From Directorate of Intelligence to Directorate of Everything: The Islamic State's Emergent Amni-Media Nexus

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Abstract

This article, which is based on original interview data gathered from eastern Syria between January and October 2018, examines the emergent dominance of the Islamic State's Directorate of General Security (DGS). We track how this institution, which is currently operating through a network of diwan-*specific security offices grouped under the Unified Security Center (USC), has come to oversee and manage an increasingly wide array of the group's insurgent activities—including intelligence and military operations and religious and managerial affairs. Focusing in particular on its role in the context of media production—which comprises anything from facilitation and security to monitoring, distribution and evaluation—we illustrate the critical importance of this most elusive directorate, positing that, in its current form, it could stand to facilitate the survival of the Islamic State for months—if not years—to come.*

Keywords: Islamic State; organization; intelligence; media; information security; middle management

Introduction

As the territories of the Islamic State (IS) have crumbled in recent years, analysts the world over have been ruminating as to what its ultimate defeat would look like. In so doing, they have speculated as to the various refuges it may take to in order to compensate for the seemingly existential setbacks it now faces.[1] Most seem to be under the impression that, whatever happens, it will one day make some sort of comeback.[2] Some have contended that this will be achieved virtually;[3] others have asserted that it will occur materially as well.[4] In any case, it is generally believed that IS's senior leaders have long been anticipating these dire straits and have thus been making strategic arrangements to mitigate the impact that they could stand to have.

In seeking to understand how and to what end their long-term planning could materialize, it serves to reflect on IS's pre-caliphate history. During its first resurgence between 2011 and 2013, IS (which was then calling itself the Islamic State in Iraq) focused on using covert operations to consolidate its position locally and steadily, secretively grow. It was only from 2013 onwards that it really began to visibly assert itself, eradicating the border between Syria and Iraq and incorporating jihadi groups far beyond its immediate theater of operations into the global "Islamic State" brand.

Now that the proto-state has collapsed in both Syria and Iraq, the conventional wisdom is that IS will return to its earlier priorities—that is, like ISI, it will wait, active but concealed, for a new opportunity to mobilize. [5] To this end, it is thought that it will now focus on covert insurgency rather than proto-statehood. This will likely involve inciting sectarian tension and amplifying polarization; coercing, intimidating, and co-opting marginalized Sunni communities and tribes; and exacting "revenge" attacks and assassinating rivals and collaborators.[6] There is already much to evidence that this tactical devolution is taking place.[7] However, notwithstanding that, the parallels with ISI should not be overstated: IS today is a very different group to what it was back then: it has footholds across the Middle East, Africa, and Asia and, in its current state, it is likely able to continue operating as a clandestine insurgency in-theater and a global terrorist network out-of-theater, thereby keeping up with its *baqiyyah wa tatamaddad* maxim for months, if not years, to come.[8]

This bifurcated approach might make sense in theory, but, in reality, it is a logistical nightmare, one that requires far-reaching executive authority, constant monitoring and evaluation, and a hefty dose of middle management. It is in this complex context that IS's Directorate of General Security (DGS) has stepped in, entering a period of

unprecedented ascendancy that sees it dominating almost all aspects of the group's bureaucratic management operations. Through the lens of the DGS's media-focused activities, this article tracks that ascendancy, illustrating that its remit now extends far beyond the limited sphere of 'security' to instead incorporate a transdisciplinary bureaucratic function as well, one that appears to have been crafted with a view to facilitating a future comeback for the caliphate. The article proceeds as follows. After briefly presenting our data collection methodology, we examine the activities of the DGS in general, before exploring its recently expanded role in the context of propaganda production.[9] We conclude with a brief discussion of what this could mean for IS's future as a hierarchically organized insurgent movement.

Data Collection

Our analysis is based on interviews, texts and audio-visual materials (i.e., covertly taken pictures of internal IS memos, audio recordings of IS cadre, and notes) gathered from eastern Syria during the first nine months of 2018. These materials were gathered by six data collectors—known to the first author, having collaborated on other research projects, but not known to each other—operating in what were then IS-held areas in eastern Syria. Prior to the initiation of the research phase, each participant was briefed in detail on the research objectives, procedures, scope, and informed as to the voluntary nature of their participation. Any risks involved in participating were discussed at length with the first author. During this briefing, each of the data collectors was asked if they would be prepared to share materials that would substantiate their answers to interview questions. They were also told that, based on their answers, the questions they were asked would become more specific, eventually focusing on particular organizational and/or operational issues. All six interviewees gave their consent to participate on the condition of anonymity and rigorous internal and external confidentiality measures.

After the initial scoping stage had been completed, a series of semi-structured interviews were conducted between January 3 and September 29, 2018. Each data collector was interviewed sixteen times by the first author during this period. As well as this, the data collectors provided internal documents, audio recordings, and accounts of their own unstructured interviews with active IS media and security cadres.[10] All raw information was stored in doubly-anonymized entries; each entry includes headings, texts of interview data and/or translations of any documents or recordings that were received alongside it. The headings contain the data collectors' alphanumerical codes and the dates on which the data were received.

Once collected and compiled, all accounts were triangulated with one another to assess their credibility. When accounts conflicted, individual data collectors were asked for more information. Anything that could not be reconciled was excluded and, if a data collector repeatedly provided information that did not reconcile with that of the others, the entirety of their input was excluded from the project.

Having stated that, two caveats are in order. First, our data relate only to IS's operations in eastern Syria during the period between January 3 and September 29, 2018. Therefore, they should be treated as a snapshot, not a global blueprint. Second, the directorate and dates are missing for most of the internal documents we received. While we tried to ascertain their date and source of publication by triangulating the accounts of different data collectors with other documentary evidence gathered in-theater and online, it was not possible to unequivocally determine what these were—that said, through the same means, their contents could be corroborated.[11] With that in mind, all conclusions made on the basis of this article can only be tentative in nature.[12]

The Directorate of General Security

The DGS's initial inception and design are attributed to Samir Abd Muhammad al-Khlifawi (aka Haji Bakr), a Saddam-era intelligence colonel turned jihadist strategist and military commander.[13] Through it, IS works both to preserve *amn al-dawlah* ('domestic' state security) and engage in *'amaliyyat amniyyah*

kharijiyyah (external intelligence operations). Taha Subhi Falaha (aka Abu Muhammad al-'Adnani), IS's former spokesperson, is believed to have been the first commander of the DGS.[14] However, even before his death in 2016, a Syrian national by the name of Ali Musa al-Shawakh (aka Ali Juma al-Shawakh, Abu Luqman or Abu Ayoub al-Ansari) is reported to have replaced him as *amir* of the DGS.[15] There is evidence to suggest that al-Shawakh built on and improved the hierarchal design of the original *amni* organizational structure.[16]

