Bin Laden's emerging Sunni extremist movement in the early period. A local representative of Hezbollah also formed a bridge between the otherwise separate organizations. Marzook was indicted in absentia by the United States on terrorism financing charges. His co-conspirators were tried and convicted in 2009 in the Holy Land Foundation case.[46]

The FBI monitored the Brooklyn-based group responsible for the 1993 World Trade Center attack for a period. This was in response to concerns by New Jersey casino owners that the sheik might be preparing his followers for an attack on their ungodly activities. The FBI dismissed these concerns, but the group was infiltrated by two undercover agents, one working for the Egyptians and another for the U.S. government. This did not prevent the first attack but eventually led to the take-down of the broader conspiracy. (The FBI withdrew the undercover agent prematurely, concluding that the group presented no risk.)

Our structural analysis of the 1993 cell highlighted how local supporters of the fight against the Soviet Union in Afghanistan were deployed to support the domestic plot that targeted lower Manhattan. Hampton-El was 55 at the time of the 1993 World Trade Center bombing and an injured veteran from the *mujahidin*'s fight against the Soviet Union in Afghanistan. A Black Muslim and a local from Brooklyn, he belonged to *Jama'at al-Fuqra*, a splinter group of the Nation of Islam that embraced the Salafi-jihadist call to violent jihad.[47]

The 1993 Brooklyn organization provides an interesting contrast to later conspiracies and attack networks because it operated with remarkable transparency and with little fear of disruption. It was a strikingly hierarchical organization. In-Degree Centrality can be helpful in assessing roles in the networks. High In-Degree counts reflect a position in the network where people come to an agent for instructions or information, but the agent rarely makes contact with others. In the analysis of the Brooklyn-based organization a classic pyramidal structure of cadres and operatives linked to the international network sat under the Sheikh but above the locals who would go on to carry out the attack (see Figure 2). At the bottom of the organization were the local militants who were dispatched first to prepare and then to carry out the attack— and who ended up in prison.

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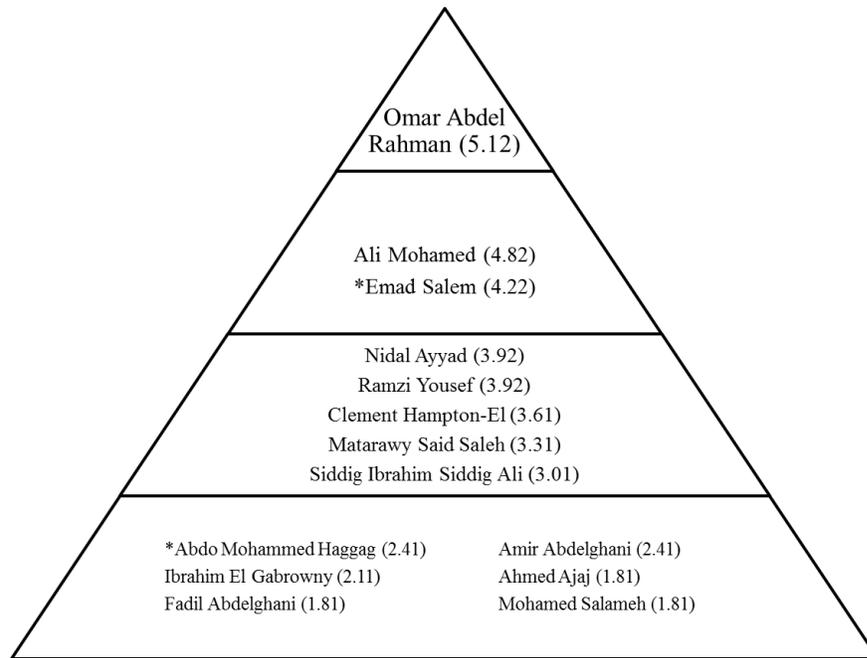
Figure 2. Brooklyn-Based Hub Responsible for 1993 WTC Attacks and "Landmarks" Trial.
Explanatory Note: N = 73 persons and 11 entities. * Indicates a government informant.

After the successful prosecution of the cell, its domestic legacy was minimal. The international operatives moved on to the next conspiracy. Broadly, the structural features are typical for an enclave-based terrorist organization that meshes proselytizing and recruitment with planning and mobilization for terrorism. The organization was vulnerable to suppression and only actors who escaped abroad were able to carry on. It may be said to have exemplified the weaknesses of a hierarchical terror organization.

6. DIASPORA TERRORIST ORGANIZATION

Hamas and Hezbollah also ran networks in the United States in the 1990s but these focused on fund raising rather than on mobilizing locals to conduct terrorist attacks. Their organization therefore followed a pattern of diaspora terrorism quite different from the proselytizing attack cell that was centered on the Egyptian sheik in Brooklyn. In the early 1990s, the Iranian-backed Hezbollah was thought to present the most urgent threat to Americans abroad and at home, whether from kidnappings or bombing attacks. Hezbollah's role in conducting attacks on American targets abroad warranted these fears, but in the event individuals related to Hezbollah and Hamas have largely refrained from carrying out violent attacks in the United States.

Case Study 2. Hamas and Hezbollah in the United States

Hezbollah and Hamas are political organizations with armed militias. They are at once terrorist organizations and governments that exercise control over base territories. Hezbollah was founded in the early 1980s by Lebanese clerics living in Iran. In 1983 Hezbollah militants with Iranian backing carried out a suicide bombing against the U.S. embassy in Beirut, Lebanon, that killed 63 people. Hezbollah became the dominant Shiite militant group in Lebanon in 1989 after a bloody internecine fight with the Amal movement, a secular militia. Hezbollah was also responsible for two massive bomb attacks against Israeli targets in Buenos Aires and London in 1992 and 1994. Charities run by Hamas-members donated money to the Afghan Services Bureau run by Abdullah Azzam and Bin Laden, and Hezbollah and Hamas provided material support and training to Al Qaeda fighters in the 1990s. More recently, Hezbollah's intervention in the Syrian civil war on the side of the Assad regime has deepened the conflict between Shiite and Sunni Islamist radicals and tied the group more closely to Iran.

Hezbollah's U.S.-based network is three times the size of Hamas's, while the jihadist footprint is three times the size of the other two combined. 44 conspiracies involving Hamas or Hezbollah operatives based in the United States between the early 1990s and the present were identified. 35 of these were associated with Hezbollah and only nine with Hamas. 57 American residents carried out terrorism offenses in connection with Hamas and 134 acted in connection with Hezbollah. Just four of the conspiracies involved violent acts: Hezbollah and Hamas were each responsible for two. The other 40 plots involved various types of material support for terrorism outside the U.S. Of the 40 non-violent conspiracies, 32 involved fundraising by means of false charities, fraud, robbery, or smuggling.
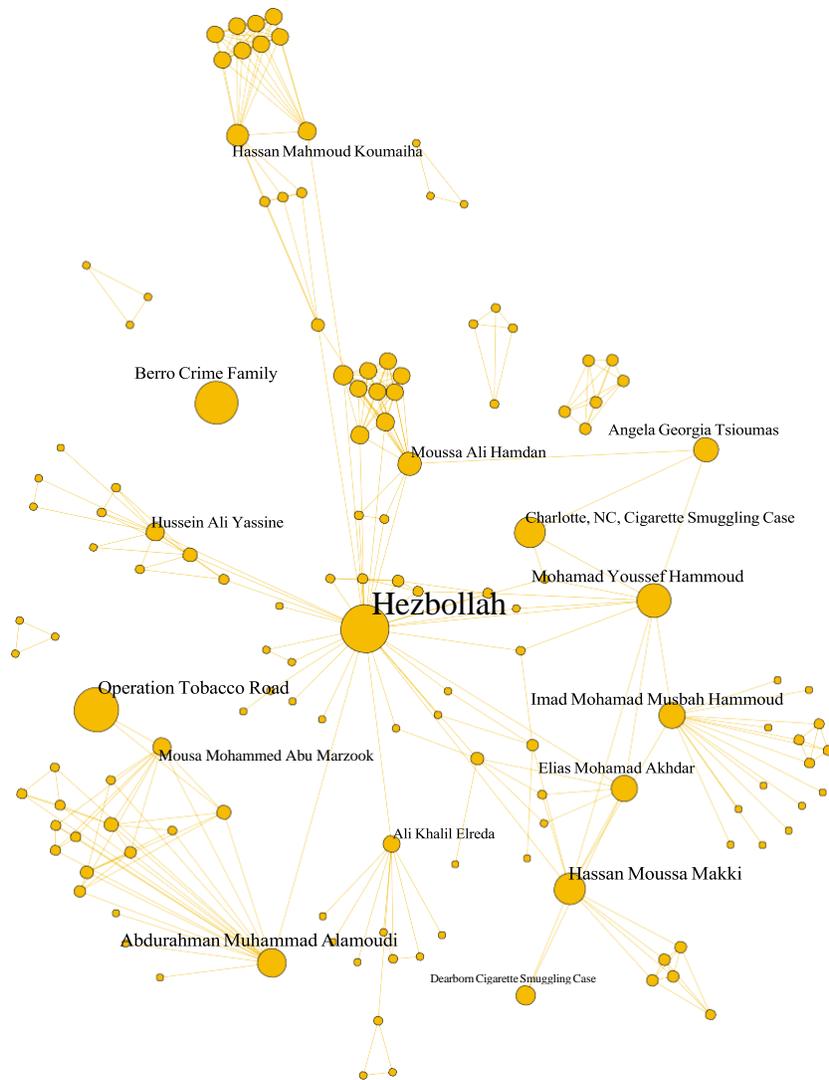
Graph 2. Hezbollah Network in the U.S. 1993 to 2015.
Explanatory Note: All Interpersonal and Membership Links. Total number of relationships = 774. N = 226; Persons = 214 (including 27 orphan nodes and non-ideologically committed criminals = 50) and organizations = 12. The graph was made in Gephi.

Graph 2 diagrams the Hezbollah network in the United States and illustrates the extent to which the organizers routinely involved ordinary criminals in fraud and smuggling operations conducted for the purpose of terrorist financing. Extended terrorist crime families controlled the operations. For instance, the Berro family conspiracy, a Hezbollah affiliated fundraising scheme, involved 19 members of the same family, based in Dearborn, Michigan, who engaged in a vast "bust-out" fraud scheme to defraud banks, credit card companies, creditors, service providers, mortgage lenders and bankruptcy trustees between March 1999 and April 2004. The scheme

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generated up to $1.7 million and was allegedly used to fund Hezbollah. Similarly, Joseph Abed was convicted for fraud, extortion, and of running a crime-for-hire gang in Roanoke, VA, along with his son, brother and nephews. The Abed gang was dismantled in 1997.
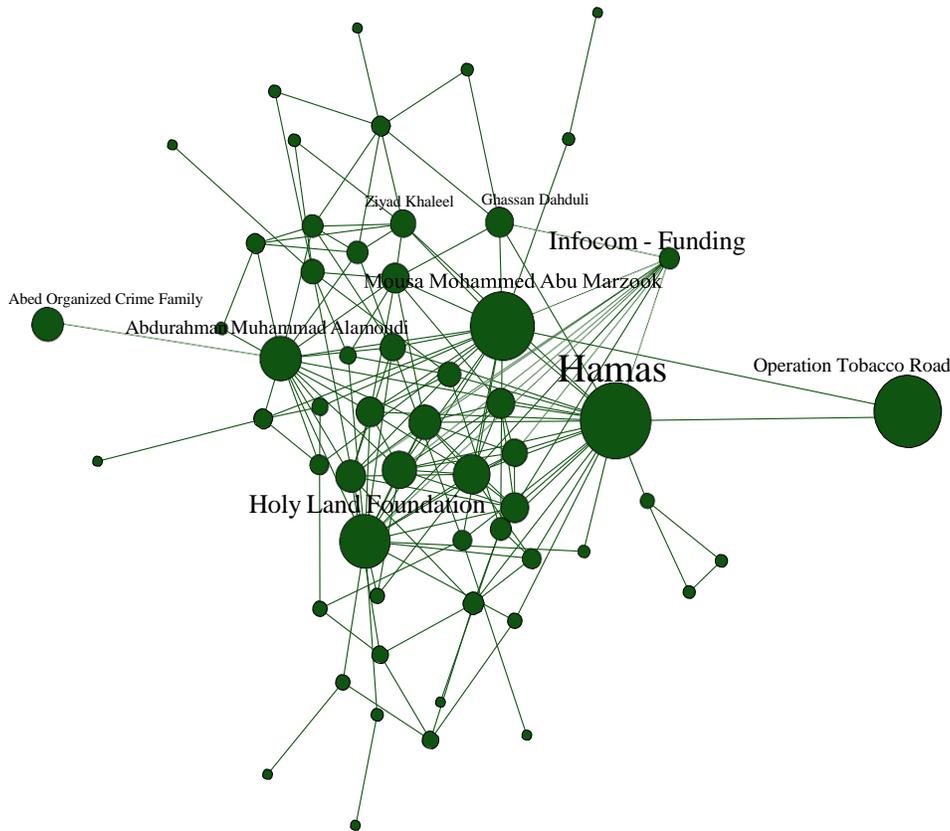
Graph 3. Hamas Network in the U.S. 1993 to the Present.
Explanatory Note: All Interpersonal and Membership Links. Total number of relationships = 363; N = 90; Persons = 71 (including 2 orphan nodes) and organizations = 19. The graph was made in Gephi.

