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COUNTERTERRORISM TACTICS:
A MODEL OF CELL DYNAMICS

by

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June 2007

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Modus operandi of various terrorist organizations has been studied extensively, and databases such as ITERATE collate details about terrorist attacks, to include the types of technology used by the terrorist organization and the number of resultant casualties. Surprisingly, however, a generalized model of how terrorist organizations plan their attacks is unavailable in the extant literature. Drawing from organizational theory, particularly the command and control literature and the case study methods, this paper posits a generalized model of terrorist attack planning. By extending this model into the counterterrorism domain, we then consider how to more optimally detect terrorist attacks.

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COUNTERTERRORISM TACTICS: A MODEL OF CELL DYNAMICS

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ABSTRACT

Modus operandi of various terrorist organizations has been studied extensively, and databases such as ITERATE collate details about terrorist attacks, to include the types of technology used by the terrorist organization and the number of resultant casualties. Surprisingly, however, a generalized model of how terrorist organizations plan their attacks is unavailable in the extant literature. Drawing from organizational theory, particularly the command and control literature and the case study methods, this paper posits a generalized model of terrorist attack planning. By extending this model into the counterterrorism domain, we consider how to more optimally detect terrorist attacks.

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I. INTRODUCTION

Terrorist organizations continue to receive significant attention in academic, policy and operational circles. *Modus operandi* of various terrorist organizations have been studied extensively, and extensive databases, such as ITERATE, collate details about terrorist attacks, to include the types of technology used by the terrorist organization and the extent of resultant casualties. Surprisingly, however, a generalized model of how terrorist organizations plan their attacks is unavailable in the extant literature. Drawing from organizational theory, particularly the command and control literature, and through synthesis of three case studies, this paper posits a generalized model of terrorist attack planning. By extending this model into the counterterrorism domain, I consider how to more optimally detect terrorist attacks.

A. DEFINITIONS

Definitions of terrorism have received significant scrutiny and debate, with little resolution (Post et al., 2002, p.74). For the purpose of this work, we use a definition developed by the U.S. Department of Justice, which defines terrorism as "the unlawful use of force or violence committed by a group or individual against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." (Grimmer, 2007) Efforts by representatives of the state to prevent or deter such unlawful uses of force or violence will be classified as counterterrorism. Thus counterterrorism, in this work, includes efforts to stop the formation of terrorist cells, stop the planning of events that may lead to terrorist attacks and finally stop the execution of attacks. Other definitions needed for this paper include:

Counterterrorism Specialist – any individual whose occupation is related in any way to executing counterterrorism measures, as defined in the above paragraph. This will include everyone from intelligence analysts all the way down to the street cop of a local township.

Organized Crime – "any group having a corporate structure whose primary objective is to obtain money through illegal activities, often surviving on fear and corruption" (Thomas, Kiser, and Casebeer, 2005, p.37).

Terrorism analysis continues to prove a diverse and changing field. Studies often range from analysis at an organizational level all the way to specific analysis of the events (Jackson, 2005; National Commission on Terrorism Attacks, 2004). Organizational analysis is often very difficult due to the secretive nature of these groups; as a result, a look inside the organization can prove opaque at best. Conversely the idea to study terrorist activity on an event by event basis will often simply focus on the actions and not take other factors into consideration such as group dynamics and motives. Thus, in order to fully understand the operations and executions of terrorist organizations, one must consider the context – including background, environmental and situational factors affecting that particular terrorist cell as well as specific events leading up to an attack – of the group's actions (Crenshaw, 1995). By considering all of these factors in conjunction with one another, a richer picture is created, leading to the discovery of self-emerging patterns. From these patterns, a generalized model of terrorist attack planning can emerge as a significant contribution to the field of terrorism studies.

B. ORGANIZATIONAL AND OPEN SYSTEMS PERSPECTIVE

This paper focuses on terrorism at the organizational level in order to examine how the *work* of terrorism is conducted, rather than a societal level that might seek to explain why terrorism comes into existence under particular circumstances. Consistent with emerging trends in the literature (Thomas, Kiser and Casebeer, 2005, ch. 1), this paper views terrorist organizations with an open systems perspective, recognizing that terrorist organizations both draw from and influence the environments in which they are situated (Thomas, Kiser and Casebeer, 2005, ch. 1). Through understanding the flow of resources and feedback across the boundary between terrorist organizations and their environments, counterterrorism analysts may be able to more optimally interrupt the

work processes upon which terrorist organizations depend for successfully producing terrorist attacks. Creating such an understanding involves answering questions such as:

1. What do terror cells require or prefer within their environment in order to be successful?

2. How can law enforcement and surveillance teams detect and destroy these preferences?

3. Are there things that can be placed within an environment in order to assist authorities and continue to deter terror cells?

C. APPLICABILITY OF CASE STUDY METHOD

This work builds on theory about terrorist attack planning via comparative case studies (Eisenhardt, 1989; Eisenhardt and Graebner, 2007) a common research method within terrorist studies (Jackson et al., 2005). Terrorist organizations have been described as complex, adaptive systems (Roberts, 2003), responding to changes in their environment. However, any functional terrorist group or cell must operate within the confines of its environment and resources; as such, the feasible space of their actions and behaviors is bounded, and selection of tactics is limited. Thus one advantage of the case study method is that since these cells act independently, any correlation or consistency one finds between how groups conceive, plan, resource, and execute their operations suggests that social or environmental factors, not shared leadership, is primarily responsible for any discernible differences. By abstracting past attempts at terrorist attacks, a generalized model of terrorist attack planning will emerge. This generalized model, in turn, will assist counterterrorism professionals with developing or enhancing tactics to interdict future terrorist attacks.

One thing this model must take into consideration is the assertion that terror cell origins today have changed from the origin of terror cells like the 9-11 attackers. “[There] was a shift from an Al Qaeda operational model based on an ‘all-star team’ of operatives that was selected, trained and dispatched by the central leadership to the target, to an operational model that encourages independent “grassroots” *Jihadists* to conduct attacks, or to a model in which Al Qaeda provides operational commanders who organize

grassroots cells. We refer to this shift as devolution because what we are seeing now is essentially a return to the pre-9/11 model" (Burton, The Continuing Devolution, 2006). Taking this perspective into account, I have picked three case studies for this analysis. Two of the terrorist attacks were conceived of and thwarted prior to the 9/11 attacks; one was thwarted following the 9/11 attacks. An additional restriction on the case studies chosen include that the plots must have been stopped prior to execution. The goal is to choose a variety of different cells in hopes that any trends observed will not be dependent on the type of cell or plot attempted.

With that in mind, this work conducts primary research into the following three thwarted terrorist attacks: 1) the Brooklyn Bridge attack by Iyman Faris, 2) the Millennial Bombings at the Los Angeles Airport, and 3) Operation Bojinka, a plan in the mid-90's to attack airliners over the Pacific Ocean along with a series of simultaneous attacks around the world. Occasionally, we will make reference to other terrorist attacks in order to better illustrate a specific point. However primary research will be placed on terror plots outlined above. Directly stated, this paper uses case studies of thwarted attacks as a primary source material to investigate if a generalized basic model of terrorism action exist in hope of assisting in the development or enhancement of U.S. counterterrorism tactics.

II. CASE STUDIES

This section will explain each case study and its contribution to the more generalized model towards the end of this paper.

A. MILLENNIAL BOMBING

The attempted attack on the Los Angeles airport in 1999 was primarily carried out by Ahmad Ressam. Ressam first became interested in jihad while a member of a poor Muslim robbery gang in Montreal, Canada. He had come to Canada in 1994 with a fake French passport and a request for political asylum based on an untrue story. The gang that Ressam joined would often steal identifications, luggage, money and sometimes computers from tourists and exchange them with a man named Mokhtar Haouari for money (Ollen, July 5, 2001, p.588). Haouari was involved in bank fraud and false identification laundering. In the summer of 1997, many of Ressam's friends attended an Afghani training camp to become Muslim jihadis; by March of 1998 Ressam was also traveling to an Afghani training camp by way of Pakistan to train (Ollen, July 3, 2001, p.536-41 544-6).

In Afghanistan, trainees were organized by ethnicity. All Algerians were to train in a group that would be further broken into functioning cells. An Algerian, Ressam was assigned to a cell under the leadership of Abu Doha (Ollen, July 3, 2001, p.549). When scoping a target, Ressam was taught:

1. Look like a tourist;
2. Spend much time surveying your site;
3. When working in a cell preserve your secrets, everyone operates on a need to know basis; and
4. If speaking on a phone talk normally and controlled or speak in another language.