Previous work on the DGS describes a shadowy entity feared even by IS's own cadre, not to mention locals living in liberated territories.[17] Its activities are wide-ranging: it is said to preside over a network of detention centers wherein suspected individuals (whether local, foreign, civilian, or IS members, etc.) are systematically imprisoned, interrogated, and tortured;[18] it is known to be directly involved in the recruitment, training, and deployment of child soldiers;[19] its operatives are embedded throughout and beyond IS-held territories, collecting information for intelligence and counterintelligence operations;[20] and, topping all this off, according to multiple European intelligence services, it is believed to be instrumental in planning external terrorist attacks.[21]

Based on our data, though, the DGS engages in even more activities than those listed above.[22] Indeed, it truly is, to borrow the words of Bahney and Johnston, "the glue of the ISIS organization from top to bottom."[23] It has three principal operational spheres, namely: (i) military and local security operations; (ii) intelligence and foreign operations; and (iii) managerial and religious affairs.[24] Its military and local security operations include anything from recruiting and selecting, training, and overseeing the activities of elite forces; assassinating rivals and collaborators; kidnapping and detaining locals and foreigners for ransom; engaging in specialized defensive and offensive operations; monitoring and reporting on the performance and leadership of combat units; and devising infiltration and retreat plans.[25] Its local and foreign intelligence operations encompass the general management of intelligence and counterintelligence activities; handling local informants and foreign supporters; planning, commissioning, directing and/or guiding terrorist attacks on behalf of IS; monitoring cadres to root out spies and informants; interrogating detainees; and vetting new recruits and IS personnel.[26] Lastly, its managerial and religious affairs comprise the setting up of front businesses; overseeing the training of *shari'ah* judges; providing mosque clerks with speeches; monitoring and reporting on the performance of *shari'ah* judges and mosque clerks; handling logistical support and management operations (including armament and basic supplies); safeguarding assets (e.g., personnel, information, bases, etc.); monitoring and reporting on the performance of the management and personnel of individual directorates; communicating leadership decisions to the organization's direct management personnel; and enforcing said decisions.[27] Below, we focus on the last four of these activities.

Sometime between January 2017 and February 2018, the DGS's already robust management operations were centralized to a greater degree than they had ever been before through the establishment of *al-markaz al-muwahhid al-amni* (Unified Security Center, henceforth USC), which serves as a coupling link between IS's senior leaders and its administrative directorates.[28] According to our data collectors, the USC is charged with communicating leadership directives to the *amir*s of different directorates, overseeing their implementation, and monitoring and reporting on performance. All this is done through a network of directorate-specific *amni* (security) offices (see Figure 1).[29] As an aside, it is worth noting that the DGS's increasing centrality has been tracked elsewhere, for example in the work of al-Tamimi.[30]

As of late September 2018, eight directorates were active in the area to which our data pertains, namely: the towns of al-Sussah, al-Sha'fah, parts of Hajin, Al-Baghuz Fawqani, and the outskirts of the city of al-Bukamal in eastern Syria.[31] Besides the DGS, they are, in no particular order, the Directorates for Health, Mosques and Proselytization, *Zakat*, War, Soldiery, Media, and Courts; there is also the Committee for Education, which was recently folded into the Directorate for Mosques and Proselytization.[32] According to our data collectors, each of these receives strategic instruction from IS's leadership via a specially assigned office within the USC: there is, for example, a *maktab al-masajid wa-l-da'wah al-amni* (Mosques and Proselytization Security Office), a *maktab al-harb al-amni* (War Security Office), and a *maktab al-zakah al-amni* (*Zakat* Security Office).[33]

Figure 1. The unified security center's subordinate offices

The Structure of the Central Media Directorate

Before examining the role of one of these offices in particular—that which looks after the media production cycle—it is worth providing an overview of the Central Media Directorate, with and through which it operates.

Our data collectors reported that IS's Central Media Directorate in eastern Syria comprises of a Media Council, a Media Judiciary Committee, an Information Bank, and various Media Offices.[34] The Media Council is the most powerful of these authorities.[35] It has oversight over the Media Judiciary Committee, the Information Bank, and all Media Offices.[36] The Media Judiciary Committee, which reports only to the Media Council, has direct oversight over all media-related activities at the operational level, ranging from media production to data storage.[37] Among other things, it dictates tactical direction and issues guidelines on technical matters.[38] For its part, the Information Bank seems to serve as a central database for all information related to IS's insurgency. [39] It is believed to store data on all facets of the organization, including, but not limited to, media materials (this includes those that are raw, those undergoing editing, and those that have been finalized and distributed). [40] In its capacity as an institution for media archiving and validation, the Information Bank reports to the Media Judiciary Committee.[41] In the context of everything else, it answers only to the USC.[42]

Operating alongside these institutions is the *maktab al-i'lam al-amni* (Security Media Office), which is subordinate to the USC but coordinates closely with the Media Judiciary Committee and Media Council.[43] Based on our data, it interacts at virtually all managerial and operational levels of the media production cycle, binding the Central Media Directorate from top to bottom.[44] The Media Security Office (MSO) has an *amir*, a team of administrative personnel and a security staff—who are, it should be noted, embedded at both the Information Bank and in individual Media Offices—as well as dozens of field operatives.[45]

The Amni-Media Nexus

The principal role of the MSO is to allow the DGS to directly facilitate and secure IS's media production cycle. In the following pages, we document how it does this according to a narrowly defined set of bureaucratic lines that privilege secrecy, consistency, and centralization. As becomes clear, the MSO's various protocols—which revolve around prevention, deterrence, surveillance, deception, perimeter defense and compartmentalization—speak to a systematic and strategic level of thinking that is geared towards fostering both temporal and spatial security.[46] In the below pages, each of these protocols is examined in turn.[47]

Prevention

The information security literature states that prevention measures are usually employed to safeguard a given organization's data *before* an attack takes place. Usually, this is achieved through the prohibiting of unauthorized access to, and modification or destruction of, sensitive data.[48]