Hamas is the Palestinian branch of the Muslim Brotherhood. It was founded in 1987-88 with support from Hezbollah and Iran. Hamas has tended to rely on long-term American residents, often citizens, whereas Hezbollah's leaders were drawn from the organization's top leadership who were temporarily based in the United States (Graph 3). As is the case for Hezbollah, the conspiracies of Hamas involve only a few violent acts. Seven of the eleven Hamas conspiracies that we were able to identify were related to fundraising. The violent incidents occurred early. In 1994, a Hamas-sympathizer, Rashid Baz, who was a Lebanese-born immigrant, shot at a school bus carrying Lubavitch orthodox school children, killing a 16-year

old boy and wounding several others. In 1999 the incident was retroactively classified as terrorism.

Hamas and Hezbollah also have a history of grass-roots collaboration between illegal fundraising networks. Two men, Mufeed Attal and Murad Bisharat, were arrested and charged in May, 2013, in connection with a massive cigarette smuggling scheme dubbed "Operation Tobacco Road." This allegedly made $55 million in profits that were distributed to Hamas and Hezbollah.

The American diaspora organization of Hamas looks quite similar to that of Hezbollah, except that Hezbollah has a significantly larger footprint. Jacob N. Shapiro observes in his book *The Terrorist's Dilemma* that organizational choices are determined less by ideology than by specific political goals.[48] Our analysis supports this observation with respect to the operations of these two groups in the United States. Hamas and Hezbollah wish to take control of their respective designated territories and population groups rather than to provoke a global insurrection. For geo-strategic reasons neither has an interest in conducting attacks in the United States at the present time. The metrics used to analyze the network structures indicate that these were tightly controlled organizations with hardly any lateral connections to each other or to jihadists operating in the U.S. They have internally hierarchical command structures with communications moving up and down to one or a few gatekeepers.

Both organizations have used the United States as a base for raising funds, and occasionally as a safe harbor for important operatives. They retained the character of diaspora organizations focused on supporting organizations in the Middle East and eschewed domestic recruitment and mobilization for violent action in the United States. They also have many other similarities. Highly centralized and vertical networks, they tend to organize around large-scale family-based fraud conspiracies involving siblings, parents and children, spouses, in-laws, uncles, cousins, and even more distant relatives. While the cells lacked broader connections within the United States, they were linked to the mother organizations in Lebanon or Gaza, often through nodes placed outside the United States.[49] These are not organizations created to proselytize and recruit new members. When extra manpower is needed, they rely on ordinary criminals rather than try to convert locals to their cause. Their goal is to deliver the goods to the central organization, based abroad.

Nothing suggests that Hezbollah and Hamas have engaged in community-based

radicalization with the aim of providing a structural infrastructure for enclave-based radicalization of American citizens. To what extent the two groups can continue to call upon more or less passive goodwill from within their different immigrant-origin constituencies in this country is an open question. Reports of Hezbollah's involvement in illicit drug trade in Latin America, spilling into the United States, continue to capture headlines, as does the group's close relations with Iran, but since the 1990s there has been scant evidence of recruitment to violent political activity in the United States. Hamas and its Muslim Brotherhood-affiliated supporters now find themselves enemies rather than allies of the jihadists. Indeed, both are targeted for hostile takeover by the jihadists.

<p style="text-align:center">***</p>

Bin Laden officially declared war against "the Americans" in 1996 with the publication of the first of his famous fatwas, but in reality it was only in the early 1990s that he began to redirect his considerable resources to the building of a coalition of jihadist networks to target U.S. military installations and civilians. In the 1980s and early 1990s, Al Qaeda, Hamas and Hezbollah, for all their differences, shared a radical Islamist outlook that was kick-started by the Iranian revolution in 1979. But the organizational choices made by these groups is less a matter of ideology than the specific operational guidance that they draw from their political goals. Hamas and Hezbollah may therefore be expected to be—in most ways—the antithesis to the jihadist networks: hierarchical and slim with cohesive operational networks.

7. AFTER 9/11: HOMEGROWN TERRORISM

Bin Laden planned and encouraged a shift to recruiting American passport holders in order to compensate for the loss of capacity that followed Operation Enduring Freedom, the U.S.-led mission to close his camp in Afghanistan and to deny him the sanctuary from which he had been able to coordinate a terrorist campaign against the West. The advantages of recruiting Western citizens were immediately apparent:

- In November 2001, the British-based webmaster for Azzam.com, an English-language Al Qaeda-affiliated website registered in Connecticut, appealed to Pakistanis living in the United States, Canada, and the United Kingdom to travel to Pakistan, pretending to visit family and instead join Al Qaeda in Afghanistan, because only they could travel to Pakistan without difficulties.[50]

<p style="text-align:center">26</p>

- When informed that Jose Padilla, a U.S. citizen arrested in 2002 on suspicions of preparing to carry out a "dirty bomb" attack, was unwilling to carry out a suicide mission, Khalid Sheikh Mohammed, the mastermind of the 9/11 attacks and many other strikes against American targets, including the murder of Daniel Pearl, a journalist for the *Wall Street Journal*, reportedly observed that many members were willing to volunteer for a martyrdom mission but "not all brothers could work in the West."[51]

A handful of Americans became high-ranking members of Al Qaeda and helped to rebuild it after 2001 (see Graph 4). Among the best known are Adnan El Shukrijumah, the son of an interpreter for "the Blind Sheikh" who grew up in Brooklyn and Florida, and Adam Gadahn, a half-Jewish son of a California couple, who created Al Qaeda's online publications emporium, *As-Sahab*. Shukrijumah and Gadahn were killed in U.S. drone strikes.

The most famous of the Americans who departed the country in the aftermath of the 9/11 attacks and subsequently rose to a place of prominence in the global networks was Anwar al-Awlaki, who left for the United Kingdom in 2002 under a cloud of suspicion about his role as a possible facilitator for the 9/11 hijackers.[52] He began a public career as a speaker, giving lectures almost daily to students at British universities. In 2005, Awlaki moved to Yemen where he was sent to prison in connection with charges related to the kidnapping of two students. In 2007, after his release he began to develop his online English-language ministry for violent jihad. Examples of other Americans who joined Al Qaeda at the time of the 9/11 attacks include Adnan Shukrijumah, an American who rose in the ranks to become responsible for Al Qaeda's external operations, and Adam Gadahn, a Californian, who built Al Qaeda's media production company. All three men are now dead, killed in counterterrorism operations.[53]

The British Connection

The immediate post-2001 history of Al Qaeda's recruitment in the United States is largely a story of failure. Recruits were few in numbers and belonged either to the suppressed 1993 network or were drawn in by two infamous British sheikhs, Omar Bakri Mohammad, leader of *al-Muhajiroun*, and Abu Hamza al-Masri from the Finsbury Park Mosque in North London. Both men had attempted to extend their influence to the United States before the 9/11 attacks. Abu Hamza tried to set up a training camp in Oregon. This never produced any tangible results but led to his eventual imprisonment on a life-sentence in the United States in 2015.[54] A group in

New York City known as the Islamic Thinkers Society grew out of the British clerics' recruitment effort and morphed into a homegrown network that produced some of the United States' best-known "homegrown" terrorists but never itself produced a violent incident (see Graph 4).

Mohammed Junaid Babar may not be well known. He is a Pakistani-American who grew up in Queens, N.Y., where he came in contacts with a militant group established at a local mosque by Omar Bakri Mohammed, and his organization *al-Muhajiroun.* Babar moved to Pakistan one week after the 9/11 attacks. He was an unlikely recruit to the cause. His mother worked in the World Trade Center and escaped from the collapsing building after the attack. Babar joined the British *al-Muhajiroun* and moved to Pakistan, where he became coordinator for recruits heading to training camps after Al Qaeda reestablished itself in the Pakistani tribal area. In that capacity, Babar provided assistance to the July 7 bombers and their collaborators who were involved with a foiled attempt to blow up limousines in central London and a failed second attack on the London Underground on July 21, 2005. Babar returned to the United States in 2004. A rare instance of a jihadist terrorist who had regrets, Babar became a witness for the prosecution in the trials against the British network.[55]

The Virginia Recruitment Network

An American-Pakistani recruitment ring based in the Virginia suburbs to Washington D.C. led by Ali Al Tamimi responded to the call for American passport holders and sent a number of local residents to training camps in Pakistan. The network had begun to send volunteers to the Pakistan-based Lashkar-e-Taiba even before the 9/11 attacks. At that time Lashkar's camps trained its own recruits and also militants referred by Al Qaeda. The network emerges as the single largest subgroup in the graphing of the post-9/11 network. (The recruitment network is marked in the graph as the network of Mahmud Farouq Brent, a taxi driver from Baltimore who was arrested in 2005.) Recruits may eventually have turned to focus on attacks in the United States, but it is clear that their initial ambition was to join a foreign terrorist organization and fight abroad.[56]
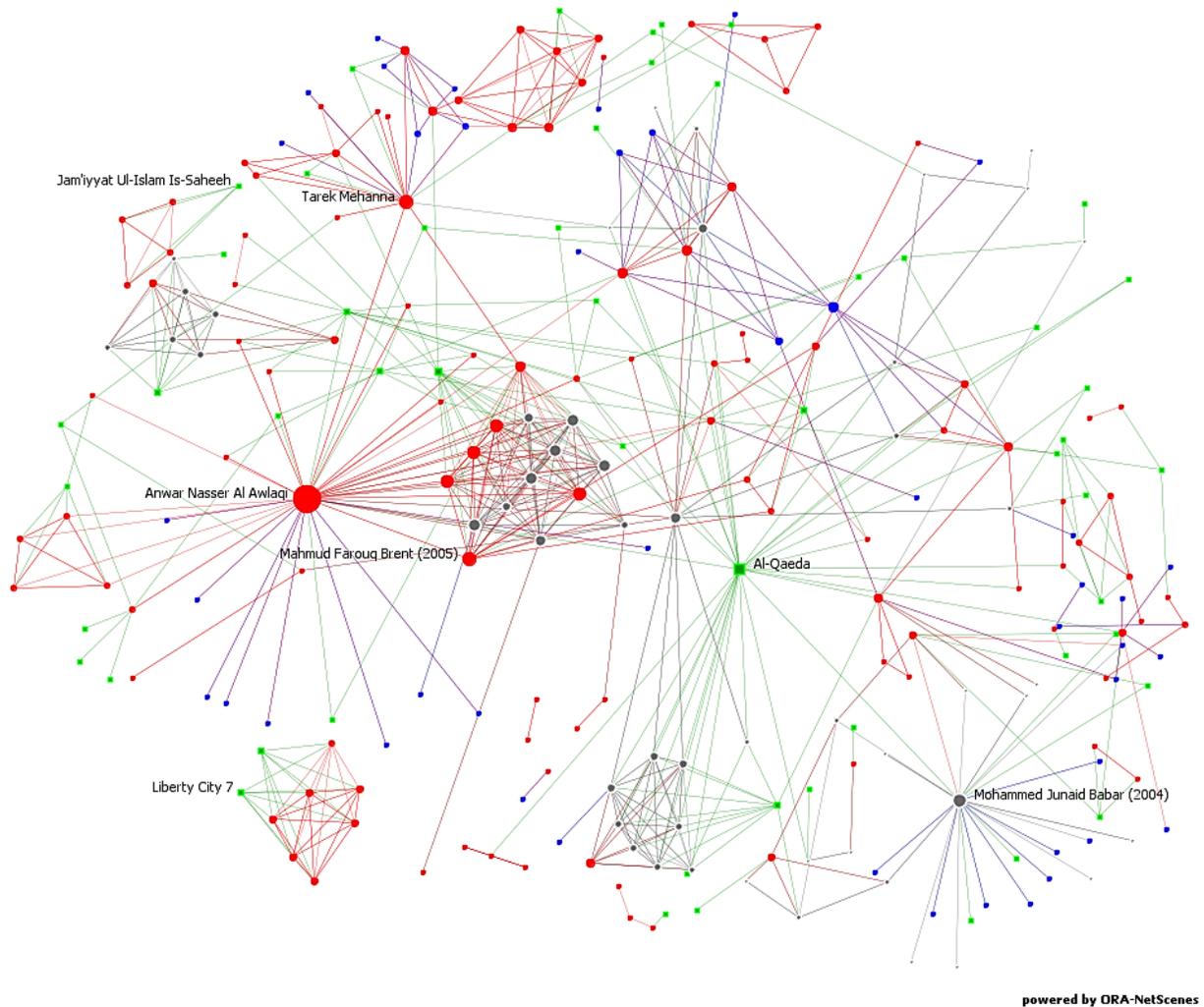
Graph 4. Jihadist Network 2002-2006.
Explanatory Note: Agents: 205, Organizations: 53, Isolates: 7, Isolate-connected ratio: .03 (7/205). Red = Americans; Blue = International operatives linked to Americans; Green = Organizations, both U.S.-based and international. Gray = Agents who appeared in a previous time period and are linked to people who were arrested or died in the present time frame.