(Ollen, July 3, 2001, p.551-2).

He was also taught general tactical training, marksmanship and bomb manufacturing. Ressam's cell designed a plot to attack an airport in California. They

would separately travel to Canada by way of Pakistan, meet up in Montreal, fund their plot through robbery and theft and when ready, travel into California to execute their plot (Ollen, July 3, 2001, p.553-4).

Ressam was the only man who was able to make it back into Canada after their training (through false stories for requesting asylum); the rest of his cell was detained in Europe. Ressam was actually being tracked by immigration while in Canada but was not apprehended. Despite his teammates being unable to join in Canada, Ressam decided with Doha that Ressam would still complete the planning of this attack. On his flight back to Canada, Ressam brought Hexamine tablets and liquid glycol, a notebook with bomb-making instructions and $12,000 cash. This cash was to be used to buy a house and purchase weapons (Ollen, July 3, 2001, p.559-60).

In Montreal, Ressam restored communications with Haouari and continued participating in burglary and credit card fraud which would be used to fund his plot. Furthermore, Ressam obtained an immigration visa through false employment at mutual friend's business. In the summer of 1999 Ressam began active planning of his plot; if he spoke to Doha or Haouari it was usually in Arabic. Doha, located in London, talked to Ressam via a pre-paid cell phone plan to discuss details. The first step was to ensure that all of Ressam's false identification and papers were in order. He started researching locations to purchase explosive chemicals. He also purchased a map of the United States, putting three circles around California airports (Ollen, July 3, 2001, p.572-3).

By August of 1999, Ressam decided the plot would consist of loading a bomb into a suitcase. He would leave the bomb unaccompanied in the Los Angeles airport and set it to detonate on a predetermined timing device. The location would be chosen by leaving an empty suitcase in different locations to see where it would draw the least amount of attention. By September, Ressam bought his electronic components that would be needed for the bomb such as electronic circuits and the timing device. In November he was making frequent trips to Vancouver where he would stay with friend, Abdelmajid Dahoumane, while he bought unsuspicious amounts of urea and aluminum sulfate from garden shops – both of which can be manipulated into highly explosive fertilizers. November was also when Ressam informed Haouari about "business" in the United

States and asked for financial support, which Haouari complied by using money from his store. He and Haouari also spoke about previous plots that were conducted in France and agreed that similar attacks should take place again (Ollen, July 5, 2001, p.589). Haouari was also prepared to introduce Ressam to a friend in New York, Abdelghani Meskini that would assist Ressam with his plan. Ressam only agreed if Meskini was not known to work in Islamic movements (Ollen, July 3, 2001, p.574-8).

On November 17, 1999, Ressam left by airplane for Vancouver with his fake license, $3,000 Canadian from Haouari, approximately $5,000 of his own money and the timing devices to purchase the last amounts of the explosive materials he would need for his bomb (Ollen, July 3, 2001, p.584). He spent two weeks in Vancouver preparing the explosives with chemical instruments and stealing nitric and sulfuric acid (with the help of Dahoumane) from a fertilizer manufacture before heading back to Montreal one last time (Ollen, July 5, 2001, p.592-4). Between the times that Ressam left Vancouver and ultimately headed for the U.S. border he had a flurry of phone calls to Haouari, Meskini and others to organize last minute details for the plot and post-plot operations. Secretive phone calls would be done over pay phone with a phone card; all other calls were simply completed on his cell phone. On December 6, 1999, Ressam flew to Vancouver. While there he stayed with his friend Dahoumane at a local hotel. During this visit Ressam and Dahoumane assembled the bombs that would be used in the attack. The morning of December 14, 1999, Ressam brought his cell phone, cash and passport (with pages stamped by Afghanistan ripped out) to the rental that he had loaded with bombs into the trunk the evening before. Ressam took the ferry from Victoria to Port Angeles. Ressam was stopped at customs and asked what he was doing, Ressam's little English and slowed response raised the guard's suspicions. When they began to search his car, Ressam got nervous and tried to flee but was apprehended before getting away. It should be noted that although this plot was primarily created and executed by Ahmed Ressam, he was given assistance by at least three to four other people not mentioned in court documents (Ollen, July 5, 2001, p.603-7, 613).

This plot is an ideal case to study due to the large amount of information about each stage of the planning. It has an airport as a target which is common of today's

targets; commercial aviation, airports and large public spaces have long been significant targets for terrorist groups (Security Alert, 2003; Drake, 1998). Additionally, this plan was organized and produced outside the U.S. and then moved inside the U.S. borders with the execution date approaching, another significant concern of counterterrorism specialists, particularly when those cell members are coming across one of our two adjacent borders: Canada or Mexico. A final interesting factor in this particular plot is the fact that the majority of this plot was planned and executed by one man: Ahmed Ressam.

B. BROOKLYN BRIDGE PLOT

The second plot that will be analyzed is the attempt to destroy the Brooklyn Bridge by Iyman Faris. The Brooklyn Bridge plot was already conceived by top members of Al Qaeda leadership including Khalid Shaikh Mohammed and Majid Khan but was placed upon an independent member, Faris, to research its feasibility. Faris, a naturalized citizen of the United States and a relative of Majid Khan, traveled to Afghanistan by way of Pakistan. He was tasked by top operatives of Al Qaeda leadership to return to the U.S. to see if it was possible to use certain tools to derail a train while simultaneously destroying the Brooklyn Bridge. Before officially working on this project, operatives gave him menial tasks to complete while he waited in Pakistan; he was tasked with obtaining extensions on airplane tickets and delivering bags of money and cells phone to an assigned recipient, which he completed by disguising himself as a Muslim Missionary (Sinclair, 2003, p.1-2). By April 2002, Faris was back in the United States; there he conducted independent research to discover ways to carry out this plan. He was instructed to use the word *gas stations* for the metal cutters that would bring the bridge down and *mechanic shops* for tools needed to derail the train. He was also instructed to never check his email directly after signing onto the internet, always check at least one other site first. After conducting research on the internet for *metal cutters,* Faris approached an acquaintance that he knew to have some experience with these tools and asked for further information. Between April 2002 and March 2003, Faris struggled to locate information on the two tools he was looking for and sent several coded messages back to Khan in Pakistan relaying that he was still searching. After researching and observing the bridge

as a potential target for over a year, Faris sent a message back to Khan saying *the weather is too hot*, conveying that the plot would be unlikely to succeed due to the securities and surveillance associated with the target (Sinclair, 2003, p.3). Through physical and electronic surveillance, counterterrorism authorities became suspicious and Faris was apprehended for conspiring with a known terrorist organization (Donald H. Rumsfeld, 2003).

This plot is chosen in particular because it was planned after the attacks on September 11 as such also planned with the Patriot Act in place. Although this plot never left the researching phase, it did show a significant amount of communication between cell members and Al Qaeda hierarchy which is not necessarily as prevalent in other plots. It also shows how trust between members is developed; Faris had never met anyone in Al Qaeda leadership but due to his relationship to Khan was able to work with the organization. By having so much communication and developing relationships present in this plot, methods are able to be analyzed for patterns.

C. OPERATION BOJINKA OR MANILA AIR

Finally, Operation Bojinka was a plot financed by the infamous Al Qaeda leaders Osama Bin Laden and Khalid Shaikh Mohammed (KSM) and masterminded by Mohammed's nephew Ramzi Ahmed Yousef. It was a compilation of many different plots all brought together under an all encompassing plan. This plot targeted twelve U.S.-bound airliners with a majority of those flights destined for large cities in the United States in which bombs would be placed under seats near the fuselage that would detonate in flight. Additionally, one of those planes would possibly be used to crash into a strategic U.S. target like the CIA or FBI buildings (Department of Transportation, Washington, DC Metropolitan Area, 2003). Simultaneously there would be an attack on the U.S. Embassy in Manila and a subsequent assassination of the Pope who would be visiting Manila at the same time. Yousef originally came to the U.S. in 1992 requesting asylum as an Iraqi dissident. Only five months later he executed the first World Trade Center Bombing while working with a cell in New York. By August of 1994 Yousef

traveled to Manila in the Philippines to begin the planning of this operation (Department of Transportation, Security of Checked Bags, 1999).