Such measures are central to the MSO's information security-related operations.[49] An array of technical (e.g., software and application-based) and non-technical (e.g., restriction-based) methods are used to prevent or mitigate the impact of cyber-attacks, as well as cut down on data misuse, leakage, and mis-exploitation. For instance, when it comes to the production and handling of raw media material, strict guidelines are enforced. [50] MSO operatives reportedly collect, secure, and transport all materials deemed to be sensitive from the site of production, regardless of who produces it.[51] They oversee its safe transmission to specially designated individuals housed in the Information Bank, who check through and validate it.[52] Only after that process has been completed are raw materials made available for post-production, and even then, only select operatives are ever permitted access.[53]

In addition to this, MSO operatives are also charged with making sure that regular media operatives do not use internet-enabled devices for media-related activities while at the same time enforcing a series of specially mandated security-maximizing practices.[54] To this end, they restrict all but a few media-related communications to local intranet connections and ensure that stored materials are encrypted and devices frequently wiped.[55]

Deterrence

In the information security literature, deterrence is understood to be a disciplinary mechanism used to guide and restrain attitudinal and behavioral exchanges that could undermine organizational cohesion.[56] It holds that human and group behavior can be shaped by the prospect of sanctions, which range from uncertain and lenient to certain and severe.[57] The literature also states that deterrence is especially effective when it comes to: influencing personnel's attitude towards unauthorized access and use of information; guiding and restraining access to and use of an organization's information; demotivating internal users from taking actions to access or corrupt the organization's information assets; and discouraging insiders' misuse and abuse of information assets.[58]

The MSO is structurally unable to deploy deterrence measures in anything other than an internal context—that is, it can dissuade media operatives from mishandling sensitive information but it cannot dissuade cyber-attackers. Deterrence in this context hence manifests in a spectrum of disciplinary actions implemented against those who fail to abide by MSO security instructions. In most cases, anything that could conceivably be construed as an act of espionage results in death.[59] For the most part, it falls to the MSO to investigate and prosecute suspected cases of spying.[60] The execution of those it roots out is widely documented by IS itself and, based on the account of one data collector, media workers are detained and executed by MSO enforcers especially frequently.[61]

To that effect, the MSO has diffused an atmosphere of paranoia into the IS media apparatus. Its rigid culture of fear, which is founded on disciplinary sanctions that are both certain and severe, is seemingly geared towards deterring insiders from doing anything remotely out of the ordinary so that, if and when someone is caught in flagrante, it is all the more obvious.

Surveillance

Surveillance is a fundamental part of all good information security strategies. It facilitates a high degree of situational awareness and thus enables the organization in question to respond to tactical threats rapidly and appropriately.[62] Successful surveillance requires systematic monitoring of fluid and evolving security environments.[63] Fundamentally, it revolves around garnering a detailed understanding of any and all information security-related incidents.[64] Among other things, this might be achieved through physical and virtual monitoring of the people and places charged with the collection, transportation, and production of

sensitive data.[65]

While our data collectors could not speak to the presence of surveillance hardware (e.g., electronic sensors) or software (e.g., intrusion detection systems), they did report that MSO operatives were present throughout the media production cycle, which they could be seen to monitor overtly and thoroughly. Their monitoring of production teams and data handlers appears to be especially sophisticated, as does their presence in the Information Bank.[66] Moreover, any internet-related media activities—like, for example, distribution—are always done under their watchful eye.[67]

It hence seems that the MSO developed and deployed a comprehensive surveillance operation in eastern Syria, one that allowed it to maintain a highly granular awareness of all media-related activities, from the time of production right through to the point of distribution.

Deception
In the context of information security, deception measures are usually deployed with a view to distracting and waylaying attackers by shifting their attention away from valuable information assets.[68] There are two broad sets of deception strategies, namely those that are passive and occur through concealment and camouflage, and those that are active and occur through the planting of dis- and misinformation.[69] While our data collectors did not speak of any active deception measures (which is not to say that they are not being implemented), they spoke at length about passive ones such as concealment.[70]

Most of IS's media operations and information assets still seem to be located in territories that it controls and, while an external media infrastructure certainly exists, its physical location and the nature of its activities is kept secret. Cohering local and international media operations is the A'maq News Agency, which appears to operate under the joint oversight of the Media Council and DGS.[71] Beyond its better-known reporting and production activities, the Agency was reported to be tightly connected to the Information Bank and Media Judiciary Committee.[72] Among other things, its unit in eastern Syria is said to be charged with processing propaganda materials from other IS-held territories in places like Iraq, Egypt, Afghanistan and so on.[73] These it receives via operatives at the Information Bank, who work with other media offices and centers as well as other directorates.

Based on multiple reports, it would appear that the Agency does not just have an editorial role in the Information Bank, but that it controls and administers the scope of its day-to-day activities.[74] Whether or not that is the case, its operatives are usually the first to gain access to new information and data, which is then validated and forwarded onto other offices for production purposes.[75] It is worth further noting that our data collectors reported that the MSO operates through and with the A'maq News Agency, something that suggests either that it is either subordinate to the A'maq News Agency or that the A'maq News Agency is subordinate to it.[76]

In any case, it seems clear that passive deception measures—all of which are continually being monitored and assessed by the MSO—are instrumental to IS's information security strategy. Among other things, this includes its concealment of both the roles of critical information assets like the A'maq News Agency and of communications between its operatives on media-related issues.[77]

Perimeter Defense
The last two sets of MSO administered information security measures are spatial in nature. Perimeter defense refers to logical or physical boundaries created by an organization to regulate incoming and outgoing traffic around critical information assets in order to restrict access.[78] Perimeter defenses are almost always ineffective when they are the only measure for protecting information assets.[79] Moreover, they are entirely inadequate in the context of attacks against networked information architectures because they do not protect against the aggressive use of wireless devices.[80] Nonetheless, they are a very effective way to monitor and regulate physical access to sensitive data.[81]

Our data collectors identified a convoluted set of perimeter defense-based measures being implemented at the hands of the MSO. They include: close monitoring of the production of raw media material; raw media material delivery procedures; efforts to determine who receives materials from outside of IS's immediate sphere of operations; restrictions over who is allowed to communicate with remote members and branches; and access limitations at the Information Bank and in Media Offices.[82]

Together, our data collectors' accounts speak to a spectrum of physical perimeter defenses employed by the MSO. They suggest that IS's most sensitive data is secured physically and its consumption regulated at every opportunity. At a minimum, then, IS's media assets are secured through established and secured physical boundaries; it is unclear as to whether or not the MSO also uses technology or software-based defenses, but it seems likely that this would be the case.