A Cell in California

A California resident, Khalil Said al-Deek, made the top of the list of the next generation of influential Americans in Al Qaeda's ranks. SNA analytics brought al-Deek to the fore because together with Hisham Diab he allegedly recruited Adam Gadahn to the cadre of Americans working for Bin Laden.[57] Diab and al-Deek were both fans of the "Blind Sheikh," Sheikh Omar Abdul-Rahman, and allegedly heard him preach at a local mosque in Anaheim, California. Al-Deek was a Jordanian Palestinian who came to the United States to study computer science. He married an American and became an American citizen through naturalization. He fought in

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Afghanistan and probably also Bosnia. While living in California, al-Deek ran Charity without Borders, an Al Qaeda support group that was used for a large-scale fraud scheme bilking the State of California. He developed one of Al Qaeda's first websites for the online distribution of propaganda and digitalized training manuals. He is reported to have been killed in 2005 in Pakistan and was featured in a "Book of Martyrs" released online in 2008, probably by al-Deek's protégé, Adam Gadahn.

Prison Radicalization

In 2005, law enforcement disrupted a localized cell that was on the verge of attacking synagogues and military recruiting centers in the Los Angeles area. It was described by the FBI as the "the one that operationally was closest to actually occurring."[58] The planned attack was orchestrated from behind the walls of California's New Folsom Prison, where the cell's leader, Kevin James, had been incarcerated for gang-related robberies since the late 1990s. The plotters were almost hilariously incompetent. A former follower of the Nation of Islam, James founded and recruited fellow inmates to his group, *Jam'iyyat Ul-Islam Is-Saheed* (JIS), right under the noses of maximum security prison guards. Mark Hamm, who studied the group as part of a project on prison radicalization, described it as adapting of gang values to the jihadist project. Another group that also grew out of the unique African-American experimentation with Islam was the "Liberty City Seven," a group based in Miami that aimed to blow up the Sears Tower building in Chicago. The case caused much controversy because of the stunning ineptitude of the men involved, and the FBI's aggressive use of undercover agents.[59] In this case and in the case of Kevin James' conspiracy, no links existed to the core of the network. These two groups are probably unique, certainly exceptional, examples of bizarrely aspirational and "leaderless" cells.

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By 2004, Americans outnumbered foreigners as perpetrators of Al Qaeda-inspired terrorist activities in the United States. Yet there were few arrests in the United States, while Western Europe experienced a number of significant terrorist incidents, including the 2004 and 2005 train bombings in Madrid and London. "Homegrown" terrorism as a phenomenon is the direct consequence of Al Qaeda's tactical vision, but for lack of local support structures in the form of extremist enclaves rooted in the immigrant Muslim community it did take hold in the United States until recruitment shifted onto the internet.

8. THE TERRORIST DOT.COM INSURGENCY

Although the power and efficacy of social media recruitment is difficult to gauge, it is evident that the template for jihadist organization changed radically with the shift to online recruitment and organization starting in and around 2008 and continuing in the following years.

Case Study 3. RevolutionMuslim.com

Americans played key roles in developing jihadist online messaging and constructing the social media architecture that helped to boost terrorist recruitment in recent years. A jihadist Internet entrepreneur, Sarafaz Jamal, was the developer and proprietor of the ClearGuidance-Islamic Networking Forum-MuslimPad family that pioneered the new architecture. Jamal moved to Jordan in 2007 and has never been charged with any crimes.[60] RevolutionMuslim.com was created in December 2007 by two American converts, Jesse Curtis Morton, who went by the name Younus Abdullah Mohammad, and Joseph Cohen, who called himself Yousef al-Khattab. The anchor site was RevolutionMuslim.com, which was supplemented by nine other sites using variants of the domain name, e.g. revolution4muslim.com. The sites were linked to a number of mainstream file sharing platforms, including Scribd, PalTalk, BlipTV, Slideshare, and YouTube and Facebook. At least six different YouTube channels were linked to the hub.[61]

Most of the bloggers on the site never met in person, and if they did meet this was only after they had moved abroad. But when it came to planning violent incidents, the participants formed small closely-knit cells. They also proved remarkably inept. None of the planned incidents related to the network's American members was successful (see Graph 5). The hub was dominated by converts and was very diverse in terms of the ethno-racial origin of the members. Trust was created through virtual networking, and in some cases even required love matches to make the relationships stick. Even then, social cohesion proved tenuous.

RevolutionMuslim.com helped to spawn a new generation in the American jihadi movement. The founders worked with a Boston-based group comprised of Daniel Maldonado, Tarek Mehanna, and Ahmed Abousamra, and sometimes including other friends. All were middle-class, computer savvy, and college-bound. The group fused in 2000 when its members started watching violent jihadi videos together. Some traveled abroad, trying to join a foreign terrorist group several times without success. Disappointed, they debated attacking a mall in the

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Boston area but they failed to obtain the desired weapons. Mehanna translated jihadist tracts and started tutoring a group of local youths, who he took to "Ground Zero" in Lower Manhattan to celebrate Bin Laden's victory. The Boston area group was deeply involved with jihadist web forums, including one run by a small group of Britons and the AQI-inspired *al-Ekhlas* (see Graph 5). The Boston group unraveled shortly after Abousamra left the United States in late 2006. Maldonado was captured in January 2007 in Kenya while fleeing Somalia, and was sent to stand trial in the United States. He was sentenced to ten years in prison in July 2007. Mehanna was arrested in 2008 as he attempted to travel to Saudi Arabia. He was convicted on charges of conspiracy to support terrorism. Abousamra had a degree in computer science from a Boston-area university and allegedly helped to develop the Islamic State's aggressive social media campaign in 2014.[62] He was reported killed in Iraq in 2015. (His death has not been confirmed.)
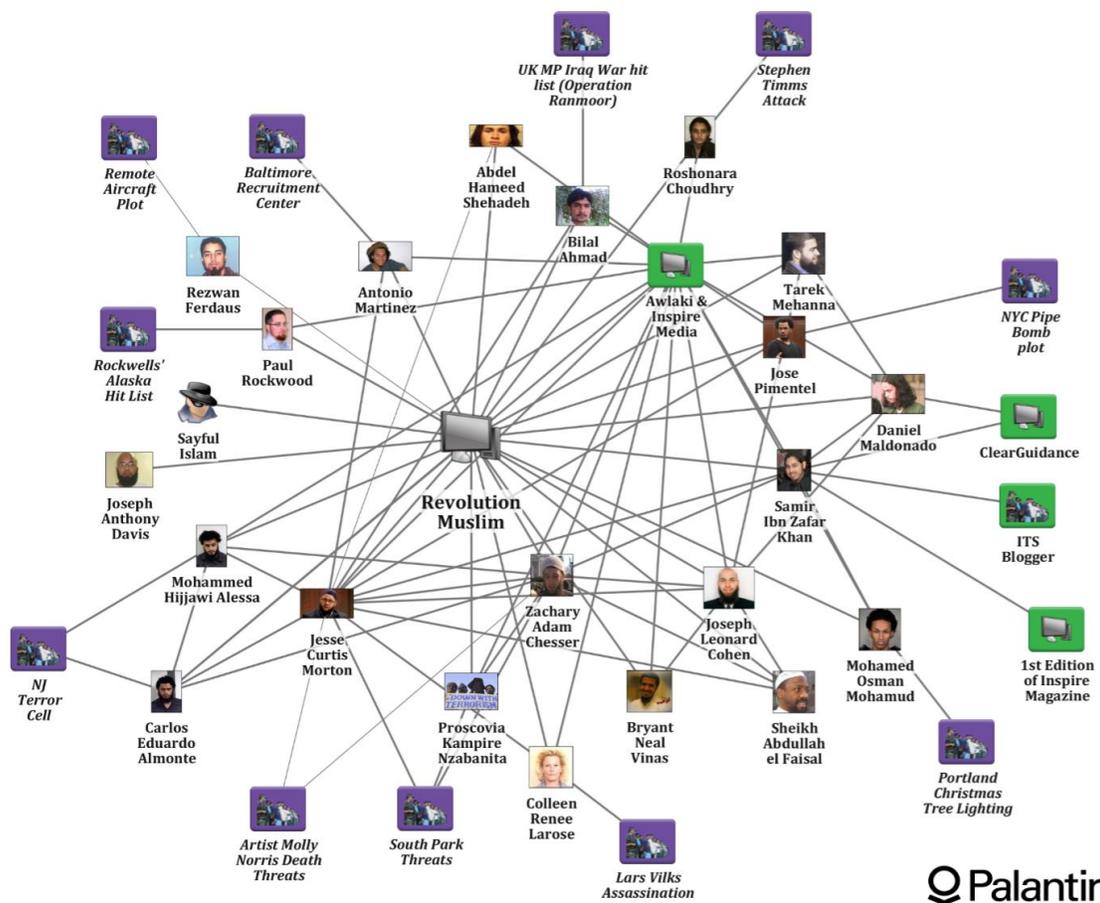
Graph 5. Violent Incidents Linked to RevolutionMuslim.com.
Explanatory Note: Not all plots depicted can be exclusively attributed to Revolution Muslim, but all individuals on the graph were inspired by or involved with Revolution Muslim.

Another American who became radicalized through the group was Samir ibn Zafar Khan, the New York-raised editor and publisher of *Inspire* magazine, who was killed together with Awlaki in a drone strike in Yemen in 2011. Khan began blogging in 2003 under the online handle *Inshallahshaheed* (God willing, a martyr). He moved to Yemen in 2009 to work with Awlaki, and quickly became a prominent figure in AQAP's online publishing hub, *al-Malahim* (Epic Battles) Media. By April 2014 the founders and the moderators of the RevolutionMuslim.com network had all been sentenced to prison terms or had died. Only one of the violent plots with which the members became involved succeeded, a knife attack against a British Member of Parliament, Stephen Timms, who was targeted because of his vote in favor of the Iraq war mission. The attack was carried out by a young woman who had been instructed via her online contacts with members of the transnational RevolutionMuslim.com network. The greatest legacy of the U.S.-based network was its spin-off, the *Inspire* online magazine.

Case Study 4. Anwar Al-Awlaki's Online Proselytizing Network

Al Qaeda in the Arabian Peninsula (AQAP) was formed in January 2009 through a union of the Saudi and Yemeni branches of Al Qaeda. The organization quickly grew. Al-Awlaki played a dual role in the organization as spiritual influence for Westerners and also as operational leader of attacks directed against Western targets. His influence spread both through direct communication channels, mostly online, and through the online dissemination of his audios and literature. He would interact with followers through the comments section of his blog posts, and corresponded by email with many of these individuals as well. The basis for his appeal was his ability to formulate jihadist talking points in English and his accessibility through his website www.anwar-alawlaki.com, which went offline in November 2009 following the Fort Hood shooting.

Jihad Recollections, an online magazine that Samir Khan created independently in 2009, lasted only four issues, but it was soon replaced by the Islamic State's slickest production, *Inspire*, an online publication in the form of an e-zine, that first appeared in June 2010. Khan introduced the concept of "Open Source Jihad" in the second issue: "Look no further, the Open Source Jihad is now at hands reach [*sic*]." This issue, published in October 2010, gave instructions on how to use a pick-up truck "as a moving machine, not to mow grass but mow

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down the enemies of Allah." Later issues carried a serialized manual on how to put together a terrorist attack and injunctions to "do something; pick up a gun" and "how to make a bomb in your mother's kitchen." *Inspire* recruited more adherents and inspired more plots, especially violent ones, than any of the other hubs.

Awlaki and Khan recast Bin Laden's message in snappy English-language memes. Awlaki's online ministry was largely conducted in English, and it was run by groups of English, American, and Australian militants associated with AQAP. Khan and Awlaki were both killed by American drone strikes in Yemen in late September 2011. Four years after their death, in September 2015, APAQ's bloggers published the fifteenth issue of *Inspire*. The issue mixed self-help advice on how to conduct a violent attack with inspirational biographies of jihadist heroes and Q and A's about issues of concern to anyone ready to embrace violent jihad.