Yousef's cell in Manila consisted of childhood friend Abdul Murad and a third man named Wali Khan Amin Shah. Investigation of the laptop recovered after the plot's discovery suggested that there were at least five members to this cell, however the three listed above are the only known conspirators to date (Department of Transportation, Security of Checked Bags, 1999). The cell worked out of an apartment located near the U.S. Embassy, Manila; these three tenants were very suspicious and were reported to often have chemical burns on their hands. During their preparation for this flight, "Yousef compiled detailed flight data on the twelve aircraft, including their departing times, flight numbers, flight durations and aircraft types, and transferred this information to his laptop computer. In early November 1994, Yousef placed a large order for chemicals and equipment in Manila, and, during the next two months, he and his co-conspirators performed several tests in preparation for the aircraft bombings. On December 1, 1994, Yousef and Shah conducted a test by placing a bomb under a patron's seat at the Greenbelt movie theater in Manila. At 10: 30 p.m., the bomb exploded, injuring several people" (Kelley and Garcia, 2003). Directly after this explosion, Shah left the Philippines to travel in the Middle East and then returned a few weeks later under an assumed name.

This plot reached a test execution phase by December 11, 1994 when Yousef tested airport security by creating a bomb one-tenth the planned size. He assembled it on board Philippine Airlines Flight 424 from Manila to Tokyo in the bathroom and then placed it under a seat where it would detonate. Yousef deplaned in the Philippine City of Cebu and the bomb ultimately detonated on as the aircraft continued to Tokyo. This bomb was not designed to destroy the plane, only test whether such an operation was feasible. Yousef had accomplished that goal (Department of Transportation, Security of Checked Bags, 1999).

This plot was uncovered by Philippine officials when there was a chemical fire in the apartment being rented and officials recovered many of the bomb making supplies located within. "Homemade explosives, batteries, timers, electronic components, and a

notebook full of instructions for building bombs were discovered. Subsequent investigation of computer files taken from the apartment revealed the plan in which five terrorists were to have placed explosive devices aboard United, Northwest, and Delta airline flights. In each case, a similar technique was to be used. A terrorist would fly the first leg of a flight out of a city in East Asia, plant the device aboard the aircraft and then get off at an intermediate stop. The explosive device would then destroy the aircraft as it continued on the subsequent leg of the flight to the United States" (Department of Transportation, Security of Checked Bags, 1999). This is also where the Philippine officials discovered evidence that this cell was likely being funded by Osama Bin Laden's brother-in-law, Mohammed Jamil Khalifa since "police retrieved Khalifa's business card from the ruins" (Sanchez, 2004).

This paper researches Operation Bojinka because the sheer size of this plan, this plot was a huge undertaking by the Manila cell. It exemplifies a typical Al Qaeda plan which is generally quite elaborate being made up of many different pieces all working together with detailed planning and coordination, as well as and extensive pre-execution rehearsal and testing. This also creates a situation that provides for large amounts observable evidence. As stated above, it uses an airplane crash as part of the plot which is also ideal since today's larger plots are including scenarios very similar to part of Operation Bojinka's objectives. Additionally it was planned and designed before the attacks on September 11, 2001 and the introduction of the Patriot Act. Some schools of thought suggest that since Al Qaeda's hierarchy has now been disrupted and its leadership driven underground, that the terror cells of today have actually reverted back to pre-September 11 style planning. That is, broad based guidelines by Al Qaeda leadership with command structure and specific details left to individual cells, making it extremely beneficial to also study these types of scenarios (Burton, The Lessons of the Library Tower Plot, 2007).

Based on the three case studies and buttressed by similarities with other attacks that complement this work but have not been developed to the level of full case studies, it seems clear that terrorist attacks consist of three major phases and two decision points. I have termed the three phases as 1) conception, 2) acquire resources, and 3) execution.

The decision points are labeled as decision to move forward with the concept, and decision to move forward with execution. In the subsequent sections, I discuss each of these phases and decision points in turn, with particular emphasis on their implications for counterterrorism specialist and policymakers.

III. PHASE I – CONCEPTION

To analyze a terrorist plot from beginning to end, one must begin with the question: where do terror cells originate? The subsequent paragraphs will outline what common variables exist in the creating of a terror cell. This paper does not claim that terror cells will derive from the information presented, however it does submit that when such variables are present the likelihood of creating a terror cell increases. For example, Thomas Kiser and Casebeer (2005, p.86) claim that "a given ethnicity in a country that is also poor, politically disenfranchised, and has a unique religion is far more likely to be the basis or source for a VNSA [Violent Non-State Actor] than a pre-existing identity cleavage".

A. CREATING A TERRORIST: ANALYSIS OF THE INDIVIDUAL

"Several organizational processes are necessary for a group survival and growth – recruitment, screening, socialization, training, assignment and promotion, and attrition" (Post et al., 2002, p.90). Each of these processes, although necessary for overall group survival are not all required during *Plot Conception*, however each process will be discussed throughout this paper. It is important realize that as a cell progresses through *plot conception* to *execution* a counterterrorism specialist will want to look for these types of processes.

Potential Candidates. Although Al Qaeda terrorist cells generally consist of middle-eastern males ranging in age from 18 to 37, this can not be a definitive profile. John Holschen, Regional Manager of Triple Canopy (2007), reaffirmed this statement in his presentation at the 2007 Trexpo West Conference located in Long Beach, California saying "You can not base terror profiles on ethnicity". Usually terrorists derive from two sources: either the individual has family that is already involved terrorist activity or the individual will convert to extreme Islamic practices. Often these individuals have varying backgrounds but share a similar ideology (Thomas, Kiser and Casebeer, 2005, ch. 1-2). In particular, individuals that are young and still developing their belief base are

impressionable for terrorist groups; further, they will likely not have a family or responsibilities that may deter them from giving their life to a cause.

Common social network. Cell formation often centers on a common social meeting place. This was seen in "1999 when many of al-Masri's associates, including his son, were arrested in Yemen in connection with bomb attacks staged by militant Islamist group the Aden-Abyan Islamic Army along with another group, Supporters of Shariah" (Londonistan, 2005). "The mosque has served as a rendezvous point for Al Qaeda handlers/feelers and potential local operatives. Once an Al Qaeda manager has made first contact, further meetings are held only in private, to reduce the risk of detection. But the mosque has in the past offered the network ideologically indoctrinated British recruits" (Londonistan, 2005) "major influence was the social environment of the youth" (Denny, Post, Sprinzak, 2003, p.173) if a child has grown up in a community that sympathizes terrorist exploits, that individual is more likely to follow the same pursuits in later years.

Establishing Cell Membership. The first step in a terrorist plot is to establish a cell. An individual who wishes to execute terrorist activity generally recruits the assistance of like-minded others. He will do that by gaining interest of a group of individuals and then establishing "acceptable versus unacceptable members" (Post et al., 2002, p.90). Interest is generated by "exploiting identity and mobilizing the individual along similar lines, either by creating competing identities where none previously existed or exacerbating existing identity differences, is an important aspect of the individual's conversion from citizen to VNSA [Violent Non-State Actor] member" (Thomas, Kiser and Casebeer, 2005, p.63). If strong ideological fissures exist within the community of potential recruits, the process of converting sympathizers to fully-participating violent non-state actors is aided. The cell may consist of a group of scattered individuals that meet via the internet or in person; when groups member share a common ideology, the common ideas become magnified and exaggerated. As a result, themes of violence or revenge that may be faint among individuals come to dominate discourse in a group setting. An additional risk of terrorist cell formation occurs when there is an agitator present (Post et al., 2002, p.89). For example, the four members of the 9-11 conspirators that were located in Hamburg for a short period were known to be in a group that spoke

about anti-American sentiments. “By the time Atta, Shehhi, and Binalshibh were living together in Hamburg, they and Jarrah were well known among Muslims in Hamburg and, with a few other like-minded students, were holding extremely anti-American discussions…. As time passed, the group became more extreme and secretive. According to Binalshibh, by sometime in 1999, the four had decided to act on their beliefs and to pursue jihad against the Russians in Chechnya” (National Commission on Terrorism Attacks, 2004, p.3-4).

Post (2002, p.106) claims that if “the literature and communications of a community of belief shift into advocacy of violence against certain targets,” then this is a strong indicator that a group is shifting from a discussion forum to a more radicalized stance that could eventually include violent political actions – including terrorist attacks. Interestingly, the influence of such discourse can extend well beyond the explicit membership of the group to observant, yet “outsider,” individuals. For example, Post et al (2002, p.89) describe Timothy McVeigh, responsible for the bombing of Alfred P. Murah Federal Building in Oklahoma City as “not a formal member of any of the militia organizations or other right-wing groups whose ideology he espoused and acted on”.