Compartmentalization

Information compartmentalization refers to the protection of sensitive data by establishing ring-fenced categories that are individually regulated, monitored, and controlled.[83] This allows organizations to divvy up sensitive data such that, if some of it is breached, other aspects remain protected.[84] To this end, where possible, personal access to information assets is regulated based strictly on need. In short, it protects against data breaches by limiting operational access to subsets of departmental information.

Our data collectors' descriptions of media operative interactions with the Information Bank speak to this exact set of measures.[85] For instance, one specifically reported that the use of and access to data at the Information Bank is highly securitized, even among operatives of the Bank itself.[86] Unless otherwise specified, operatives are only allowed to access information from the directorate to which they are assigned.[87] This, they related, has been achieved through its careful division into different zones for different bodies of information.[88] Moreover, regarding media-related data in particular, media office liaisons are not allowed access to anything through the Bank's own computers.[89]

Our data collectors reported that it is the MSO that oversees these compartmentalization measures, constantly regulating and monitoring access to any and all data at the Information Bank.[90] In so doing, it safeguards data related to all facets of IS's operations, not just its media activities.

Conclusion

In August 2018, the United Nations Security Council reported that there were some twenty to thirty thousand living members of IS in Syria and Iraq.[91] While this figure should be treated with a hefty pinch of salt given it is based on the assessments of a single member state, it should still be taken seriously. There can be little doubt that IS's war is not over, even if its proto-state is: its covert depth in the region is extensive, even in areas from which it had formally been expelled. Indeed, according to a Kurdistan Region Security Council official, "former [IS] strongholds have [already] re-emerged as strongholds."[92]

It thus seems that IS has gone into survival mode in Syria and Iraq and that, while in this state, it will not be inactive—it will just be less overt about its insurgency. Indeed, in months and years to come, it is likely to continue to operate as a clandestine insurgency in-theater and a global terrorist network out-of-theater, using the DGS as the lynchpin for its global activities. In this article, we illustrated how the institution had already become an instrumental part of IS's propaganda production and distribution cycle and, based on our data collectors' observations, it would appear that the directorate has similar levels of oversight over the group's other operational spheres.[93]

Hence, it could well be the case that the organization's medium- and long-term prospects will come to rely on the DGS, both its covert operatives and secretive institutional bureaucracy. With that in mind, practitioners with an eye on the future would do well to better understand this elusive entity.

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Notes

[1] Daniel L. Byman, "What happens when ISIS goes underground?," *Brookings Institution*, 18 January 2018a, https://www.brookings.edu/blog/markaz/2018/01/18/what-happens-when-isis-goes-underground/; Colin P. Clarke, "How ISIS is Transforming," *Foreign Affairs*, 25 September 2017, https://www.foreignaffairs.com/articles/middle-east/2017-09-25/how-isis-transforming; and Jonathan Spyer, "Welcome to Syria 2.0," *Foreign Policy*, 25 January 2018, http://foreignpolicy.com/2018/01/25/welcome-to-syria-2-0/.

[2] Benjamin Bahney and Patrick B. Johnston, "ISIS Could Rise Again," *The RAND Blog*, 14 December 2017, https://www.rand.org/blog/2017/12/isis-could-rise-again.html; Michael P. Dempsey, "How ISIS'S Strategy Is Evolving," *Foreign Affairs*, 18 January 2018, https://www.foreignaffairs.com/articles/syria/2018-01-18/how-isis-strategy-evolving; Michael P. Dempsey, "10 Takeaways from the Fight Against the Islamic State," *War on the Rocks*, 12 March 2018, https://warontherocks.com/2018/03/10-takeaways-from-the-fight-against-the-islamic-state/; Joscelyn Thomas, "Analysis: ISIS hasn't been defeated," *FDD's Long War Journal*, 22 February 2018, https://www.longwarjournal.org/archives/2018/02/analysis-isis-hasnt-been-defeated.php; Haid Haid, "ISIS's Military and Economic Roots Start to Take Hold Again in Syria," *Syndication Bureau*, 1 July 2018, https://syndicationbureau.com/en/isiss-military-and-economic-roots-start-to-take-hold-again-in-syria/.

[3] The significance of the virtual caliphate, or the lack thereof, still demands more scrutiny. It is worth noting that tackling this angle of the phenomenon does not declare IS core dead but rather inspect the effectiveness of cyber activities in the absence of a substantial territorial control. For more on this, please see: Amarnath Amarasingam and J.M. Berger, "With the destruction of the caliphate, the Islamic State has lost far more than territory," *Washington Post*, 31 October 2017, https://www.washingtonpost.com/news/monkey-cage/wp/2017/10/31/the-caliphate-that-was/?utm_term=.a7143cc17f0f.

[4] Daniel L. Byman, "Where Will the Islamic State Go Next?" *Lawfare*, 22 June 2018b, https://www.lawfareblog.com/where-will-islamic-state-go-next.

[5] Ibid; Colin P. Clarke and Assaf Moghadam. "Mapping Today's Jihadi Landscape and Threat." *Orbis 63*, 3 (2018); Shiraz Maher, "Islamic State is Not Beaten and Will Return," *The New Statesmen*, 17 October 2017, https://www.newstatesman.com/culture/observations/2017/10/islamic-state-notbeaten-and-will-return; Hassan Hassan, "ISIL Sleeper Cells in Iraq Are a Warning Sign The Extremist Group is Already Reforming," *The National*, 28 March 2018, https://www.thenational.ae/opinion/comment/isil-sleeper-cells-in-iraq-are-a-warning-signthe-extremist-group-is-already-reforming-1.716800.

[6] Ibid. For detailed review, please see: Ahmed S. Hashim, "The Islamic State: From al-Qaeda Affiliate to Caliphate." *Middle East Policy 21*, no. 4 (2014): 69-83; Joby Warrick, *Black flags: The rise of ISIS* (New York: Anchor, 2015); William McCants, *The ISIS apocalypse: The history, strategy, and doomsday vision of the Islamic State* (New York: Macmillan, 2015); Brian Fishman, *The Master Plan: ISIS, Al Qaeda, and the Jihadi Strategy for Final Victory* (New Haven: Yale University Press, 2017); Michael Weiss and Hassan Hassan, *ISIS: Inside the Army of Terror - updated edition* (New York: Simon and Schuster, 2016); Lawrence Wright, *The Terror Years: From al-Qaeda to the Islamic State*, (New York: Vintage, 2016); Ali Soufan, *Anatomy of Terror: From the Death of bin Laden to the Rise of the Islamic State* (New York: WW Norton & Company, 2017); Fawaz A. Gerges, *ISIS: A History* (New Jersey: Princeton University Press, 2017); and Assaf Moghadam *Nexus of Global Jihad: Understanding Cooperation Among Terrorist Actors*, (New York: Columbia University Press, 2017).