We identified 65 people influenced by Awlaki who have been arrested in the United States in recent years or who have died abroad or at home, in the pursuit of terrorism (see Graph 6). Only a handful communicated with Alwaki directly but all were found to have been consumers of his online sermons and many cited his influence in their own online statements. Nidal Hasan, the Ft. Hood shooter, reportedly exchanged 10-20 emails with Awlaki, soliciting advice, messages to which Awlaki responded in non-specific but perhaps suggestive or coded ways.

The picture that emerges is one of small domestic cells and networks—of which the American Somali network is the largest—that became structurally integrated with the foreign terrorist nodes, specifically, the AQAP and the Somali Al Qaeda-affiliate Al Shabaab.

Paradoxically, the network analysis indicates that the dispersed homegrown terrorist networks are more connected and more closely integrated with the transnational networks than were the pre-9/11networks, made up largely of foreign-origin men operating in the United States, or the pre-social media networks which largely relied on intrinsically risky international travel. A new generation of English-speaking Westerners—mostly British—who had moved to the inner circle took charge of "homegrown" volunteers deputized to conduct attacks.
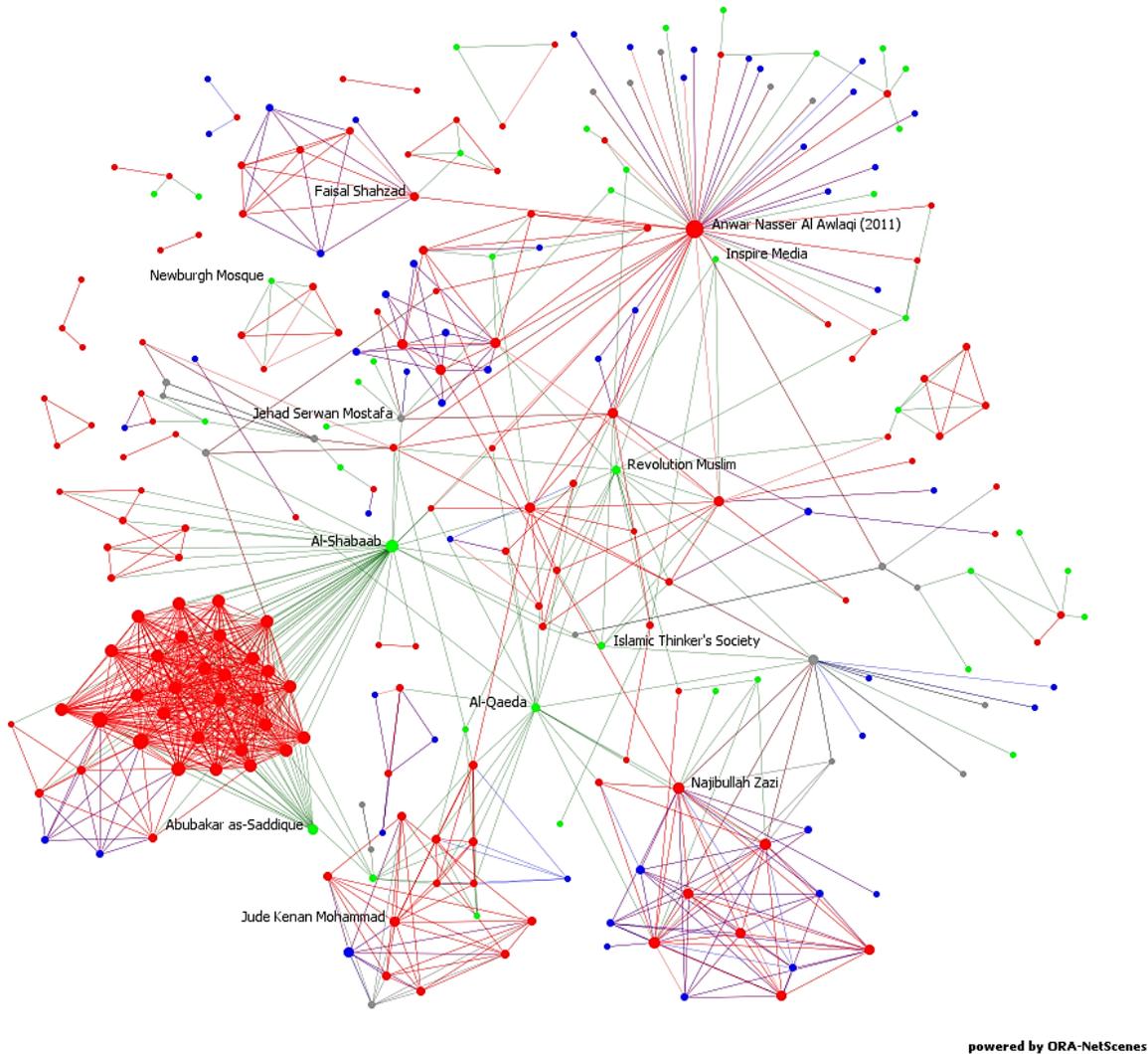
Graph 6. Jihadist Network 2007-2011.
Explanatory Note: Agents: 215, Organizations: 41, Isolates: 10, Isolate-connected ratio: .05 (10/215). Red = Americans; Blue = International operatives linked to Americans; Green = Organizations, both U.S.-based and international. Gray = Individuals who appeared in a previous time period and are linked to people who were arrested or died in the present time frame.

The Foreign Connections

The focus of the analysis has been on U.S. residents and their direct first-hand contacts with other Americans and to foreign terrorist agents or organizations. For the specific purpose of analyzing homegrown terrorism this is a reasonable focus, but it has to be recognized that the major jihadist movements are transnational, and that this approach does not do justice to the multidimensional structure of their global networks and the role played by international actors in fomenting attacks in the United States. Faisal Shahzad, whose plot to set off a car bomb in Times

Square on May 1, 2010, failed only because Shahzad did not manage to put the bomb together correctly, was inspired by Awlaki but was otherwise a "lone actor" with no known connection to other extremists in the United States.

The linked cases of Bryant Neal Vinas, a Hispanic convert to Islam, and Najibullah Zazi, an Afghan-American who moved to Queens, NY, with his family at the age of six, illustrate the close links between homegrown terrorism and the international organizations. The two men met in Pakistan in 2008, where they went to a training camp run by Al Qaeda. Vinas converted in 2004, radicalized in part by listening to Awlaki's online sermons. He traveled to Pakistan in 2007, and while there had contact with both Rashid Rauf, who had grown up in the United Kingdom, and another Al Qaeda handler, Younes al-Mauritani. Vinas contributed to plans to bomb a Long Island commuter train in Penn Station in New York City. He was arrested in October 2008 in Pakistan and pleaded guilty to all charges in 2009.

Najibullah Zazi and his American co-conspirators who were planning to bomb the New York City subway became radicalized in the United States while listening to Awlaki's sermons. But they were trained in a camp in Pakistan and Zazi received instruction from Adnan Shukrijumah, an American who became a high-ranking Al Qaeda operative, and also from Rauf who may have been Shukrijumah's boss. Zazi stayed in email contact with Rauf after he returned to the U.S. in 2009, enabling ongoing operational control by Al Qaeda Core. The plot was unraveled because British authorities had Rauf under electronic surveillance in connection with a plot he was managing that targeted a shopping mall. It is unclear how close Zazi and his accomplices came to develop workable bombs when they were arrested.

9. THE TRANSFORMATION OF TERRORIST ORGANIZATION

Islamist terrorism in the United States has taken many different forms. These range from the pyramidal hierarchy of the Brooklyn-based cell to the family-based criminal fundraising schemes run by Hamas and Hezbollah and the decentralized pop-up cells of Americans who have become enamored of the Islamic State's propaganda.

After the 9/11 attacks, jihadist recruitment in the United States recovered only slowly and with the help of a new web-based recruitment strategy. The ability to push out propaganda online neutralized geographical constraints and insulated leaders against the alert American law enforcement agencies. The jihadists lost their integrated networks of leaders and foot soldiers,

but the speed of cross-network communication increased. Redundancy also increased, indicating that the network became better integrated, with multiple communication pathways now available to the actors. But in 2012 everything changed when the Islamic State emerged as a central coordinating actor, once again creating a centralized command and control hubs—but utilizing online networks for pushing out instructions.

Table 2. Social Network Comparison: Network Evolution from 2001 and Earlier to the Islamic State's Recruitment Drive.

SNA Metric	1993/2001	2002/2006	Change 1993/2001-2002/2006	2007/2011	Change 2002/2006-2007/2011	2012/2015	Change 2007/2011-2012/2015
Clique Count	134	45	-66.42%	52	+15.56%	18	-65.38%
Connectedness	0.838	0.532	-36.59%	0.570	+7.18%	0.036	-93.68%
Density	0.033	0.019	-43.18%	0.032	+68.47%	0.016	-48.83%
Density: Clustering Coefficient	0.385	0.407	+5.72%	0.504	+23.73%	0.314	-37.66%
Efficiency: Global	0.284	0.145	-48.80%	0.160	+10.42%	0.023	-85.75%
Efficiency: Local	0.544	0.448	-17.58%	0.528	+17.78%	0.350	-33.77%
Fragmentation	0.162	0.468	+189.7%	0.430	-8.15%	0.964	+124.0%
Hierarchy	0.105	0.186	+77.50%	0.151	-18.58%	0.184	+21.63%
Redundancy: Column	0.028	0.014	-49.85%	0.028	+92.91%	0.009	-68.77%
Redundancy: Row	0.029	0.014	-49.85%	0.028	+91.15%	0.009	-68.25%
Span of Control	8.392	4.238	-49.49%	7.183	+69.47%	2.504	-65.13%
Speed: Average	0.284	0.201	-29.19%	0.215	+6.88%	0.423	+96.60%
Speed: Minimum	0.091	0.071	-21.43%	0.091	+27.27%	0.111	+22.22%
Centrality: Inverse Closeness*	0.265	0.129	-51.50%	0.149	+15.80%	0.020	-86.42%
Structural Holes: Constraint	0.509	0.708	+39.03%	0.652	-7.80%	0.863	+32.31%

Explanatory Note: * Indicates a node-level measure, all network. See Table A-2 in the appendix for an explanation of terms.

Before 2001, the average distance across the network was 3.52 links, which is an indicator of the expected distance between two randomly selected nodes in the network. In later years the average distance was 4.97, indicating that the networks was stretched.[63] More nodes were placed outside the U.S., and often U.S. based operatives communicated only through

foreigners or through Americans based abroad. However, in recent years, from 2012 to 2015, nearly all communication moved online and the American would-be militants mostly have wanted to join the Islamic State. In this environment the average distance shrank to 2.36. Table 2 contains the results for all measures by each time period.

The analysis highlights a dramatic transformation of the domestic jihadist networks. Before the September 11 attacks, the domestic network was highly integrated and hierarchical, and members had multiple contact points. The response to domestic suppression was flight or, alternatively, hiding in small cells that communicated through intermediaries. There were few contacts points between much smaller groups of domestic operatives. Density and cross-network communication declined after 2001, and changes in the network structure indicate greater fragmentation. More structural "holes" appeared in the network. (These are, essentially, broken links. See Table A-2 in the appendix for a definition).

Structural holes may be seen as a strength or as a problem for terrorists. Mark Granovetter introduced a distinction between what he called "weak" and "strong" links in networks. Weak links are the indirect links actors have through shared strong links with third parties. If A is friends with B and B is friends with C, A and C share an indirect link, a "weak" link. They are part of the same "set." Granovetter found, based upon studies of real-life networks, that "weak" links are instrumentally more helpful to network participants than "strong" links. But structural holes may also indicate suppression and disruption of the network's communication path through "decapitation" of an important link in the node. For example, say that node A is Adam Gadahn, an American citizen who was based abroad for most of his life as a jihadist. Node B is Bin Laden, and node C is Ayman al-Zawahiri. Bin Laden communicates with al-Zawahiri and vice versa, and Gadahn communicates with Bin Laden—but Gadahn does not communicate directly with al-Zawahiri. Influence and information flows from C through B to A, without A speaking directly with C.[64] However, elimination of Bin Laden from the chain creates a structural hole that disrupts communication. Therefore, the rise in "structural holes" may be at the same an indication of the diffusion and growth of the jihadist networks—and of the ability of the U.S. government to disrupt the networks.