Another indicator that a group may be shifting to violent extremism is a change in recruitment process or recruitment of a certain type of individual. “Groups that recruit from pools including violent, disgruntled, disenfranchised, victimized, or radicalized personnel, such as the Lautaro Youth Movement in Chile, or the recruitment of unemployed disgruntled youth in the Gaza strip, or personnel with specialized training or experience suitable to violence are more likely to pursue violence and terrorism” (Post et al., 2002, p.90-91). When a counterterrorism specialist is trying to determine whether a terror network may be recruiting in their area, key indicators include:

1. Individuals with a history of legal conflicts with government or criminal actions;
2. Individuals that demonstrate a history of violent behavior or experience with weapons, including participation in military training, paramilitary or other violent organizations, or violent campaigns; and
3. Individuals with special educational background (e.g., microbiology), or specialized skills (e.g., explosives) (Post et al., 2002, p.91).

Once a group has been discovered as actively recruiting, another indicator would be to look at how selective they are being in their recruiting. “Groups who are a risk for terrorism are more likely to select and screen more selectively” (Post et al., 2002, p.91). One would also want to be mindful of groups that stress such values as “obedience to authority, absolute loyalty to the group and leader and the need for sacrifice” (Post et al., 2002, p.91). Conversely, while a group is screening individuals there will be members coming and also members leaving for any variety of reasons. A few reasons why a member would leave could include disagreement with the new group direction, difficulty to adhere to the strict roles within the group, or a member is executed or expelled from the group for questionable loyalty or security. Sudden losses to an organization could indicate this heightened screening process or an increased seriousness to the goals of the group which could be indicative of terrorist activity. (Post et al., 2002, p.93).

As seen many times in the case studies presented above, trust is a major issue within this lifecycle. Javier Jordan (2005, p.179) even ventures “in general, Jihadis are reluctant to trust converts”. If a terrorist knew someone or a person were suggested to them by a friend, they would be much more likely to work that individual. In the LAX plot, Ressam agreed to work with Meskini because of a suggestion by Haouari, a person that Ressam trusted very much. A large portion of the questioning in Ressam’s cross-examination in Haouari’s case dealt with this fact. (Ollen, July 5, 2001). Likewise in the Brooklyn Bridge case, Iyman Faris was introduced to Osama Bin Laden and Khalid Shaikh Mohammed because of his relationship with Majid Khan. However, Faris was required to perform certain tasks like order sleeping bags with Majid, transport money and cell phones to a given destination and transfer airplane tickets at a local travel agency in order to prove his loyalties. Finally, Yousef asked his friend Murad to help with his plot to destroy American-bound airliners because they had been friends since childhood. Thus it can be surmised that previous relationships and trust are quite crucial to these types of operations.

B. ORIGIN OF TERROR PLOTS

Now that a source of violence extremism is established, the next step is to analyze where these groups establish their ideas for a plot. The reality is that ideas exist because the environment that those ideas exist in is conducive to their existence and proliferation. Ideas are only furthered if they are supported and nurtured. For example, a child who is raised going to church will grow up still going to church because that is what they were taught to support as a child. "Support (at least passive and ideally active) of the population in which a terrorist organization lives is, except in unusual cases, a practical necessity for the organizations survival" (Thomas, Kiser and Casebeer, 2005, p.81). Ideas are supported because a strong belief is sponsored. In general religious extremism is supported by local family and community members (Denny, Post and Sprinzak, 2003, p.172).

Ideas for terrorist attacks come either from lower level members of the terrorist group (a "bottom up" idea) or from the group's senior leadership (a "top down" idea). In terms of a timeline for *plot conception*, the Millennial Bombing was conceived over five to six months. Ressam and other cell members were brainstorming at the Afghani training camps from approximately March to December of 1998 during discussions with Ressam's Algerian cell. As such, this plot is an example of a bottom-up idea. Since they were training in Afghanistan at the time of the plot conception, the cell members found themselves in an environment that not only promoted Islamic extremism; it actually taught individuals how to be successful at it. Towards the end of their training this cell discussed moving forward with one of the ideas they had discussed: an attack on a U.S. airport by using a bomb.

The timeline for the attempt to destroy the Brooklyn Bridge is unknown due to the source of this plot. This plot is an example of a top-down creation; the plot had already been conceived by higher ranking members of Al Qaeda and Iyman was tasked with establishing its validity. Thus this plan, at the time when this case study begins has already moved past conception and into the decision to acquire resources and information on the target.

Operation Bojinka is a top-down plot that was conceived by Ahmed Yousef over a period of approximately one year; the ambiguity lies in the fact that the first World Trade Center bombing took place in 1993 and Yousef was flying to the Philippines by August 1994. Somewhere in that timeframe there was a plot conception and a decision (at the very least) by Yousef to move it to the next phase of *acquiring resources*. Conception of this plot was formulated based on a series of other attempted plots all pulled together under one plan; this type of plot is very familiar to terrorist groups like Al Qaeda. There has been speculation that the idea to crash a plane into a known U.S. landmark was inspired by Frank Eugene Corder who failed to crash his Cessna into the White House only four days before planning began on Operation Bojinka. Additionally, these terror cells are known for thinking big, with many things happening simultaneously. Fred Burton (The Lessons of the Library Tower Plot, 2007), author of many Stratfor publications, states that Al Qaeda is "capable of keeping several plots in motion simultaneously and of adapting to new security considerations on the fly, at least while the core communications and logistics network remained intact". Cells will use past events as inspiration for future plots. Al Qaeda is especially known for using previously successful plans again and again with slight variations on a theme (Burton, The Lessons of the Library Tower Plot, 2007). Homegrown terror cells will be no different; many of them will be looking to the past for inspiration on future attacks.

C. CHARACTERISTICS OF CONCEPTION PHASE

During the initial conception of a plot there will not be as many people involved when compared to later stages of plot development. For the Millennial Bombing, brainstorming began in the Algerian Cell that had been formed at a training camp in Afghanistan. Each cell that was formed in Afghanistan had a leader as well. This man was in charge of providing direction for the cell and approving ideas that the cell may have created. The leader of this particular group in Afghanistan was Abu Doha. Although there are no specifics available on who specifically designed this plot, it is known that it was some section of Al Qaeda hierarchy which would be an inherently small group. Not as much information is documented about the origins of Operation Bojinka, but it is

believed to have been masterminded by Ramzi Yousef relative of Khalid Shaikh Mohammed. In this plot, once the plan was finalized it was all placed onto a laptop for safe keeping.

Before the cell can move into the next stage there must be enough discussion that the cell believes that this is a feasible plot; this means that the cell needs to be assured that it has enough support to complete the task. “The type of support a group receives can range from ideological, financial, and material to operational, including weapons, training, logistics, advisors, and troops. A radical group receiving operational support is a greater risk for terrorism than one receiving only ideological and financial support” (Post et al., 2002, p.95). For each cell, this time frame to reach the point where the cell is comfortable with moving forward with concept is different. In Operation Bojinka Yousef took nearly a year to develop a plot before he contacted childhood friend, Murad, to move to the next stage. Likewise the Brooklyn Bridge plot was created by Al Qaeda hierarchy to form a general plan before consulting any other outside sources. Finally the plan for the Millennial Bombing was thoroughly discussed before it was presented to their leader Abu Doha for approval.

If it is not already apparent, this stage is rather difficult to monitor, since there are not as many players. Furthermore, the cell must wait to move to the next stage until they feel safe that everyone involved in the brainstorming will agree to move forward and that their efforts will be successful. Synthesizing our knowledge of the genesis of these three plots points to a few pieces of critical understanding about terrorist attacks.