[7] Haid (2018); Borzou Daraghi, "After the Black Flags of ISIS, Iraq Now Faces the White Flags," *Buzzfeed*, 1 April 2018, https://www.buzzfeed.com/borzoudaragahi/isis-iraq-white-flags-syria-newname/; Liz Sly and Salim Mustafa, "ISIS is Making a Comeback in Iraq just Months after Baghdad Declared Victory," *Washington Post*, 17 July 2018, https://www.washingtonpost.com/world/isis-is-making-a-comeback-in-iraq-less-than-a-year-after-baghdad-declared-victory/2018/07/17/9aac54a6-892c-11e8-9d59-dc-cc2c0cabcf_story.html?utm_term=.5d0856e870bd; Ahmed Aboulenein, "Islamic State makes comeback in Iraq with switch to guerrilla tactics," *Reuters*, 23 July 2018, https://www.reuters.com/article/us-mideast-crisis-iraq-security/islamic-state-makes-come-back-in-iraq-with-switch-to-guerrilla-tactics-idUSKBN1KE0MH; and Asser Khattab, "Isis jihadis kill more than 160 in southern Syrian city," *Financial Times*, 26 July 2018, https://www.ft.com/content/f5436c94-901e-11e8-b639-7680cedcc421.

[8] Abdulbasit Kassim, "Boko Haram's Internal Civil War: Stealth Takfir and Jihad as Recipes for Schism." In J. Zenn (Ed.), *Boko Haram Beyond the Headlines: Analyses of Africa's Enduring Insurgency* (New York: West Point CTC, 2018); Aaron Zelin, "The Others: Foreign Fighters in Libya," *The Washington Institute for Near East Policy*, *Policy Notes 45*, January 2018, http://www.washingtoninstitute.org/policy-analysis/view/foreign-fighters-in-libya-consequences-for-africa-and-europe; Thomas M. Sanderson, "Black Flags over Mindanao: ISIS in the Philippines," Testimony presented before the House Committee on Foreign Affairs, *Subcommittee*

on Asia and the Pacific, 12 July 2017, https://www.csis.org/analysis/black-flags-over-mindanao-isis-philippines; Nicholas A. Glavin, "Remaining and Expanding: Why Local Violent Extremist Organizations Reflag to ISIS," *Small War Journal*, 18 May 2018, http://smallwarsjournal.com/jrnl/art/remaining-and-expanding-why-local-violent-extremist-organizations-reflag-isis; The Economist, "Jihad's next battleground: The fight against Islamic State is moving to Africa," *The Economist*, 14 July 2018, https://www.economist.com/middle-east-and-africa/2018/07/14/the-fight-against-islamic-state-is-moving-to-africa; The Economist, "The new Caliphate: Jihadists are trying to take over the Sahel," *The Economist*, 12 July 2018, https://www.economist.com/leaders/2018/07/12/jihadists-are-trying-to-take-over-the-sahel; and Byman (2018a).

[9] For details on the evolution and resilience of IS central media directorate, please see: Craig Whiteside, "Lighting the Path: The Evolution of the Islamic State Media Enterprise (2003-2016)," *The International Centre for Counter-Terrorism – The Hague 7*, no. 11 (2016), https://icct.nl/wp-content/uploads/2016/11/ICCT-Whiteside-Lighting-the-Path-the-Evolution-of-the-Islamic-State-Media-Enterprise-2003-2016-Nov2016.pdf. For specifics on the influential role of IS media operations, please see: Craig Whiteside, "Nine Bullets for the Traitors, One for the Enemy: The Slogans and Strategy behind the Islamic State's Campaign to Defeat the Sunni Awakening (2006-2017)," *The International Centre for Counter-Terrorism – The Hague 9* (2018). https://icct.nl/wp-content/uploads/2018/09/ICCT-Whiteside-Nine-Bullets-For-The-Traitors-September-2018.pdf.

[10] During the field work for this paper, all six individuals who participated in the study were based in IS-held territories in Syria. The six data collectors were trained by and worked with the first author in the past on a number of projects. All six individuals are based in IS-held territories in Syria and are collecting information on IS operations, leadership, and movement. None of them agreed to list the names of their current employers in this publication. That said, all details describing the data collectors and quotes used in this study were approved by them, including the information in this note.

[11] Daniel Milton, *Pulling Back the Curtain: An inside look at the Islamic State's media organization* (New York: West Point CTC, August 2018). Internal IS documents and memos used in Milton's (2018) report were opened source upon the publication of his report. The documents can be accessed through https://ctc.usma.edu/pulling-back-the-curtain-an-inside-look-at-the-islamic-states-media-organization/.

[12] Claire Anderson, "Presenting and evaluating qualitative research." *American journal of pharmaceutical education 74*, no. 8 (2010): 141.

[13] This revelation came after al-Khlifawi's death in 2014. The journalist Christoph Reuter obtained and examined 31 pages that were handwritten by al-Khlifawi. For review, please see: Christoph Reuter, "Die Schwarze Macht. Der 'Islamische Staat' und die Strategien des Terrors - Updated and expanded paperback edition," Hamburg: Spiegel-Verlag, 2016 (2nd edition, 413 pp.); Christoph Reuter, "The terror strategist: Secret files reveal the structure of Islamic State," *Der Spiegel*, 18 April 2015, http://www.spiegel.de/international/world/islamic-state-files-show-structure-of-islamist-terror-group-a-1029274.html; Bill Roggio, "ISIS confirms death of senior leader in Syria," *The Long War Journal*, 5 February 2014, http://www.longwarjournal.org/archives/2014/02/isis_confirms_death.php; and Anne Speckhard and Ahmet S. Yayla. "The ISIS Emni: Origins and Inner Workings of ISIS's Intelligence Apparatus." *Perspectives on Terrorism 11*, no. 1 (2017): 2-16.

[14] Rukmini Callimachi, "How a secretive branch of ISIS built a global network of killers," *New York Times*, 3 August 2016, http://www.nytimes.com/2016/08/04/world/middleeast/isis-german-recruit-interview.html?_r=0.