It also appears that the network became more vertical, but now with leaders placed outside the United States. Small, separate but tightly integrated cells of domestic militants did not regularly communicate with each other but were tied to leaders situated abroad. The final

shift reflects the development of the social media and transnational networks. There is now hardly any lateral contact between actors in the network. Connectedness, clique counts, and other indicators of density dropped off, swiftly and radically. More structural holes emerge in the network and redundancy ratios dropped, indicating a "thinning" of the network. Internal network control collapsed, since the domestic actors do not talk to each other. Yet information flows pick up, as does the speed with which information can pass from one end of the network to the other. There is leadership in the network, but the leaders speaks directly to each other and to individual subordinates without intermediaries. Domestic actors are on their own, or isolated within a cell. Coordination is either one-on-one or through the communication of "scripts."[65] (A "script" is a program or sequence of instructions that is used to automate computer processes.) All of the measures indicate an adaptive shift to a flat, non-hierarchical network built upon lateral contact and with few crosscutting links between the nodes. This structure works well for the diffusion of information and influence, and for recruiting people to the center: the Islamic State. It is not efficient for the allocation and optimization of network members for the purpose of large-scale domestic operations.

10. THE FOREIGN FIGHTERS

One feature of the recruitment of Americans to the Salafi-jihadist organizations has been remarkably constant. As soon as they become radicalized, homegrown American militants nearly always want to go abroad to fight.

Americans seeking to travel abroad to join a foreign terrorist organization is not a new phenomenon. In the 1980s and 1990s Americans fought with Al Qaeda and other jihadist groups in Afghanistan, Chechnya, and Bosnia. After 9/11, as the number of organizations in the Salafi-jihadist family proliferated, Americans sought to join the group that they thought would be most welcoming. Al Qaeda, Al Shabaab, AQAP, AQIM, the Islamic State and the Pakistani Taliban have all sponsored Americans.[66] Chart 1 shows the number of Americans who were identified each year since 1993 as having come to the attention of law enforcement, resulting in arrests or public designation as a terrorist. The number of Americans known to have sought to go abroad to join a foreign terrorist organization is also charted. In some cases arrests foiled the effort to go abroad, in which case an individual is recorded in both lines.
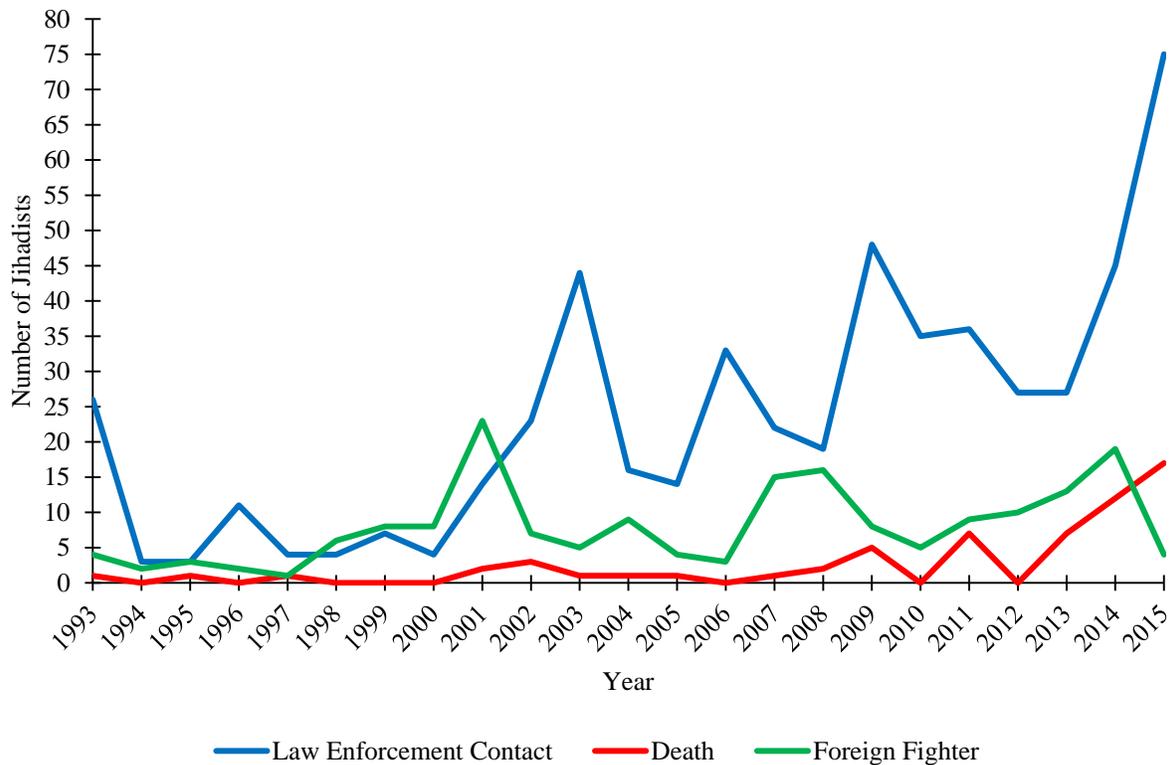
Chart 1. Number of American Jihadist Terrorism Offenders by Year, 1993-2015.
Explanatory Note: N = 557. Missing information = 2. Law enforcement contact here includes arrests leading to charges and convictions, as well as charges filed in absentia and inclusion on the FBI's Wanted list. The line indicating foreign fighters include only successful attempts to leave the United States for the purpose of becoming a foreign fighter. If an individual was arrested before leaving the United States, the arrest is recorded as an instance of law enforcement contact. Deaths may have occurred abroad or at home, in the United States. Years prior to 1993 not included due incomplete data.

In the past few years, domestic radicalization has been closely linked to the rise of mini-emirates and jihadist-controlled areas in North Africa, the Middle East, and South Asia. There was a spike in travel abroad and in arrests from 2009 to 2011, when about forty American-Somalis attempted to join Al Shabaab, and again in 2014 and 2015, this time linked to the Islamic State. The impact of stepped-up law enforcement against travel is clearly seen in the decline of the green line in the chart in 2015.

Fatalities of Americans fighting for foreign terrorist groups have increased apace. (A list of Americans identified as having died in connection with terrorist activity may be found in the appendix in Table A-1.) Thirteen Americans are known to have died in Somalia, in suicide attacks or as combatants with Al Shabaab, but there may be more, unrecorded, deaths. The precise identities of some of the Americans who are reported to have died in Syria or Iraq

fighting with ISIL are not known, but 18 Americans are thought to have died there between 2013 and 2015.

The American-Somali Network

The ability of the Somali terrorist group Al Shabaab to attract young fighters of Somali origin became a preoccupation for law enforcement when, over a period of a few years, forty or more young men from the Minneapolis-St. Paul area traveled to Somalia or attempted to go there. A number died as suicide bombers. Al Shabaab's recruitment drive was also successful among non-Somalis in search of adventure. One was Jehad Serwan Mostafa, the American who perhaps reached the most senior position within Al Shabaab. Mostafa grew up and attended college in the San Diego area, and left for Somalia in 2005. He is on the FBI's Most Wanted Terrorists List. His whereabouts are not known.[67] Another American with no Somali lineage who joined Al Shabaab was Omar Hammami (Abu Mansur al-Amriki), who grew up in grew up in Daphne, Alabama. He became a media star, appearing on Al Jazeera. At one point, he live-streamed an attack on himself by his former comrades in Al Shabaab. The group killed him in September 2013.[68]

Zakaria Maruf was one of the youths from Minneapolis who joined Al Shabaab and who left the United States for Somalia in successive waves starting in 2007. Maruf came to the U.S. as a young teenager and became involved in local street gangs. After joining Al Shabaab, he recruited others in his community via email, social media contacts, and phone calls. He was killed in Mogadishu in 2009. The American-Somali network so dominated the analysis of American jihadists fighting in foreign insurgencies that the key actors in the Somali network all turned up highest in our measures. American Somalis who were ranked as top "influencers" in the network (Eigenvector centrality) were: Abdirahman Gullet, Mohamed Abikar, Adan Hussein, Abdiwelli Yassin Isse, and Shirwa Ahmed. Gullet was inspired by Ahmad and Burhan Hassan, also a friend from Minneapolis. Abikar and Hussein were both friends with Gullet and traveled to Somalia together, while Isse was a recruiter for Minnesotan Somalis. Ahmed killed 22 U.N. aid workers and Somalis working with the U.N. in Somalia in October 2008 in a suicide attack.

At the same time, domestic groups emerged that acted as flypaper for young Americans who became attracted to jihadist rhetoric before they moved on to try, and in many cases fail, to join Al Shabaab, or else Al Qaeda in the Arabian Peninsula. Among the most influential

organizations were Abubakar as-Saddique, a mosque in Minneapolis, where some of the young American-Somalis met; RevolutionMuslim.com, a virtual organization; and two Queens, N.Y. based organizations, Islamic Circle of North America and Islamic Thinker's Society. All featured as meeting places for this new generation of radicalized fighters (see Graph 6).

Case Study 5. Making Hijra to the Islamic State

In 2014 Abu Musab al-Zarqawi's Al Qaeda in Iraq renamed itself "the Islamic State" and proclaimed its own worldwide caliphate. It took physical control of a swath of territory the size of a mid-sized European country (albeit largely devoid of settlement outside the river valleys), and opened its doors to anyone who could get there—teenager, male and female, former fighters who had retired and wannabes who had never held a gun. The declaration of a new "caliphate" provided legitimation to the claim that is a religious obligation for Muslims to migrate to ISIL's territory. This was termed making *hijra*, a reference to the flight of Muhammad from Mecca to Medina to escape persecution in 622.

The United States took a strong enforcement stance from the beginning, arresting anyone who tried to go to the so-called caliphate in Iraq or Syria. Hundreds of Americans are nevertheless thought to have joined ISIL. The number is low compared to Europe, where as many as ten thousand individuals have migrated to the caliphate.[69] About one-fifth of the number thought to have traveled to Syria and Iraq to join ISIL have been publicly identified, by name or alias. Though the data are incomplete, it is evident that, compared to previous jihadist insurgencies, the Americans who have left to go and fight in Syria and Iraq –or have tried to do so—are younger and are for the most part native-born citizens. Few have family connections to Syria. Most do not speak Arabic.

By 2014, the American Somalis had switched their allegiance to the Islamic State. It came as a surprise when a group of ten young American Somalis from Minneapolis tried to leave to go to the Islamic State. (The network is marked in Graph 7.) Until that time, the American Somalis had been seen as instances of diaspora terrorism, linked by kinship ties to homeland conflicts. The shift indicated that the second-generation American Somalis were sociologically akin to the generic homegrown recruits, and were less tied to ethno-nationalist affinities. Only one young man from the group, Abdi Nur, made it to the Islamic State. Another local man, Abdirizak Mohamed Warsame, was arrested and in January 2016 pleaded guilty to

organizing the travel.[70] Twenty-year old Warsame took the lead in organizing the posse of his friends. He stands out as a "leader" in the network at large only because the Minneapolis youths comprised a fairly large cell and Warsame appears to have shown the most initiative in organizing the young men's travels. Their contact with the Islamic State was another American, Douglas McArthur McCain, a 34-year old convert to Islam who grew up in Minneapolis and had traveled to Syria with Somali friends from San Diego. McCain died in August 2014.
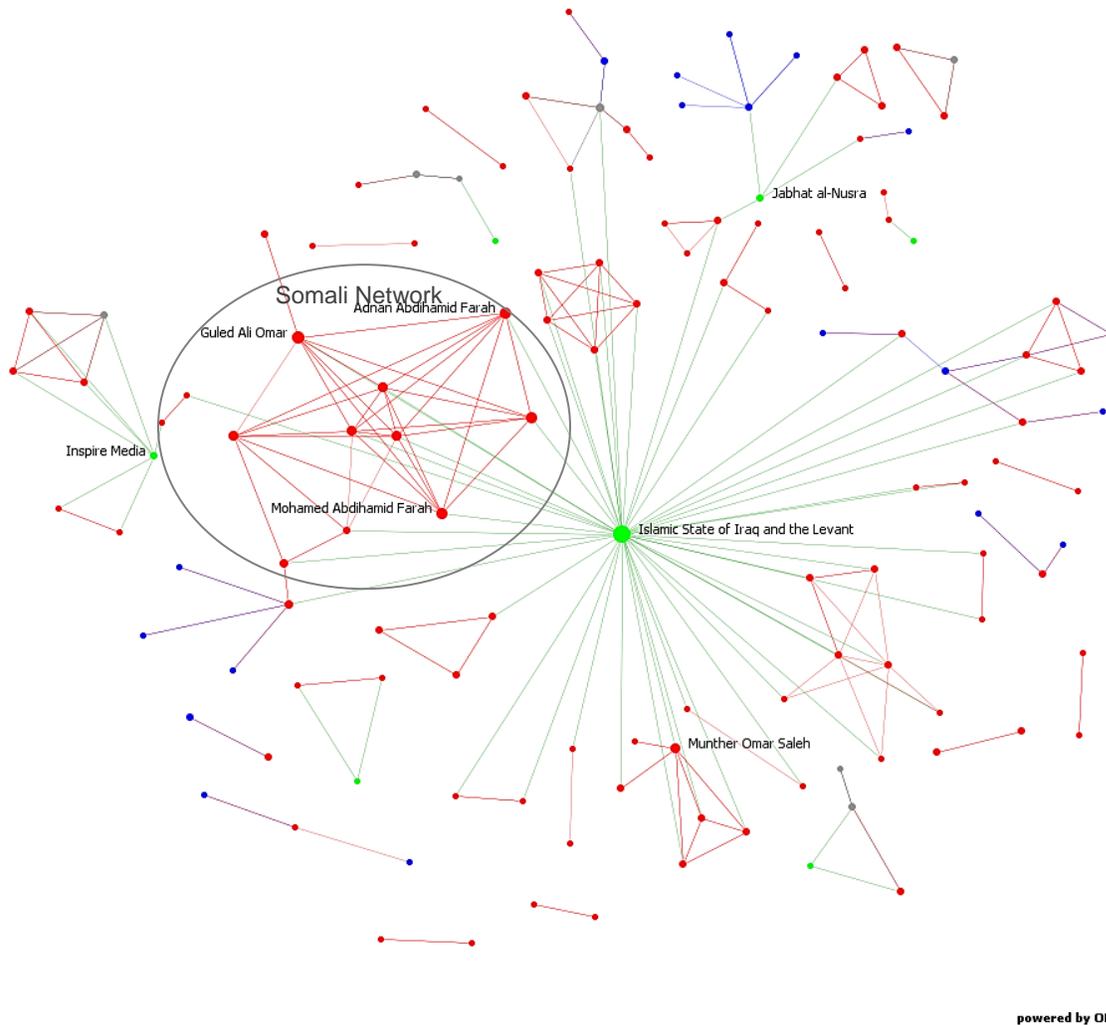
Graph 7. Jihadist Network 2012-2015.
Explanatory Note: Agents: 123, Organizations: 7, Isolates: 13, Isolate-connected ratio: .11 (13/123). Red = Americans; Blue = International operatives linked to Americans; Green = Organizations, both U.S.-based and international, and online as well as real-life. Gray = Individuals who appeared in a previous time period and are linked to people who were arrested or died in the present time frame..