First, ideas for terrorist attacks stem from all levels of the organization, from new recruits to senior leadership. In conceiving of terrorist attacks, then, terrorist groups are limited only by 1) the creativity of their members, 2) communication processes through which new ideas are offered to the group, and 3) the limitations on group processes generally credited with fostering collective creativity. “When individuals do not have the necessary expertise, ability, or motivation to generate creative solutions alone, they sometimes find ways, through moments of collective effort, to produce creative outcomes” (Bechky and Hargadon, 2006, p.1). For counterterrorism specialists, then, interrupting communication between group members can reap significant dividends

during the conception process – without feedback from peers on whether a particular idea for a terrorist attack is acceptable, the concept is likely to sit fallow. Second, as Post and others have elucidated, terrorist attacks must be consistent with the ideology of the participating members – i.e., the attacks must seem to fall within the normative values of the cell emerging to undertake the plot development. If the proposed attack is inconsistent with the ideological underpinnings that draw the group together, it is unlikely to be developed further. Between groups, these ideological underpinnings can be varied and inconsistent – for al Qaeda, for example, complex and sophisticated attacks that hit multiple U.S. sites simultaneously becomes the bulwark of action. For Timothy McVeigh, the symbolism of anti-government protest becomes embodied in the selection of the Murrah building as an appropriate target. Counterterrorism specialists thus may wish to explore and understand the ideological underpinnings of the groups most likely to conceive of and execute terrorist attacks; appreciating these ideological underpinnings will assist counterterrorism specialists toward understanding the target selection process. Third, terrorist attacks must be considered feasible by involved group members, which can include lower-level personnel as well as senior leadership. If an attack is considered infeasible, further development of the idea is unlikely to occur. Before counterterrorism specialists create preventive actions for a certain attack, they will want to consider whether that group in question would consider a specific attack plausible. Fourth, terrorist groups are often preoccupied with previous targets (Burton, The Lessons of the Library Tower Plot, 2007; Ollen, July 5, 2001, p.589) and using existing repertoires of action (Tilley, 2006) so in many situations looking to the past may in fact be a blueprint for future activities, counterterrorism authorities will not want to ignore these past events when preparing for the future.

D. DECISION TO MOVE FORWARD WITH CONCEPT

There is considerably more preparation involved with plan conception than with the decision to move forward. This part of the plot's progression is generally a meeting or a series of meetings to ensure that everyone has bought in and they can accomplish their task. Depending on the command and control structure of the group, the decision

authority for moving forward with the concept can vary considerably. Some groups will maintain this decision authority as the senior reaches of the organization, while other groups will allow lower-level units a considerable amount of leeway for conceiving of and planning its terrorist attacks.

The Millennial Plot represents a command and control structure that resembles Mintzberg's simple structure (Mintzberg, 1989, p.111-12). For the Millennial Plot, at some point while Ressam's cell was in Afghanistan training, the cell finished their discussions and submitted their plot for review by the cell leader, Abu Doha. Doha approved their idea to attack an airport in the United States. The specific planning for this plot would commence in Montreal once they had finished with their training. When they left the training camp they were to each travel to Montreal separately and convene at a specific location each bringing a certain amount of money to initialize their planning. Ressam carried $25,000 with him into Canada. When no one else in the cell was able to reach Montreal, Ressam through discussion with Doha made the decision to move forward with the plot.

In contrast, the Brooklyn Bridge plot represented a command and control structure that resembles Mintzberg's Machine Bureaucracy (Mintzberg, 1989, p.111-12). The decision to move forward with the Brooklyn Bridge plot took place within the upper-echelon of Al Qaeda leadership, specifically Majid Khan and KSM in early 2002. However, even though members decided to move forward with the plot, it was agreed that the plan needed further research to see whether or not it was even feasible to complete the attack. Present at this meeting to move forward was Iyman Faris; he would be tasked with providing Al Qaeda with more information on how this attack could take place. As Faris gathered information he was to inform members in Al Qaeda of his progress through coded language.

The command and control for Operation Bojinka seems to also most closely resemble Mintzberg's Machine Bureaucracy with significant hierarchal controls. However, the lower-level agents in the organization were empowered to test some of the technology to be used in the plot (i.e., bombs on aircraft). The plot itself was highly complex, indicated that in order to be successful, some type of divisionalized form would

have been necessary for plot execution. One part of the organization, for example, could focus on placing explosives on aircraft; a second would focus upon placing an explosive device at the U.S. embassy, and a third could focus on attempting to assassinate the Pope. Strong lateral communications and hierarchal leadership would be necessary if resources were to be shared among all the sections, as well as to ensure that the attacks occurred simultaneously for maximize effect. Operation Bojinka moved to the next phase in August of 1994 by members of leadership within the terrorist hierarchy including KSM and Ramzi Yousef. The plot was thought to be finalized after Corder's failed attempt to attack the White House with a small airplane in September of 1994. With this last change implemented and funding through Bin Laden and KSM finalized, the brainstorming concluded and active planning began by bringing on more members with expertise in different areas, a cell was formed. One man that was brought into the cell was a childhood friend of Ramzi Yousef named Abdul Hakim Murad, also a pilot trained in the United States. All other cell members were told to meet in Manila by a given date to begin planning.

The decision to move forward with the concept is a very important part of the terror cells evolutionary progress. During this phase the cell is moving from just an idea to action. According to an official within the FBI, most cells do not move past plot conception. "A lot of these guys lose the jihadi, desert spirit," said the official. "They get families, they get jobs, and they lose the fire in the belly. Welcome to America." (Klaidman, 2003). Many of these cells start because they would like to imagine a place where change and greater things can be a reality. In order to move beyond talking about change to making change they will need to undertake a crucial period of development within a terrorist cell. So what is the major change between talking about horrific ideas to actually performing those actions?

1. Catalyst for Progression

Moving a cell from internally harboring resentment to actively pursuing violent means as a solution to their problems usually involves an outside catalyst, available in a variety of forms. There could have been a recent failed or successful terrorist attack. Fred Burton (The Lessons of the Library Tower Plot, 2007) gives many examples of this type

of catalyst. Another cause for the transformation is a charismatic leader or recruiter strongly encouraging the cell to move forward. Recruitment in terms of this paper refers to not only convincing an individual to join in a group but ultimately inciting action that furthers the goals of the organization. In terms of terror cells discovered in the United States specific people will be brought in to 'close the deal' in their recruitment. This type of recruitment relies "heavily on personal appeals tailored specifically for a targeted individual or small group. They often use peers, including relatives, in making the pitch. This strategy effectively leverages the influential power of conformity (peer pressure) and related phenomena… the power of one-on-one persuasive communication is brought to bear at an individual level, and new recruits can be directly manipulated" (Gerwehr and Daly, 2006, p.83). These recruiters would convince the potential new members through rhetorical argument that the only solution to Muslim suffering is actionable violence.

The first catalyst discussed above that will motivate new members of a cell towards violent action is the presence of an outside catalyst such as a recent successful or failed terrorist attack. Martha Crenshaw (Theories of Terrorism, 1988, p.14) documents a number of catalysts that could produce the extra incentive for a group to move towards executing their idea. "Such an opportunity could stem from the vulnerability and availability of symbolic targets…In turn a prior incentive or ideological direction may lead to a search for opportunity, which determines and risk-prone groups may be adept at creating". Counterterrorism specialists must be sure to analyze the group they suspect independent of other terrorist groups, being aware that certain groups may not be looking to hit a new unforeseen target. Certain groups will use past successes and failures as catalyst for their own attacks.

Whatever belief systems or rhetoric these spiritual leaders had at their disposal they would use to convince new members to switch from being sympathetic towards their Muslim brothers in the Middle East and abroad to being outraged at everything that is happening in the world today. As soon as the leaders could get them to this stage it was very easy to move them to the next phase in the cell lifecycle: *decision to move forward with conception.*

Post (2002, p.105) provides a list of observable indicators of risk associated with a cell that might have a charismatic leader-follower relationship:

1. The group is consumed by a sense of millenarian [end of a millennium] urgency.
2. The followers uncritically follow the leader's directive.
3. The group has charismatic characteristics and the leader has a history of violence or believes that violence is necessary in the pursuit of the leader's goals.

In conclusion some things that counterterrorism authorities should look for in this stage are first and foremost the formation of an operational cell. This means watch for changing trends in local groups through their membership intake or regular publications. If a group is transitioning into violent extremism, it can be assumed that they will need to change their recruiting style. Leaders of the cell will look for individuals that can be trusted. Additionally, they will take their recruitment underground. For example Yousef contacted childhood friend, Murad, to help. Iyman Faris was brought to Afghanistan to be tasked with researching further information an addition to the original cell that conceived the plan.

In order for the plan to move from *conception* to *acquiring resources* there needs to be a meeting and, at least in all cases studied in this paper, have taken place in person. That means that there is a point in the evolutionary cycle of a plot that all parties are present to decide the fate of their idea. The September 11 mastermind, KSM, met with Osama Bin Laden in 1996 to propose the idea of using airplanes as missiles on targets and although Bin Laden liked the idea he was not convinced to fully support it. By 1999, Bin Laden called KSM back to Afghanistan and told him that his idea would be fully supported by Al Qaeda (National Commission on Terrorism Attacks, 2004, p.2). This meeting took place in person because it was such a significant step in the evolutionary process.