[15] Security Council, "Security Council ISIL (Da'esh) and Al-Qaida Sanctions Committee Adds 12 Names to Its Sanctions List," *Security Council: SC/12266*, 29 February 2016, https://www.un.org/press/en/2016/sc12266.doc.htm; and U.S. Department of the Treasury. "Treasury Sanctions Major Islamic State of Iraq and the Levant Leaders, Financial Figures, Facilitators, and Supporters," September 29, 2015. https://www.treasury.gov/press-center/press-releases/Pages/jl0188.aspx.

[16] Asaad Almohammad and Anne Speckhard, "The ISIS Emni: It's Organizational Structure, Current Leadership and Clues to its Inner Workings in Syria & Iraq. *ICSVE Research Report,* 12 April 2017, http://www.icsve.org/abu-luqman-father-of-the-isis-emni-its-organizational-structure-current-leadership-and-clues-to-its-inner-workings-in-syria-iraq/.

[17] For example, see: Anne Speckhard and Ahmet Yayla (2017); and Vera Mironova, Ekaterina Sergatskova, and Karam Alhamad, "ISIS'S Intelligence Service Refuses to Die." *Foreign Affairs*, 22 November 2017, https://www.foreignaffairs.com/articles/iraq/2017-11-22/isis-intelligence-service-refuses-die.

[18] Asaad Almohammad, Anne Speckhard, and Ahmet S. Yayla. "The ISIS Prison System: Its Structure, Departmental Affiliations, Processes, Conditions, and Practices of Psychological and Physical Torture," *ICSVE Research Report*, 10 August 2017, http://www.icsve.org/research-reports/the-isis-prison-system-its-structure-departmental-affiliations-processes-conditions-and-practices-of-psychological-and-physical-torture/. More recent data suggest that detention, torture, and interrogations are still handled by amni forces: Author interview with DC04, 1 April 2018; Author interview with DC04, 14 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; and Author interview with DC02, 6 September 2018.

[19] Asaad Almohammad, "ISIS Child Soldiers in Syria: The Structural and Predatory Recruitment, Enlistment, Pre-Training Indoctrination, Training and Deployment." *The International Centre for Counter-Terrorism – The Hague 8*, no. 14 (2018). Recent interview materials also provide support for the role of amni in the recruitment and deployment of children: Author interview with

DC06, 8 May 2018; Author interview with DC05, 5 August 2018; and Author interview with DC02, 17 August 2018.

[20] Mironova, et al. (2017); Speckhard and Yayla (2017); Almohammad and Speckhard (2017); Author interview with DC02, 14 April 2018; Author interview with DC04, 14 May 2018; and Author interview with DC06, 15 September 2018.

[21] Callimachi (2016). These intelligence services belong to Austria, Belgium, France, and Germany.

[22] Author interview with DC04, 1 April 2018; Author interview with DC04, 14 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; and Author interview with DC01, 6 September 2018: AUDIO-2018-09-09-06-49-45, AU-DIO-2018-09-09-06-49-57, AUDIO-2018-09-09-06-50-07, and AUDIO-2018-09-09-06-50-19. The audio recordings feature a Friday sermon that was deliver by IS emir of the directorate of mosques proselytization. Throughout the sermon, he criticized amni forces and emphasized injustices they commit against locals and IS cadre.

[23] Bahney and Johnston (2017). Interview materials provide support to the increasingly critical and interdepartmental role of amni forces: Author interview with DC01, 3 January 2018; Author interview with DC02, 12 January 2018; Author interview with DC06, 18 January 2018; Author interview with DC04, 1 April 2018; Author interview with DC02, 14 April 2018; Author interview with DC05, 18 April 2018; Author interview with DC02 and DC03, 25 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; Author Interview with DC02, 16 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 20 May 2018; Author interviews with DC02, DC04, and DC05, 25 May 2018; Author interview with DC03, 30 May 2018; Author Interview with DC06, 16 July 2018; Author interview with DC01, 20 July 2018; Author interview with DC01, 28 July 2018; Author interview with DC03, 5 August 2018; Author interview with DC02, 17 August 2018; Author Interview with DC04, 19 August 2018; Author interview with DC03, 5 September 2018; Author interview with DC02, 6 September 2018; Author interview with DC04, 7 September 2018; Author interview with DC01, 8 September 2018; and Author interview with DC06, 15 September 2018.

[24] Ibid; Mironova, et al. (2017); Speckhard and Yayla (2017); Almohammad and Speckhard (2017); Callimachi (2016); Reuter (2015); and Jacqueline R. Sutherland, "How Is ISIS Able to Commit Acts of Terror as It Loses Territory?," *National Interest*, 8 November 2017, https://nationalinterest.org/feature/how-isis-able-commit-acts-terror-it-loses-territory-23111.

[25] Author interview with DC01, 3 January 2018; Author interview with DC02, 12 January 2018; Author interview with DC06, 18 January 2018; Author interview with DC04, 1 April 2018; Author interview with DC02, 14 April 2018; Author interview with DC05, 18 April 2018; Author interview with DC02 and DC03, 25 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; Author Interview with DC02, 16 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 20 May 2018; Author interviews with DC02, DC04, and DC05, 25 May 2018; Author interview with DC03, 30 May 2018; Author Interview with DC06, 16 July 2018; Author interview with DC01, 20 July 2018; Author interview with DC01, 28 July 2018; Author interview with DC03, 5 August 2018; Author interview with DC02, 17 August 2018; Author Interview with DC04, 19 August 2018; Author interview with DC03, 5 September 2018; Author interview with DC02, 6 September 2018; Author interview with DC04, 7 September 2018; Author interview with DC01, 8 September 2018; Author interview with DC06, 15 September 2018; Author interview with DC03, 24 September 2018; Author interview with DC01, 25 September 2018; Author interview with DC05, 26 September 2018; Author interview with DC01, 27 September 2018; Author interview with DC04, 28 September 2018; and Author interview with DC06, 29 September 2018.

[26] Ibid.

[27] Ibid.

[28] Author interview with DC03, 24 September 2018; Author interview with DC01, 25 September 2018; Author interview with DC05, 26 September 2018; Author interview with DC01, 27 September 2018; Author interview with DC04, 28 September 2018; and Author interview with DC06, 29 September 2018.

[29] Ibid.

[30] Aymenn Jawad Al-Tamimi, "The Archivist: The Islamic State's Security Apparatus Structure in the Provinces," *Jihadology*, 2 August 2017, http://www.aymennjawad.org/20129/the-archivist-the-islamic-state-security.

[31] Author interview with DC05, 26 September 2018.

[32] Ibid.

[33] Author interview with DC03, 24 September 2018; Author interview with DC01, 25 September 2018; Author interview with DC05, 26 September 2018; Author interview with DC01, 27 September 2018; Author interview with DC04, 28 September 2018; and Author interview with DC06, 29 September 2018.