American Somali youths may have been particularly susceptible to the idea of becoming a foreign fighter because they heard about the opportunity through their friends, brothers, and

online through role models who had already made hijra to join a foreign terrorist organization. In these cases, it is not so much that an individual radicalizes. Rather, a whole group is radicalized, and the individual follows along.[71]

In late 2014 and the first half of 2015, an uptick took place in small-cell or lone actor plots inspired by individuals who one reason or another opted to "do something" at home rather than travel.[72] Several of these aimed to use pressure cooker bombs similar to those used by the Boston Marathon bombers. Others involved plots involving providing support for ISIL and attacks on police, all actions endorsed by ISIL recruiters. Two-thirds of the plots (by our count) were disrupted due to tracking by the FBI of the cell members' online activities.

ISIL's propaganda deftly plays on the rewards of joining up. Promises of the camaraderie of brotherhood help frame the sales pitch to gullible disenchanted Western youths ready to rebel against parental controls, school, or to escape a life marked by gangs and drugs. In the caliphate, you will be in charge, it is promised. The *mujahidin* call the shots.[73] ISIL early on delegated online recruitment to Western audiences to English-speaking fighters. They were able to tailor the propaganda to Muslims in the West and also to speak with authenticity derived from their real-life exploits. That some of them were notorious for taking part in gruesome acts of violence provided validity and added to the allure.[74]

Recruitment networks funneling people abroad look very different from the networks of the past that focused on perpetrating attacks at home. The Islamic State's recruitment structure presents a classic pattern of what is known as a star network, e.g. a communication network in which all nodes are independently connected to one central unit, here the recruiters for the Islamic State. This acts as a central switch or a hub. In a star network the failure of peripheral nodes does not affect the other nodes or the center. If the hub fails, however, the network collapses. The American-Somali youths illustrated another aspect of a star network: the peripheral nodes may switch their allegiance to a different hub.

<p style="text-align:center">***</p>

The star network structure is typical for a new type of organization has come to characterize homegrown terrorism in recent years: peer based, disaggregated and diffused, they become linked to the international network through online friends and peer groups. These were comprised of teenagers, or "fanboys" (and more than a few "fangirls"), of supporters who may not be in the insurgency zone but eagerly communicate with friends who are. Flat, dispersed, and

<p style="text-align:center">44</p>

highly connected through online media, social media network algorithms can find hardly any leadership structure in the network (see Graph 7). The peripheral nodes may be comprised of just one person linking up via a home computer or the node may be a pop-up cell of friends and family. But characteristically they have little awareness of each other.

Real-life organizations and their tactics drive the online world of Salafi-jihadism, not vice versa. The star-network structure is driven by the prioritization of recruitment over fermenting localized extremist communities—but also by the architecture of the social media environment. Building a resilient social media presence requires organization. Online, the recruiters push "scripts" for what to do on frontline open social media platforms and exploit new encrypted technologies to redirect individuals who appear open to radicalization to engage in direct-marketing recruitment tactics.[75]

Responding to public outcry (and pressures from Congress), the service provider in late 2015 started to suppress Twitter accounts that were identified as extremist. Pushing terrorist communications off frontline social media like Twitter has some short term benefits, perhaps, but will also have some costs. The policy change significantly degraded the global ISIL-related social media networks, supposedly making it more difficult for recruiters to market their ideas.[76] But suppression may not hamper the ability of the terrorist organizations to exploit online communications as effectively as is often assumed. Making contact through thinly veiled recruitment postings is still easy, and non-English and mixed language threads, specifically, accounts pushing out messaging in Arabic, Urdu, and Russian, continue to flourish.

Suppression efforts coincide with the increased availability of new apps and a choice of technologies—specifically the retailing of encryption technologies—that have encouraged the shift of terrorist online communications to the "dark" net. Pushing suppression of extremist content further from the elimination of direct threats or extreme violence to include proselytizing, such as, sermons by Anwar al-Awlaki or *Inspire* Magazine's recipes for "how to make a bomb in your mother's kitchen" jeopardizes a broad range of material that can be used in research and undermines cherished civil liberties to publish offending texts and speech. It should not be done, and probably cannot be done without violating constitutional principles. Pragmatic and tactical concerns also suggest that being mildly tolerant of jihadist extremism online is the better approach. Gains may be made in restricting the retailing of extremism to vulnerable youths only to be lost in prevention capabilities. Online data have proven of value to law enforcement.

The ability to push out counter-messaging also depends upon access to data that make it possible to identify the memes (ideas and symbols) and the population groups targeted by terrorist recruiters.

11. DEMOGRAPHIC CHANGE

The impact of online recruitment is felt, above all, in the diffusion of jihadist extremism across the American map and the demographic mosaic. Twenty years ago, to meet a jihadist you had to go to a mosque or an extremist bookstore, or perhaps find a discrete Internet café. Today anyone can meet a jihadist online or in real life. Jihadists are on Facebook and on Twitter, WhatsApp, and Instagram. You can use PalTalk or encrypted online communications tools like TOR to speak privately. The third-generation social media environment, sometimes referred to as Web 3.0, has neutralized geography.[77] Sitting by yourself in the Midwest, you can feel you are part of a mighty and populous community. In 2015 investigations related to the Islamic State were in progress in all 50 states.[78]

| Somali | Pakistani | White-European | African-American | Palestinian | Egyptian |
Yemeni	Latino-American	Jordanian	Saudi	Afro-Caribbean	Albanian
Lebanese	Syrian	Sudanese	Uzbeki	Iraqi	Afghan
Moroccan	Slavic	Bengali	Algerian	Filipino	Indian
Iranian	Kuwaiti	Latino	Turkish	Bosnian	Chechen
Ethiopian	Kurdish	Vietnamese	Eritrean	Indo-Caribbean	Indonesian
Kazakh	Korean	Libyan	Malaysian	Maldivian	Nigerian
Qatari	Sub-Saharan	Tunisian	Ugandan		

Chart 2. Ethnicities by Number of American Jihadists.
Explanatory Note: N = 509. Missing = 48. Smaller circle represents ethnicities with three or fewer individuals.

The population that is potentially vulnerable to recruitment has become remarkably diversified. In the 1990s, Al Qaeda and the Egyptian networks in the United States drew followers from a relatively predictable list of displaced militants from North African and Middle Eastern Islamist groups and African-Americans whose extremism had already been nurtured within the fringe of Black Muslim groups that trace descent from the Nation of Islam. Today, no discernible ethno-national profile exists, as seen in Chart 2. Always high, the ratio of natural born Muslims to converts has varied greatly, approximating a 60-40% split in recent years. This indicates that being born a Muslim is not the crucial factor shaping the chances of becoming a terrorist in the name of Islam.

The new recruitment tactics also drew in far younger followers. Multiple factors play into the generational shift apparent in the data, and it cannot be said how much of the trend towards far younger terrorism perpetrators may be explained by online proselytizing and recruitment, but it has to be assumed to be a significant factor. Teenagers trying to join the Islamic State have received much media attention but the risk posed to domestic security by older men—and increasingly women – should not be discounted. 60% of the offenders who engaged in domestic attacks in the last five years were under 27 and 80% were under 30, but 1 in 5 of domestic violent incidents have been committed by men older than 35. Moreover, no specific age profile exists for non-violent terrorism offenses (e.g. fundraisers and recruiters).

Nevertheless, there is a large—and persistent—age spread between different substrata of the homegrown jihadist population. Individuals with criminal histories unrelated to political extremism, most commonly convictions related to drugs or assault, were on average five years older than offenders with no prior criminal convictions. The non-criminal element typically embraced violent extremism right out of high school or college.[79] Among American jihadists, fifty percent of the non-violent offenders are above the age of 34. Nevertheless, the age of jihadist-inspired terrorists has declined dramatically over the years, from a mean age in the mid-thirties in the early 1990s to the low twenties in recent years. The peak age for becoming a foreign fighter dropped from 27 to 21 over the past twenty years.[80] Since 2008, 90% of the foreign fighters were between the ages of 15 and 31. Moreover, the number of individuals joining a foreign insurgency now drops off sharply after the age of 33.

12. INFERENCES AND RECOMMENDATIONS

2015 ended with a record number of arrests in the U.S. related to Salafi-jihadist inspired terrorism, the highest count since the 9/11 attacks. Jihadist recruitment has reached into small and mid-sized cities in every state of the country and attracted adherents from some 40 different ethnicities in the American demographic mix and all races.

Opportunity, access, and persuasion all have a role to play in the current process of jihadist recruitment. Today all three may be found online. Internet-based marketing of Salafi-jihadist ideas has facilitated a dramatic demographic change in the demographic composition of the susceptible population. With over forty different ethnicities represented, stratified by age, race, gender, and religious background, today's jihadists are extremely diverse.
The real threat notwithstanding, violent extremism is a marginal problem involving only a few individuals.

Given the extraordinary diversity of American homegrown terrorism offenders, no common denominator, no common grievances, not even common motivations, can predict who may opt to join groups espousing violent jihad. The root cause lies not at home, in the families of the offenders, their communities, or in this country, but with a global terrorist movement that has been able to piggy-back on modern communication technologies, media, and a globalized social consciousness to push its belief system into every corner of the world.

Preventive responses must take account of two key factors:

- Homegrown terrorism is high risk and can happen anywhere; but,
- The risk population is small, and no specific identifiers mark out *who* may be a risk.

Rarely do the homegrown militant go at it alone. Friends and family, classmates, and spouses found online on jihadist dating sites are drawn into small pop-cells dedicated to putting extremist ideas into practice. Radicalization to violent political extremism is more likely to occur in a group setting where the adoption of extremist ideas is reinforced by shared emotions, particularly if the process is accompanied by positive external reinforcements. Watching online extremist videos and chatting with online avatars from the Islamic State is not sufficient to make someone take a life-changing decision to join a terrorist group. But with the added effect of group reinforcement and a deepening involvement with the extremist networks, both off-line and online, becoming a terrorist can come to seem a desirable cause of action for an individual.

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Social media extremism and offline activities blend into a contagion vortex. Young men and women have joined the Islamic State in patterns similar to chain migration, following in the footsteps of others from their town or neighborhood and settling with friends and family or newfound peers. The importance of social media maybe explained in part at least by the ease with which it bridges the gap between home and the new life.

The network perspective indicates that homegrown terrorism is rarely "leaderless." The characterization is misleading, even in the contemporary online media environment, because it underestimates the degree of deliberation and management that is exercised by those who operate the networks. All terrorist networks are specialized. Networks created for fundraising are different from those that are designed for recruitment to join a foreign terrorist organization, and these are different again from networks intended to foster and guide domestic attacks.