IV. PHASE II – ACQUIRE RESOURCES

The next phase in the evolution of a plot is the period spent *acquiring resources* and information on the agreed plan. This is the period of time when the terror cell is planning the exact details of how the attack will be carried out. Each step in the execution of the plot is carefully scrutinized and resources that are needed to carry out each step is acquired. For this phase of planning, the individuals involved will need to be relatively close to their target for research purposes; they will also need to be as inconspicuous as possible. However, for counterterrorism authorities this is also the most observable part of the plot since most resources are acquired and those that are not physically obtained are thoroughly researched.

A. INITIAL ACTIVITIES

The general timeline for this phase varies from plot to plot but generally lasted from a few months to less than one year in duration. For the Millennial Bombing, Ressam began initial resource gathering in early summer of 1999 and concluded around late October making it a total of six months devoted to this phase. Likewise, the 9-11 conspirators were formed in early 1999 and by the fall of that same year were already completing extensive training and research on their target (National Commission on Terrorism Attacks, 2004, p.2). Faris took much more time to reach the same point as Ressam; Faris began his research in April 2002 and concluded in March 2003. However, Faris also had much more difficulty in acquiring resources for his plot and ultimately concluded that execution would be unsuccessful. Finally, Operation Bojinka found that they could conclude resource acquisition in only three months from September to November of 1994.

In the previous phase, *decision to move forward with conception*, the cell will take on field experts in whatever subject area they may need. These individuals, along with the original cell, will be the constituents throughout the resource phase as well. However, it should be noted that in Ressam's testimony he told the court that at the training sessions in Afghanistan he was instructed that as part of typical cell operations, each

member of the cell is to keep their portion of the plan a secret from other members (Ollen, July 3, 2001, p.551-2). The only reason to share information is in the event that one cell member is required to collaborate with another for plot execution. Thus the plot will not necessarily have a single point of failure as it did in *plot conception* since members are now acting somewhat independently of one another; it will also not be entirely evident who holds what portion in plot execution. As J. D. Farley (2003, p.400) stated in *Breaking Al Qaeda Cells: A Mathematical Analysis* "It is not enough simply to seek to disconnect terrorist networks. For although doing so may succeed in creating two clusters of terrorists incapable of communicating directly with each other, one of the clusters may yet contain a leader and enough followers to carry out a devastating attack." This statement is verified through plot analysis of the 9-11 conspiracy. KSM's original pilots Hazmi and Mihdhar did not follow through with the original plan, which was to travel to the U.S. and train to become pilots of commercial airliners. "This failure, however, had little impact on the plot. The setback occurred early enough to permit further adjustment. Al Qaeda's discovery of new operatives—men with English language skills, higher education, exposure to the West, and, in the case of Hani Hanjour, prior flight training—soon remedied the problem" (National Commission on Terrorism Attacks, 2004, p.14).

The acquiring resource phase will have a variety of activities taking place as it progresses. Within the first few months of the 9-11 plot conspirators were learning "basic English words and phrases" (National Commission on Terrorism Attacks, 2004, p.2). In addition, the cells leadership had "showed them how to read a phone book, make travel reservations, use the Internet, and encode communications. They also used flight simulator computer games and analyzed airline schedules to figure out flights that would be in the air at the same time" (National Commission on Terrorism Attacks, 2004, p.2). The cell will need to integrate into their surroundings while also still preparing for the main objectives.

The cell will also want to ensure that it can operate seamlessly in their new environment. As Ressam stated in his testimony, the first step in acquiring resources for the plot is to establish an identity (Ollen, July 3, 2001, p.572-3) and a work location. This

is to ensure fluid movement within the country while also remaining anonymous in action. Ideally they would want to be legal in the country but it is not necessary. Ressam was wanted by immigration while in Montreal working for Haouari, but immigration never found him before he was ready to execute his plot in the United States. Likewise, Iyman Faris had come to the United States under a student visa but never enrolled in a school, a violation of U.S. student visa statutes as well. The cell will generally establish a base of operation; for Ressam, the base was located in Montreal and Vancouver. Yousef based his operation out of Manila, and Faris had to return to the United States where he was able to use his truck driving career as mode to travel to his area of research.

B. SURVEILLANCE AND TRAINING AS CELL TACTICS

Once this base has been established, the next step is to begin surveillance of the target(s) and to acquire resources inconspicuously; this can be considered the most observable portion of a terror cells lifecycle. For example, Iyman Faris took a detour on his truck route to travel to the Brooklyn Bridge to observe security and surveillance precautions enacted at the site. Furthermore, Yousef and Murad rented an apartment up the street from the U.S. Embassy target in Manila and would also be the route taken by the Pope on his visit to this Southeast Asia city. For Ressam, surveillance would not be necessary since in the plot conception he had already concluded that security was lax enough to provide success for the plot. He would be able to figure out an exact location of his bomb simply through a test execution. Thus counterterrorism authorities should be aware that for soft targets, terror cells may be able to bypass this step entirely since it is not always necessary for their success.

Additionally, during this phase, members of the cell will want to consult their field experts for information on acquiring certain resources necessary for plot success. In the Millennial Bombing, Ressam contacted an associate on how to acquire a firearm with a silencer. Ressam also worked with Dahoumane to obtain highly explosive chemicals in Vancouver and used him as a resource for bomb construction. Faris consulted an acquaintance for ways to get a hold of something that would cut through the supports to the Brooklyn Bridge.

"Even groups who recruit, select, and socialize former military personnel still must prepare and train for specific operations, with reference to their specific roles and assignments" (Post et al., 2002, p.92). In the absence of field experts, cell members must use their own means to acquire and learn about a certain subject matter. This is highly beneficial to counterterrorism specialists since lack of expertise often presents a scenario where additional training or as a result accidents are much more likely. "Groups that are more likely to pursue terrorism provide members with training designed to promote military discipline and coordinated group action against opponents. Members must be trained to use weapons, follow directions, and must be prepared for the intensity of violent conflict" (Post et al., 2002, p.92).

Ressam was not familiar with marksmanship and thus had to acquire a silencer with his gun in order to practice without causing alarm. Yousef and Murad had not worked with explosives before and were forced to create and test such items within the confines of their apartment through the only means they had available: trial and error. Furthermore, Yousef had to train individuals to assist him with his plan to assassinate the Pope. "While in the Philippines, Yousef traveled to the Abu Sayyaf base in Basilan and trained about 20 members in 1994. A year later, he gathered about 20 men in Matabungkay, near the capital, Manila, and trained them allegedly to help assassinate the Pope" (Ressa, 2001).

This is also seen in recent cells such as the Northern Virginia Jihad Group who tried to train at a local paintball facility. Likewise the Portland Seven practiced target shooting, paramilitary tactics and martial arts at various inconspicuous locations in Oregon (McNulty, 2006). In the absence of a real training or research facility, cell members are forced to adapt to their environment. As such they will use whatever is available to them such as back-wooded areas that are quiet and undisturbed or a paintball facility where they train as if they are in a real wartime environment. Knowing this, counterterrorism specialists must look at each situation in an analytical way with counterterrorism always in the back of their minds.

C. COMMUNICATION METHODS

Communication during the *acquiring resources* phase is frequent in the beginning but as members get further into this phase and begin to transition to the next stage, communication will begin to wane. Ressam used a pay phone or a pay-as-you-go cell phone to complete all remote conversations with Doha, Meskini or Dahoumane. Additionally, if he were to speak in person with someone he would often use Arabic so that he would not be easily understood by bystanders. In the beginning of the plot, Ressam would talk to Doha to work out details on how he (Ressam) was to execute this plot without the entire cell. Once Ressam moved past those larger details, he no longer needed to check in with Doha as often. However, Ressam did need to discuss his trips to Vancouver with Dahoumane and near the time of execution, he began discussions with Meskini.

Faris also used a coded language to transmit messages back to Afghanistan. This plot, planned nearly eight years later, used email as a medium but the guiding principle remained the same: secrecy is paramount. Faris was told to transmit messages through another individual located in the United States, then that individual would forward it on to Afghanistan. Furthermore, Faris was instructed to never immediately access his email when signing onto the internet, but rather to go to at least one other website first. As for the content of his messages, he was told to refer to the metal cutting tool that would be used to cut through the support cables of the bridge as *gas stations* and the train derailment tools as *mechanic shops*. Thus counterterrorism specialists must be aware that certain words are not being used in the right context even if that specific word would be considered normal for a truck driver to use.