[34] Author interview with DC01, 4 June 2018; Author interview with DC05, 18 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; Author Interview with DC02, 16 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 20 May 2018; Author interviews with DC02, DC04, and DC05, 25

May 2018; Author interview with DC03, 30 May 2018; Author Interview with DC06, 16 July 2018.

[35] Author interview with DC01, 4 June 2018; Author interview with DC05, 18 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; Author Interview with DC02, 16 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 20 May 2018; Author interviews with DC02, DC04, and DC05, 25 May 2018; Author interview with DC03, 30 May 2018; Author Interview with DC06, 16 July 2018.

[36] Author interview with DC01, 4 June 2018.

[37] Ibid.

[38] Author interview with DC03, 4 May 2018; Author interview with DC06, 8 May 2018; Author interview with DC04, 14 May 2018; Author Interview with DC02, 16 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 20 May 2018; Author interviews with DC02, DC04, and DC05, 25 May 2018; Author interview with DC03, 30 May 2018; Author interview with DC01, 4 June 2018; and Milton (2018).

[39] Author interviews with DC02, DC04, and DC05, 25 May 2018.

[40] Author interview with DC05, 18 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; and Author interview DC03, 30 May 2018.

[41] Author interview with DC05, 18 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; and Author interview DC03, 30 May 2018.

[42] Author interviews with DC02, DC04, and DC05, 25 May 2018; Author interview with DC03, 24 September 2018; Author interview with DC01, 25 September 2018; and Author interview with DC05, 26 September 2018.

[43] Author interview with DC01, 3 January 2018; Author interview with DC02, 12 January 2018; Author interview with DC06, 18 January 2018; Author interview with DC04, 1 April 2018; Author interview with DC02, 14 April 2018; Author interview with DC05, 18 April 2018; Author interview with DC02 and DC03, 25 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; Author Interview with DC02, 16 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 20 May 2018; Author interviews with DC02, DC04, and DC05, 25 May 2018; Author interview with DC03, 30 May 2018; Author Interview with DC06, 16 July 2018; Author interview with DC01, 20 July 2018; Author interview with DC01, 28 July 2018; Author interview with DC03, 5 August 2018; Author interview with DC02, 17 August 2018; Author Interview with DC04, 19 August 2018; Author interview with DC03, 24 September 2018; and Author interview with DC05, 26 September 2018.

[44] Ibid.

[45] Ibid.

[46] Atif Ahmad, Sean B. Maynard, and Sangseo Park. "Information security strategies: towards an organizational multi-strategy perspective." *Journal of Intelligent Manufacturing 25*, no. 2 (2014): 357-370.

[47] Detmar W. Straub and Richard J. Welke, "Coping with systems risk: security planning models for management decision making," *MIS quarterly* (1998): 441-469; JP McDermott (2000), "Attack Net Penetration Testing," *Paper presented at the 2000 Workshop on New Security Paradigms*, (County Cork, Ireland); J. Doyle, I. Kohane, W. Long, H. Shrobe, and P. Szolovits, "Agile Monitoring for Cyber Defense," *Paper presented at the 2001 DARPA Information Survivability Conference & Exposition II (DISCEX '01)*; J.E. Beauregard, "Modeling Information Assurance," *Master's Thesis, Air Force Institute of Technology*, (Ohio: Air University, 2001); Paul Dourish and David Redmiles, "An approach to usable security based on event monitoring and visualization." *In Proceedings of the 2002 workshop on New security paradigms*, pp. 75-81. ACM, 2002; J.B. Michael J.B., "On the Response Policy of Software Decoys: Conducting Software-based Deception in the Cyber Battlespace," *Paper presented at the 26th Annual International Computer Software and Applications Conf. (COMPSAC'02)*, August 2002; T.P. Cahill, "Cyber Warfare Peacekeeping," *Paper presented at the 2003 IEEE Workshop on Information Assurance*, June 2003; M. Henauer, "Early warning and information sharing." *In Workshop on cyber security and contingency planning: threats and infrastructure protection*, Zurich, Switzerland, pp. 55-62. 2003.; Butler W. Lampson, "Computer security in the real world." *Computer 37*, no. 6 (2004): 37-46; S.J. Stolfo, "Worm and Attack Early Warning: Piercing Stealthy Reconnaissance," *IEEE Security & Privacy 2* no. 3 (2004):73-75; John D'Arcy, Anat Hovav, and Dennis Galletta, "User awareness of security countermeasures and its impact on information systems misuse: A deterrence approach." *Information Systems Research 20*, no. 1 (2009): 79-98; Thomas E. Carroll and Daniel Grosu, "A secure and anonymous voter-controlled election scheme," *Journal of network and computer applications 32*, no. 3 (2009): 599-606; D.S. Alberts, *Defensive Information Warfare* (NDU Press Book, National Defense University: 1996); W. Tirenin and D. Faatz, "A concept for strategic cyber defense," *In Military Communications Conference Proceedings*, 1999. MILCOM 1999. IEEE (Vol. 1, pp. 458-463). IEEE; Bruce Schneier, *Beyond Fear: Thinking sensibly about security in an uncertain world*. (New York: Springer, 2006); and Paul Byrne, "Application firewalls in a defence-in-depth design." *Network Security*, no. 9 (2006): 9-11.

[48] Simon Liu, John Sullivan, and Jerry Ormaner. "A practical approach to enterprise IT security." *IEEE IT Professional*, 5 (2001):

35-42.

[49] Milton (2018).

[50] Author interview with DC02, 14 April 2018; Author interview with DC05, 18 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; and Author interviews with DC04, DC05, and DC02, 19 May 2018.

[51] Ibid.

[52] Author interview with DC06, 16 July 2018.

[53] Author interviews with DC02, DC04, and DC05, 25 May 2018; and Author interview with DC03, 30 May 2018.

[54] Author interview with DC01, 3 January 2018; Author interview with DC06, 16 July 2018; and Author interview with DC05, 11 August 2018; and Author Interview with DC01, 21 July 2018: PHOTO-2018-07-21-4.

[55] Milton (2018). Also see: The Essential Duties of the Media Mujahid; Information Security; and General Guidance and Instructions.