Since 9/11 and until recently, most American Islamist extremists have been connected to a core network of jihadist organizations and recruiters based abroad, either through travel and direct personal relationships with middle-men acting for the terrorist organization. Since the dismantlement of the network responsible for the 1993 World Trade Center, these hubs have been located outside the United States. The contemporary network configuration may be described as "glocal"—globally connected and inspired, but taking shape locally in peer groups and small cells. The resulting network structure is often entirely devoid of cross-cell integration within the United States, complicating enforcement approaches that historically have aimed to pick up overt manifestations of political extremism.

The diffused risk picture and aggressive messaging to "do something"—immediately—pushed out by ISIL recruiters have proved to represent a formidable challenge. The FBI has successfully disrupted many cells in recent years but since the Boston Marathon Bombings in 2013 there has been an increase in actualized attacked (even if not always successful). A rash of incidents that were either prevented or involving few victims, often police, took place in 2014. There were also shooting attacks by individuals who professed their allegiance to the Islamic State. The most notorious were those perpetrated by Elton Simpson and Nadir Soofi in Garland, TX, in May 2015 (whose attack was stopped at the scene), Muhammad Youssef Abdulazeez in July 2015 in Chattanooga, Tashfeen Malik and Syed Rizwan Farook in San Bernardino in December 2015, and Omar Mateen in Orlando in June 2016.

Clearly, current anti-terrorism policies have been better at disrupting attacks—and sometimes failed at that—than at preventing radicalization in the first place. Following from this analysis, a few recommendations may be put forward:

"If You See Something, Say Something"

Alert bystanders are being asked to report suspicious activity. But what are bystanders supposed to *see*? Family members and spouses are often the first to know when a person is about to do something. American homegrown terrorists rebel against the nation and their parents, and against the American Muslim community. Spouses are often involved, or if not involved they know that criminal action is in progress—and yet they do not inform the police. A duty to report could perhaps push family and close bystanders to come forward. Parents may fear the repercussions for their children or deny to themselves that a dangerous situation is developing, or they may desperately seek the assistance of law enforcement agencies. This has recently led to a number of arrests. Young offenders are sometimes identified before they have committed serious crimes when bystanders, parents or law enforcement agencies recognized the risk posed by their Internet activities or involvement with militant peer groups.

> *Recommendation 1—Focus on community education:* There is a real risk that American Muslims will be unfairly stereotyped in the absence of a clearly formulated public education program that focus on signs of radicalization to violent extremism. The growing involvement of converts and the diffusion of risk outside the metropolitan areas suggests a need to educate community leaders, teachers, prison wardens and social workers in the detection of the signs of dangerous radicalization

> *Recommendation 2—Establish a duty to report:* State and federal laws should make it a duty to report suspicions about imminent criminal activity related to terrorism. The legal construction may mirror current rules regarding the obligation to report child abuse if the family member, teacher, or community member has "cause to believe" that a risk to the public exists. Such reports will be confidential and the source protected against prosecution, unless the source is also involved in potentially criminal activities (e.g., a friend who has been involved in watching online extremism but does not want to go further will be protected against prosecution when reporting the activities of other members of the group).

> *Recommendation 3—Develop court-enforced treatment programs:* Youthful offenders may best be dealt with through court-ordered treatment programs. Isolating youthful offenders from exposure to the influence of hardened extremists—whether in or out of

prison—is a high priority. If parents know that their sons and daughters will be placed in treatment programs they may be encouraged to turn to law enforcement.

Profile the Networks—All the Networks

Social network analysis may provide a fuller picture of an individual's risk profile if it is used to profile all contact points, ranging from social media networks to offline engagements with other militants.

> *Recommendation 4—Disrupt and prevent the development of localized extremist hubs:* Geo-tagging online extremist activities and patterns of arrests indicative of networked radicalization can reveal hidden recruitment structures.

> *Recommendation 5—Watch for cumulative influence networks:* Social network analysis methodologies that combine real-life and online network graphing may be more effective in identifying imminent threats arising from the activities of radicalizing homegrown terrorists than online profiling alone.[81] SNA metrics that identify "structural holes" and cliques may be helpful in identifying influence structures that are not immediately apparent. Travel, contacts with other radicals, and, perhaps most importantly, contact with sites of inspiration abroad, present a picture of cumulative network relationships.

Disrupt Travel to Insurgencies

Preventing the development of hidden communities of extremism should continue be a high priority. The European experience with concentrated and sizable radical enclaves in midsized cities illustrates the risk posed by neighborhood effects. The involvement of former gang member or soldiers who have converted to radical Islam or, perhaps, who entered military training already radicalized, has been a disturbing new trend in Europe.

> *Recommendation 6—Continue to disrupt and intercept travel to foreign terrorist organizations and insurgencies:* Monitoring and controlling participation in foreign insurgencies have become an urgent issue in recent years, as the number of Americans participating in lethal attacks abroad has increased. Withdrawal of passports is one tool.

Suppress Internet Producers (Not Consumers) of Online Violent Extremism

A policy of indiscriminate suppression of terrorist communication on frontline open social media platforms is comparable to disconnecting the fire alarms all over the house. It deprives law enforcement of important tools for tracking domestic terrorist networks by forcing online extremists to migrate to domains and service providers that exercise less control over content or

no control at all. (Removing online content containing direct threats or that violates the rights of victims and their families should remain a high priority.) Pushing online extremism onto encrypted sites will also make it more difficult for parents, authorities, and concerned bystanders to detect early signs of radicalization. Moreover, it makes it impossible to deliver targeted online counter-messaging to population groups considered to be vulnerable to terrorist recruiters.

Current approaches target the consumers of violent extremism online. The focus should be on top-down suppression of the purveyors of extreme political violence rather than bottom-up elimination of militant social media activists. Many would-be terrorists are caught online. That does not mean that they radicalized online. Moreover, online data have proven of value to law enforcement. Therefore, policy should focus on targeting and suppressing the recruiters rather than retail-level consumers of terrorist propaganda. Some countries, including France and the United Kingdom, have criminalized "the glorification of terrorism" and the possession of certain types of extremist material *with intent to use*. Bans on communicating with certain individuals and enforced bans on the use of the internet are routine aspects of European protocols for dealing with individuals under probation in connection with international terrorism that could be implemented.

> *Recommendation 7—Suppress Producers Rather Than Consumers Of Violent Extremism Online:* Criminalization of material support for terrorism online would enable law enforcement to monitor online extremism publication hubs, ban people from using the internet for a period, and even detention.

APPENDIX

Table A-1: Deceased American Jihadists 1993-2015.

Name	Year of Death	Country of Death	Cause of Death
Mohammed Zaki	1995	Chechnya	Killed in Insurgent Fighting
Lawrence Nichols Thomas	1997	Kashmir	Killed in Insurgent Fighting
Bassam Kanj	2001	Lebanon	Killed in Insurgent Fighting
Mir Qazi*	2002	United States	Execution
Hesham Hedayet**	2002	United States	Killed in Police Incident
Kamal Derwish	2002	Yemen	Airstrike
Habis Abdulla Al Saoub	2003	Afghanistan	Killed in Insurgent Fighting
Khalil al-Deek	2005	Afghanistan	Killed in Insurgent Fighting
Ruben Shumpert	2008	Somalia	Killed in Insurgent Fighting
Shirwa Ahmed	2008	Somalia	Suicide Attack
Mohamud Ali Hassan	2009	Somalia	Killed in Insurgent Fighting
Burhan Hassan	2009	Somalia	Killed in Insurgent Fighting
Jamal Bana	2009	Somalia	Killed in Insurgent Fighting
Zakaria Maruf	2009	Somalia	Killed in Insurgent Fighting
Troy Kastigar	2009	Somalia	Killed in Insurgent Fighting
Moeed Abdul Salam	2011	Pakistan	Killed in Insurgent Fighting
Abdisalam Ali	2011	Somalia	Suicide Attack
Cabdulaahi Ahmed Faarax	2011	Somalia	Suicide Attack
Farah Mohamed Beledi	2011	Somalia	Suicide Attack
Keyse Omar Hashi	2011	Somalia	Suicide Attack
Samir Ibn Zafar Khan	2011	Yemen	Airstrike
Anwar Nasser Al Awlaqi	2011	Yemen	Airstrike
Khattab Al-Kene	2013	Kenya	Suicide Attack
Jude Kenan Mohammad	2013	Pakistan	Airstrike
Inaam (alias)	2013	Pakistan	Killed in Insurgent Fighting
Omar Hammami	2013	Somalia	Killed in Insurgent Fighting
Amiir Farouk Zaki Ibrahim	2013	Syria	Killed in Insurgent Fighting
Nicole Lynn Mansfield	2013	Syria	Killed in Insurgent Fighting
Tamerlan Tsarnaev	2013	United States	Killed in Police Incident
Abdullah Ramo Pazara	2014	Iraq	Killed in Insurgent Fighting
Ibrahim Abdurahman Mohamed	2014	Somalia	Killed in Insurgent Fighting
Yusuf Ali	2014	Syria	Killed in Insurgent Fighting
Abu Muhammad Al-Amriki (alias)	2014	Syria	Killed in Insurgent Fighting
Abu Dujana Al-Amriki (alias)	2014	Syria	Killed in Insurgent Fighting
Abdirahman Muhumed	2014	Syria	Killed in Insurgent Fighting
Douglas McAuthur McCain	2014	Syria	Killed in Insurgent Fighting
Hanad Abdullahi Mohallim	2014	Syria	Killed in Insurgent Fighting
Sixto Ramiro Garcia	2014	Syria	Killed in Insurgent Fighting
Moner Mohammed Abusalha	2014	Syria	Suicide Attack
Zale H. Thompson	2014	United States	Killed in Police Incident
Eric Omar Harroun	2014	United States	Suicide/Overdose
Adam Yahiye Gadahn	2015	Afghanistan	Airstrike
Ahmad Abousamra (not confirmed)	2015	Iraq	Airstrike
Abdul Aliy	2015	Iraq	Killed in Insurgent Fighting

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Abu Usama al-Amriki (alias)	2015	Iraq	Killed in Insurgent Fighting
Abu Dawoud al Amriki (alias)	2015	Iraq	Suicide Attack
Abu Abdullah Al Amriki (alias)	2015	Iraq	Suicide Attack
Raja Muhammad Salman	2015	Pakistan	Airstrike
Shawn Joel Parson	2015	Syria	Airstrike
Abu Bara al-Mexiki (alias)	2015	Syria	Killed in Insurgent Fighting
Khaled al-Dusari	2015	Syria	Killed in Insurgent Fighting
Elton Simpson	2015	United States	Killed in Police Incident
Nadir Soofi	2015	United States	Killed in Police Incident
Mohammad Youssef Abdulazeez	2015	United States	Killed in Police Incident
Usaama Rahim	2015	United States	Killed in Police Incident
Farook Syed	2015	United States	Killed in Police Incident
Malik Tashfeen	2015	United States	Killed in Police Incident
Earl Jackson	2015	United States	Killed in Police Incident
Omar Mateen	2016	United States	Killed in Police Incident

* Pakistani. Lived in the U.S. for about four years before carrying out a shooting attack on the CIA's Langley campus.

** Egyptian. Probably was a member of the Egyptian al-Gama'a al-Islamiyaa. Lived in the U.S. for nearly ten years before carrying out a shooting attack on the El Al counter at Los Angeles International Airport.

Table A-2: A Dictionary of Terms in Social Network Analysis.

A clique of an undirected network is defined as a maximal complete subgraph of three or more nodes. Computes the number of distinct cliques to which actors in an undirected network belong. The higher the number the more pathways actors have to contact other actors in the network.

Connectedness and density are different measures of essential the same thing. Both metrics measures the degree to which the underlying network is connected. Density is calculated as the ratio of actual connections to all possible, theoretical connection, if every node was connected to all other nodes.

Efficiency measures the closeness of the entities (or actors) in the network, with global efficiency measures the geodesic distance between all pairs in the network. This is essentially a measure of the reach that any nodes has to the rest of the network (on average) through neighbors. A low number indicates that node A's contacts do not have good contacts to the rest of the network. It may therefore be said to be an indicator of overall network integration, or vice versa of the degree of isolation that the actors in the network experience.

Fragmentation measures the proportion of entities in a network that are disconnected. The higher the number, the less integrated the network. Hierarchy measures the degree of one-way (hierarchical) links in the network. The measure assumes that links are coded to indicate direction. In this case the network data were coded to reflect who contacts whom. It should be said that many link types in the data set are reciprocal, e.g. "brother of" or "associate of."

Redundancy in social network analysis indicates the multiplication of contacts. If A is connected to B and all A's contacts also are connected to B, A's contact does not bring any new information or influence to the network. "Doubling up" of contacts in a dark network is often seen as a protection against suppression. Typically, in the online world, terrorists use redundant lateral postings to build resilience against takedowns. The theoretical expectations in this regard are somewhat ambiguous because in a classical covert network redundancy would be seen perhaps as source of risk increasing the likelihood of detection.