It should be noted that the Brooklyn Bridge attack did not progress beyond this point. Faris experienced a lot of trouble finding out information about the tools needed to complete the task. He was also very skeptical about the plan's success due to the extra security measures present at the bridge. Ultimately, he sent a message back to Afghanistan the said "the weather is too hot" which meant that Faris did not see the plot as being successful given the circumstances. It should be understood though that a large

reason that the plot did not move forward was because of perceived security measures by Iyman Faris. This sense of added security would eventually cause Ressam's plot to fail as well since he tried to flee when border patrol questioned him further at the security gate.

D. INDICATORS OF TERRORIST ACTIVITY

There will also be physical items to be observant of when looking for a terrorist cell; however, depending on when the proposed execution of the plot will be, will determine what items will be acquired. A terror cell will wait as long as possible to acquire resources that are easier to track or that can only be acquired through illegal means. Thus in the beginning of this phase they may purchase things like circuitry or timers (a wristwatch) for the bomb in addition to large amounts of batteries or hydrogen peroxide for explosives. However, the other more explosive chemicals will only be researched by the cell on how to acquire until the date of attack becomes more imminent. Examples of explosive substances that would be bought or acquired at a later date including nitroglycerin, nitrate, sulfuric acid, nitrobenzene, silver azide, or liquid acetone. Each of these substances is highly explosive and thus, when bought in large quantity, may cause suspicion. As a result, the cell will wait as long as possible before purchasing anything of this nature.

Conversely the cell may opt for Ressam's method. He purchased unsuspicious amounts of urea and aluminum sulfate from garden shops while visiting Vancouver in month of November. Both of theses substances can manipulated into highly explosive materials over an extended period of time. This tactic although much harder to track can raise suspicion especially considering that he was frequenting garden shops in the middle of November in Vancouver, Canada.

The only exception to this may be if they can acquire what they need through a third source illegally and without causing any alarm. Ressam did this by contacting a friend to obtain a gun with a silencer. In addition to the gun, Ressam also needed to acquire nitroglycerin which he could not acquire legally. He waited as long as he could to steal it from a farm fertilizer factory in Vancouver with the help of Dahoumane. The

disappearance of such a chemical should raise suspicion for counterterrorism specialists, especially due to the high volatility of this chemical.

In Operation Bojinka, the acquisition of explosive chemicals needed to be expedited since Yousef and Murad did not know how to make a bomb; they were forced to practice within the confines of their apartment. Ultimately this is how their plot was discovered — the bomb they were creating in their apartment accidentally exploded and the fire department was contacted to put the flame out. A chemical fire in a local apartment raised police suspicion and the plot was discovered soon after the police started to investigate the apartment a little further (Department of Transportation, Security of Checked Bags, 1999).

E. TRANSITIONS IN LEADERSHIP

As a result of this phase of the planning there will be a transition from the original hierarchy of the leaders, the original concept holders and financers, to the cell now taking charge of its own affairs. As the cell moves closer to execution, the terror cell's leadership will become much more distant in decision making and financial matters. "Al Qaeda requires terrorist cells to be self-managed and often self-sufficient when it comes to finances…This keeps Al Qaeda's financial sources as discreet as possible while allowing operational cells to deploy without ever giving away information on Al Qaeda's underlying financial network" (Basile, 2004, p.171). We see this in each of the examples provided: Ressam began his initial planning with Doha in order to work out whether or not he could move forward with the plot without the rest of his team. By the time he is ready to go back to Vancouver to build the bomb and then start to travel south into the United States he is adding members to his cell (Meskini) and is now tasking Doha with obtaining items such as identification and passports.

Iyman Faris never reached the end of this phase, thus we only observe his role as researcher. By the time the FBI picked him up was still only transmitting reports back to Afghanistan on his progress. Yousef, in the beginning, was working with his financiers to ensure that his plot would be funded, but as soon as he had the funds began working entirely on his own with the cell he created. The quick transition for Ahmed Yousef could

be attributed to his comfort level in executing these plots; after all, he had just completed the initial World Trade Center bombing a little over a year earlier.

Thus the cell as it enters the next phase — *decision to execute* — will be a largely autonomous cell not requiring the same communication levels as needed in the beginning. However, where remote communication is weak, planning activity will increase exponentially. The cell will begin by acquiring its non-traceable items and then as they move closer to execution they will acquire the more volatile and dangerous resources that are more traceable.

Once a cell has acquired all the resources and has worked out a detailed plan to execute those resources, they will be ready to move into the next phase. While Iyman Faris never reached this point, Ressam and Yousef were able to advance their plot to the point where they were ready to execute. This next phase, albeit short, is crucial; this is the period in the phase where counterterrorism specialists have their last opportunity to stop the progression of the plot; once the plot reaches its execution phase chances of stopping the plot decrease substantially.

F. DECISION TO EXECUTE

The *decision to execute* is another transitional phase like *decision to move forward with concept* that will have a discussion or series of discussions where the cell will reevaluate their progress and choose a course for execution. However, once this second meeting takes place, communication with the cell's hierarchy will no longer be needed. Thus, as a result of this meeting the cell becomes entirely autonomous. This is due to the fact that the last meetings take place to ensure that they can receive any last minute funding and then the cell's only purpose is to execute, they will not need to communicate with their leadership for that.

1. Initial Activities

Ressam contacted Doha to receive some last-minute identification that would get him over the border into the United States. Ressam then contacted Haouari to ask for money to help him purchase his last few resources. Haouari agreed and within two weeks Ressam had everything needed to finish planning the execution of his plot. Iyman Faris

also contacted the individuals in charge of his plot, unlike Ressam, Faris was contacting them to inform them of his decision *not* to move forward with the plot. Finally Yousef and Khalif were supposedly often meeting to discuss financial details about the plot.

Another crucial element in this phase is that cell members will acquire many of the traceable items avoided in earlier phases. This will also be the period of time when test runs will take place. The reason for waiting so long is that these activities are the most observable. Thus, the cell waits as long as possible to perform any actions that may jeopardize the success of their plot until it is absolutely necessary to perform these actions.

The Millennial Bombing was to take place on December 31, 1999. Ressam waited until November before flying back to Vancouver with cash from Haouari to finish out details for his (Ressam's) plot. He met up with Dahoumane to purchase the last of the urea and to steal explosive material from the fertilizer factory. While in Vancouver, he spent two weeks preparing the explosives with the stolen chemicals. Each of these activities had a certain amount of risk associated with it. Thus, it was ideal for Ressam to wait until the attack was nearly ready to be executed to complete those tasks.

Yousef used the same tactic in completing readiness for his plot. He and Murad ensured that they had all the correct resources to complete their plan, but waited until very close to the proposed date of execution to run their test plans. Shah tested the effectiveness of using a bomb under a seat by placing an explosive device in a local Manila theater to detonate at a given time. Additionally, Yousef tested airport security by taking a contact lens bottles through security with a clear liquid that would be nitroglycerin on the day of execution. He also wore extra jewelry to confuse the sensors so that he could put the fuse in his shoe without detection. Once he moved the pieces of the bomb through security, he was able to assemble the explosive in the bathroom of the in transit airplane and ultimately leave it under the seat of a passenger to detonate at a later predetermined time. Ressam, had he made it to Los Angeles, would have used a very similar approach to determine where to place his suitcase bomb most effectively. He had wanted to take an empty suitcase and place it in different locations around the

terminal to see how long it would take to be detected. The actual suitcase bomb would be placed and timed according to the outcome of these test runs.

These test executions are crucial to helping counterterrorism specialists realize that something bigger may be imminent. Every terror plot, although it may be based on a previously tested idea, is new for each situation and environment in which it is being executed. Thus it must be tested for validity in a successful execution. In the 9-11 plot, each pilot before the actual event "flew first class, in the same type of aircraft he would pilot on September 11." From this reconnaissance, the terrorists determined "that the best time to storm the cockpit would be about 10-15 minutes after takeoff, when they noticed that cockpit doors were typically opened for the first time" (National Commission on Terrorism Attacks, 2004, p.9-10).

The almost certain conclusion that one can draw about a plot that reaches this phase is that it will progress directly into the final stage of the evolutionary cycle: *execution of the terror plot*. There is no outside catalyst that needs to take place to make a transition to the execution phase.