[56] K.A. Forcht, *Computer Security Management*, (Danvers, MA: Boyd and Fraser, 1994)

[57] Alfred Lumstein, Jacqueline Cohen, and Daniel Nagin, *Deterrence and Incapacitation; Estimating the Effects of Criminal Sanctions on Crime Rates* (Washington, DC: National Academy of Sciences, 1978); Straub Jr, Detmar W., "Effective IS security: An empirical study." *Information Systems Research 1*, no. 3 (1990): 255-276; Kankanhalli, et al. (2003); and Mikko Siponen and Anthony Vance. "Neutralization: new insights into the problem of employee information systems security policy violations." *MIS quarterly* (2010): 487-502.

[58] H. Klete, *Some Minimum Requirements for Legal Sanctioning Systems with Special Emphasis on Detection. Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates* (Washington, DC: National Academy of Sciences, 1975); D.B. Parker, *Computer Security Management*. (Reston, VA: Reston Publishing, 1981); T.S. Dunn, *Methodology for the Optimization of Resources in the Detection of Computer Fraud* (University of Arizona, 1982); D.B. Parker, *Fighting Computer Crime* (NY: Scribner, 1983); Straub (1990); Straub Jr, Detmar W., and William D. Nance. "Discovering and disciplining computer abuse in organizations: a field study." *MIS quarterly* (1990): 45-60; D'Arcy, et al. (2009).

[59] To review the cited document and for more details on the punishment of suspected spies, please see: Almohammad, Speckhard, and Yayla (2017).

[60] Ibid.

[61] Author interview with DC02, 14 April 2018.

[62] Doyle, et al. (2001)

[63] Ibid

[64] Ratna Bearavolu, Kiran Lakkaraju, William Yurcik, and Hrishikesh Raje. "A visualization tool for situational awareness of tactical and strategic security events on large and complex computer networks." *In IEEE Military Communications Conference (Milcom)*, vol. 12, no. 5, pp. 75-88. 2003.

[65] Ibid.

[66] Author interview with DC01, 3 January 2018; Author interview with DC02, 12 January 2018; Author interview with DC06, 18 January 2018; Author interview with DC04, 1 April 2018; Author interview with DC02, 14 April 2018; Author interview with DC05, 18 April 2018; Author interview with DC02 and DC03, 25 April 2018; Author interview with DC03, 4 May 2018; Author interview with DC04, 14 May 2018; Author Interview with DC02, 16 May 2018; Author interviews with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 20 May 2018; Author interviews with DC02, DC04, and DC05, 25 May 2018; and Author interview with DC03, 30 May 2018.

[67] Author interview with DC02, January 21, 2018

[68] Fred Cohen, "Special feature: A note on the role of deception in information protection," *Computers and Security 17*, no. 6 (1998): 483-506; and Tirenin and Faatz (1999)

[69] Ibid; and Mason Rice, Daniel Guernsey, and Sujeet Shenoi, "Using deception to shield cyberspace sensors." *In International Conference on Critical Infrastructure Protection* (Berlin, Heidelberg: Springer, 2011: pp. 3-18).

[70] Almohammad and Speckhard (2017).

[71] Author interview with DC05, 18 April 2018; Author interview with DC04, 9 May 2018; Author interview with DC03, 30 May

2018; Author interview with DC01, 28 July 2018; and Author interview with DC03, 5 August 2018.

[72] Author interview with DC05, 18 April 2018; Author interview with DC03, 30 May 2018; Author interview with DC01, 28 July 2018

[73] Author interview with DC05, 18 April 2018.

[74] Ibid.

[75] Ibid.

[76] Author interview with DC04, 18 April 2018; Author interview with DC04, DC05, and DC02, 19 May 2018; Author interview with DC03, 30 May 2018; Author interview with DC01, 28 July 2018; Author interview with DC03, 3 August 2018; and Author interview with DC03, 5 September 2018.

[77] Author interview with DC01, 3 January 2018; Author interview with DC02, 12 January 2018; Author interview with DC04, 1 April 2018; Author interview with DC05, 18 April 2018; Author interview with DC04, 4 May 2018; Author interview with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 16 July 2018; Author interviews with DC02, DC04, and DC05, 25 May 2018; Author interview with DC03, 30 May 2018; and Author interview with DC03, 5 August 2018.

[78] Liu, et al. (2001) and Schneier (2006).

[79] McGuiness (2001).

[80] Schneier (2006).

[81] Liu, et al. (2001).

[82] Author interview with DC01, 3 January 2018; Author interview with DC02, 12 January 2018; Author interview with DC04, 1 April 2018; Author interview with DC05, 18 April 2018; Author interview with DC04, 4 May 2018; Author interview with DC04, DC05, and DC02, 19 May 2018; Author interview with DC06, 16 July 2018; Author interviews with DC02, DC04, and DC05, 25 May 2018; Author interview with DC03, 30 May 2018; and Author interview with DC03, 5 August 2018.

[83] Schneier (2006).

[84] Ibid.

[85] Author interviews with DC02, DC04, and DC05, 25 May 2018.

[86] Author interviews with DC02, DC04, and DC05, 25 May 2018.

[87] Author interviews with DC02, DC04, and DC05, 25 May 2018.

[88] Author interview with DC03, 30 May 2018.

[89] Author interviews with DC02, DC04, and DC05, 25 May 2018.

[90] Author interview with DC03, 30 May 2018; Author interview with DC01, 20 July 2018; Author interview with DC03, 24 September 2018; Author interview with DC01, 25 September 2018; Author interview with DC05, 26 September 2018; Author interview with DC01, 27 September 2018; Author interview with DC04, 28 September 2018; and Author interview with DC06, 29 September 2018.

[91] Security Council, "Twenty-second report of the Analytical Support and Sanctions Monitoring Team submitted pursuant to resolution 2368 (2017) concerning ISIL (Daʼesh), Al-Qaida and associated individuals and entities," *United Nations*, 13 August 2018, https://undocs.org/en/S/2018/705.

[92] Mike Giglio, "The Trump White House Says ISIS Has Been Defeated In Iraq. The Data Says Otherwise," *BuzzFeed News*, 31 October 2018, https://www.buzzfeednews.com/article/mikegiglio/trump-isis-iraq-defeat-attacks.

[93] Author interview with DC03, 5 September 2018; Author interview with DC02, 6 September 2018; Author interview with DC04, 7 September 2018; Author interview with DC01, 8 September 2018; Author interview with DC06, 15 September 2018; Author interview with DC03, 24 September 2018; Author interview with DC01, 25 September 2018; Author interview with DC05, 26 September 2018; Author interview with DC01, 27 September 2018; Author interview with DC04, 28 September 2018; and Author interview with DC06, 29 September 2018.