Speed and closeness measures are different measures of how quickly information can travel in a network. The shortest path between two nodes is called a geodesic, and the geodesic distance between two nodes is the shortest path of communication between the nodes. Minimum speed is defined as the maximum shortest path length between node pairs (actor A ➔ B) where there is a path in the network from A to B. A hierarchical network may be slow to react because news travels slowly through the chain of command. In contrast, news may travel fast in a centralized but flat network, such as that created by Anwar al-Awlaki's online community where news and influence can quickly reach the other side of the network through the center.

Structural holes are gaps in a network. If A knows B and C also know B, but A does not communicate with C there is a structural hole between A and C. From the viewpoint of law enforcement, growing structural holes may be seen as a good thing in terrorist networks. If A and C are both in the U.S. and B is outside the country, the capability for A to conspire with C is reduced because both are dependent on B to put them in touch.

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[33] U.S. Army and Marine Corps, *The U.S. Army/Marine Corps Counterinsurgency Field Manual*, forward by David H. Petraeus, James F. Amos, and John A. Nagl, introduction by Sarah Sewall (Chicago: University of Chicago Press, 2007):328.

[34] Stephen P. Borgatti, Kathleen M. Carley, and David Krackhardt, "On the Robustness of Centrality Measures under Conditions of Imperfect Data," *Social Networks* 28, no.2 (2006):124-136; Jennifer Xu and Hsinchun Chen, "The Topology of Dark Networks," *Communications of the ACM* 51, no.10 (2008):58-65.

[35] Doug McAdam, Sidney Tarrow, and Charles Tilly, "To Map Contentious Politics," *Mobilization: An International Quarterly* 1, no.1 (1996):17-34. *Clio* is the muse of history; *metrics* refers to numerical measurement.

[36] The problems posed by incomplete data in the practical application of social network analysis has long been a subject of debate, see: Malcolm K. Sparrow "The Application of Network Analysis to Criminal Intelligence: An Assessment of the Prospects." *Social Networks* 13, no. 3 (1991):251-274.

[37] The term "Islamist" is used rather than "Islamic" terrorism to distinguish between political belief system (Islam*ism*) and a faith (Islam and all things "Islamic").

[38] New York State Intelligence Center, "The Vigilance Project: An Analysis of 32 Terrorism Cases against the Homeland" (December 2010):17.

[39] Arie Perliger, *Challengers from the Sidelines: Understanding America's Violent Far-Right* (West Point: Combating Terrorism Center, 2013):100.

[40] The exact number varies contingent on the definition of a "homegrown" incident. A shooting at the Seattle Jewish Federation Center in 2006 was deemed a "hate crime" rather than terrorism at the time but a decision was made to nevertheless include the attack in this count.

[41] Scott Helfstein and Dominick Wright, "Success, Lethality, and Cell Structure across the Dimensions of Al Qaeda," *Studies in Conflict & Terrorism* 34, no.5 (2011):367-382. Helfstein and Wright find that Al Qaeda-directed attacks resulted in, on average, 452 dead per attack in comparison to the 13 dead per attack associated with attacks carried out by "independents." Including or excluding the catastrophic casualties incurred in the 9/11 attacks invariably skews any assessment of lethality.

[42] Bin Laden was listed as number 95 on the list of unindicted co-conspirators, see: United States of America v. Omar Ahmad Ali Abdel Abdel-Rahman, et al., (S5) 93 Cr. 181 (MBM). His name is redacted on most copies in circulation.

[43] The top organizations in the period were Al Qaeda, al-Farouq Training Camp in Afghanistan where many Westerners and Americans went, and locally al-Farouq Mosque where al-Kifah Foundation was based. A couple of shooting ranges where the Brooklyn cell member went to gain experience in handling fire arms also made the list—for the simple reason, perhaps, that the group members were observed by the FBI visiting the firing ranges and the trips were provide as evidence in the prosecution of the cell and therefore evidence of communications between the members that was available.

[44] Chapter 5 in *The 9/11 Commission Report* describes Sheikh Mohammed's connection to the United States in detail and also his role in orchestrating attacks targeting the United States on behalf of Bin Laden. National Commission on Terrorist Attacks Upon the United States, Kean and Hamilton, *9/11 Commission Report*, 145-174.

[45] Neil MacFarquhar, "Terror Suspect Freed by U.S.; Flies to Jordan," *New York Times*, 6 May 1997.

[46] Press Release, "Federal Judge Hands Down Sentences in Holy Land Foundation Case," Department of Justice: Office of Public Affairs, 27 May 2009.

[47] Christopher Heffelfinger, "Evaluating the Terrorist Threat Posed by African-American Muslim Groups," *Combating Terrorism Center Sentinel* 1, no. 6 (2008).

[48] Shapiro, *The Terrorist's Dilemma.*

[49] 75% of the people in Hamas and Hezbollah were receiving orders from someone else in the network also based in the United States. Hamas is the more tightly integrated with 98% of the organization's nodes (operatives and organizations) in the United States linked to other nodes also in the country and exhibiting a high average of person-to-person connections. The structure of Hezbollah was less integrated and more segmented. Some 70% of operatives were linked to other operatives based in the United States.

[50] United States of America v. Babar Ahmed, Affidavit in Support of Request for Extradition (United States District Court for the District of Minnesota, 2004):13.

[51] "Summary of Jose Padilla's Activities with Al Qaeda," report enclosed with letter from Paul Wolfewitz, Deputy Secretary of Defense, to James B. Comey, Deputy Attorney General, 28 May 2004.

[52] Over the years, details have emerged building a strong case for Awlaki's probably culpability as a facilitator for the 9/11 attacks. Awlaki was interviewed four times by the FBI in the first eight days following the 9/11 attacks. His phone number had been found among the possessions of Ramzi Bin al-Shib, the Hamburg-based coordinator for the attack who never made it to the United States. Several of the hijackers had direct and repeated contact with Awlaki, who allegedly bought airline tickets for two of the hijackers during their stay in the United States.

[53] Greg Botelho and Ralph Ellis, "Adam Gadahn, American Mouthpiece for Al Qaeda, Killed," *CNN*, 23 April 2015; Sopfia Saifi, Ben Brumfield, Susan Candiotti, "Pakistan's Army Kills Al Qaeda Commander Who Grew Up in U.S." *CNN*, 8 December 2014; BBC Staff, "Obituary: Anwar al-Awlaki," *BBC*, 30 September 2011.

[54] Ray Sanchez, "Radical Cleric Abu Hamza al-Masri Sentenced to Life in Prison," *CNN*, 9 January 2015; FBI Press Release, "Mustafa Kamel Mustafa, a/k/a Abu Hamza, Sentenced in Manhattan Federal Court to Life in Prison," Federal Bureau of Investigation: New York Field Office, 1 January 2015.

[55] BBC Staff, "Supergrass Tells of Terror Fight," *BBC News,* 24 March 2006.

[56] Mary Beth Sheridan. "Former D.C. Taxi Driver Pleads Guilty in Terrorism Case," *The Washington Post*, 3 April 2007.

[57] Joseph Serna and Shelby Grad, "Adam Gadahn: Al Qaeda Terrorist, California Native and Grandson of a Jew," *Los Angeles Times*, 23 April 2015.

[58] Rob Harris, "Kevin James and the JIS Conspiracy," *PBS*, 10 October 2006.

[59] FBI Press Release, "Leader of Liberty City Six Convicted on All Counts, Four Others Convicted on Multiple Counts, and One Defendant Acquitted on Charges of Conspiring to Support Al Qaeda, Attack Targets in the United States," Federal Bureau of Investigation: Miami Division, 12 May 2009; Damien Cave and Carmen Gentile, "Five Convicted in Plot to Blow Up Sears Tower," *New York Times*, 12 May 2009.

[60] Robert Crowe, "Job Lured Alleged Al-Qaida Trainee to Houston," *Houston Chronicle*, 4 March 2007.

[61] United States of America v. Jesse Curtis Morton, Statement of Facts (United States District Court for the Eastern District of Virginia Alexandria Division, 2011):2.

[62] Brandon Gunnoe, "FBI says Stoughton grad may be working for ISIS," *WHDH*, 16 October 2014; Sean Smith, "Mass. Man accused of aiding ISIS killed in Iraq, reports say," *Boston Globe*, 3 June 2015.

[63] Stephen P. Borgatti, "Centrality and Network Flow," *Social Networks* 27, no. 1 (2005):55-71.

[64] This type of association is called a "weak tie." Incomplete triads such as the one described in this example are assumed to be extremely important to the diffusion of ideas and influences across networks, see Mark S. Granovetter, "The Strength of Weak Ties," *American Journal of Sociology* (1973):1360-1380.

[65] Randy Borum, "Radicalization into Violent Extremism I: A Review of Social Science Theories," *Journal of Strategic Security* 4, no. 4 (2011):7–36.

[66] The three plotters, Najibullah Zazi, Adis Medunjanin, and Zarein Ahmedzay, all underwent weapons and explosives training at an Al Qaeda training camp in Pakistan in 2008. The coordinator of the attack, which was supposed to be matched with attacks against a mail in the United Kingdom and against a Danish newspaper were coordinated by Adnan Shukrijumah, an American citizen, who left the United States in 2012.

[67] Rewards for Justice, "Wanted: Jehad Serwan Mostafa," *Rewards for Justice*, press release, 20 March 2013.

[68] Andrea Elliott, "The Jihadist Next Door," *New York Times*, 27 January 2010.

[69] Different numbers have been given. In early March 2015, James Clapper the Director of National Intelligence updated estimate of Americans who are thought to have traveled or attempted to travel to join jihadist groups in Syria and Iraq to 180. Just a month prior, the FBI assessed the number at 150.

[70] United States of America v. Abdirizak Mohamed Warsame, Case No. 15-MJ-978-HB, Criminal Complaint (United States District Court for the District of Minnesota, December 2015).

[71] B. Heidi Ellis, Saida M. Abdi, Alisa B. Miller, Matthew T. White, and Alisa K. Lincoln, "Protective Factors for Violence Perpetration in Somali Young Adults: The Role of Community Belonging and Neighborhood Cohesion," *Psychology of Violence* 5, no.4 (2015):384-392.

[72] A description the Saleh case and a list of other cases late 2014 and the first half of 2015 can be found on National Public Radio's website, see Dina Temple-Raston, "New York man Accused of Plotting To Explode Pressure Cooker Bombs," June 16, 2015, available at http://www.npr.org/sections/thetwo-way/2015/06/16/415060978/new-york-man-accused-of-plotting-to-explode-pressure-cooker-bombs

[73] Audrey Kurth Cronin, "ISIS is Not a Terrorist Group," *Foreign Affairs* 94, no.2 (2015):87-98.

[74] Jytte Klausen, "Tweeting the Jihad: Social Media Networks of Western Foreign Fighters in Syria and Iraq." *Studies in Conflict & Terrorism* 38, no.1 (2015):1-22.

[75] For a description of terrorist uses of open and closed internet *fora*, see: Jytte Klausen, Aaron Y. Zelin and Adrienne Roach, "'Open Source Jihad:' Online Mobilization for Domestic Attacks," working paper, *Western Jihadism Project* (Waltham, MA: Brandeis University, May 2013).

[76] J.M. Berger and H. Perez, "The Islamic State's Diminishing Returns on Twitter: How Suspensions are Limiting the Social Networks of English-Speaking ISIS Supporters," occasional paper, Program on Extremism (George Washington University, February 2016).

[77] The second-generation online media environment emerged with YouTube's file sharing platform and other similar lateral applications. By this count, encrypted social media may be regarded as a fourth-generation phenomenon.

[78] Associated Press, "Comey: Extremists Exist in All 50 States," *Washington Post*, 25 February 2015.

[79] Jytte Klausen, Christina Ferlauto, and Rosanne Libretti, "College Graduates and Dropouts – Pathways to Becoming a Domestic Terrorist Offender. A Comparison of Recruitment Profiles for 'Homegrown' American Jihadists and Associates of the Earth Liberation Movement and the Army of God," paper, The Western Jihadism Project (Waltham, MA: Brandeis University, 2016).

[80] Jytte Klausen, Tyler Morrill, and Rosanne Libretti, "The Terrorist Age-Crime Curve: An Analysis of American Islamist Terrorist Offenders and Age-Specific Propensity for Participation in Violent and Non-Violent Incidents," in "Special Issue Dedicated to the 20th Anniversary of the Oklahoma City Bombing," special issue, *Social Science Quarterly* 97, no. 1 (2016): 19–32.

[81] For a proposal of how this may be accomplished in a non-discriminatory way, see: Jytte Klausen, Selene Campion, Nathan Needle, Giang Nguyen, and Rosanne Libretti, "Toward a Behavioral Model of 'Homegrown' Radicalization Trajectories," *Studies in Conflict & Terrorism* 39, no.1 (2016):67-83.