V. PHASE III – EXECUTION

Although none of the case studies analyzed achieve this final phase, each was imminently approaching this end. This stage is the culmination of all the other stages. At this point the cell reestablishes its base to the location of attack (if not already there), and will execute what has been thoroughly rehearsed and tested. For the 9-11 conspirators

> The last step was to travel to the departure points for the attacks. The operatives for American Airlines Flight 77… gathered in Laurel, Maryland, about 20 miles from Washington, DC. The Flight 77 team stayed at a motel in Laurel during the first week of September and spent time working out at a nearby gym. On the final night before the attacks, they stayed at a hotel in Herndon, Virginia, close to Dulles Airport. Further north, the operatives for United Airlines Flight 93… gathered in Newark. Just after midnight on September 9, Jarrah received this speeding ticket as he headed north through Maryland along Interstate 95, towards his team's staging point in New Jersey (National Commission on Terrorism Attacks, 2004, p.10).

Once a cell has reached this stage, they are in place and ready to attack. Failures are limited to logistical problems or due to suspicion they are detected during the attempted attack – a role that falls predominantly on law enforcement and security personnel. As it stands now police are already overworked and undermanned. Brian Jenkins in his *Remarks Before the National Commission on the Terrorist Attacks Upon the United States* (2003, p.8) suggests one way of preparing ourselves for terrorist attacks would be to build "more effective local-level intelligence-collection" since "we have great potential at a local level". This is due to a variety of reasons: "local police know their territory. Recruited locally, their composition better reflects local populations…more native-fluency foreign-language speakers…[and] they don't rotate to a different town every few years" (Jenkins, 2003, p.8). Jenkins goes on to explain that New York and Los Angeles Police Departments have implemented intelligence agencies into their units.

New York has created an intelligence gathering and analysis department. Likewise Los Angeles has created departments that come together with federal

intelligence communities to share and exchange vital security information. However, in order to enforce something similar to these profiles nationwide there needs to be support at a federal level by way of “training, common curriculum, and technology…And then they need to be linked do that information could be quickly transmitted across the network” (Jenkins, 2003, p.8). Jenkins (2003, p.8) explains further that many U.S. corporations are already doing this, so the infrastructure is already in use, it simply needs to be implemented now. There are a myriad of advantages to implementing a system like this. First, there will be a nationally supported intelligence community that will be linked, working together for a common goal. Secondly, this will intelligence community will have arrest power, so the intelligence they collect is immediately actionable.

VI. GENERALIZED MODEL

By synthesizing these three case studies and illustrating where patterns have emerged, the following model gives an overview of what those patterns produce in the evolution of a terror cell. Organizational contingency theory, deriving from open systems theory, suggests that regardless of size, orientation or mission, terrorist organizations operate within the confines of their environments and resources. Combined with Charles Tilly's (2006) observations about repertories of contention, it follows that the feasible space of terrorist organizations' actions and behaviors is bounded, and selection of tactics limited. There seems to be reoccurring evidence that terrorist organizations tend to plan simultaneous and large-scale attacks with most attacks being based on previously successful attacks. This is advantageous because it means more evidence and cues to look for. "Killing as many as possible seems to have been the paramount criterion in most of the plans" (Jenkins, 2006, p.185), "although many of the schemes appear to be drawn from the same playbooks as the terrorist attacks that did occur" (Jenkins, 2006, p.203). In the following pages this paper suggests that a plot can be broken down by phases based in environmental cues, the same cues that can be used by law enforcement and counterterrorism authorities to combat terrorist infiltration.

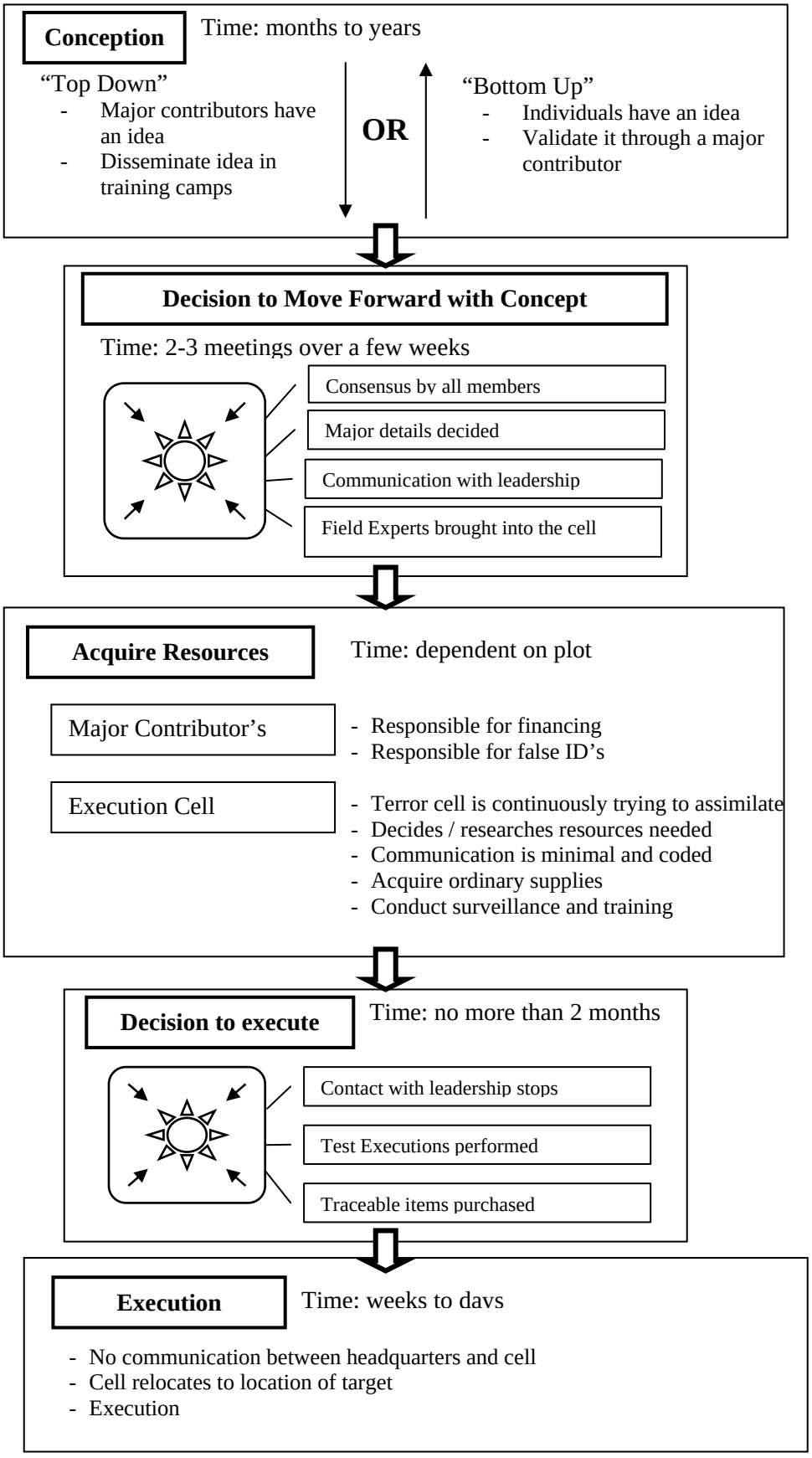

Figure 1. Conception of Generalized Model of Terrorist Attack Planning

A. CONCEPTION

The general timeline for the conception of a plot varies. It will also be dependent on a myriad of factors including who cell consists of and the target. However, we can generalize idea conception to be from one of two sources, bottom-up or top down. In terms of this paper, an idea that *bottom up* conception exists when a member of a cell or an independent member creates an idea initially and then has it approved by a leadership. The Millennial Bombing is an example of this type of plot. Conversely a plot that is *top down* is conceived by leadership of an organization and then delegated to cell members to execute. The plot to destroy the Brooklyn Bridge is an example of a top down plot conception.

During this phase there will be one or more meetings that are usually private and led by a leadership figure. These meetings can take place within the U.S. or abroad, especially at training camps where brainstorming is highly encouraged. From this brainstorming, regardless of source, a rough idea or plot will emerge. There is nothing concrete, just a series of ideas that may or may not be recorded.

There will also be an easily identifiable leader since the cell has not been solidified and members have not committed yet. As such, there are a number of identifiers to cue such a group is being established. This is one of the few times in the lifecycle of a terror plot that the terrorist organization will have to reach out beyond the edges of their group to find members that will help their plot thus making themselves visible to counterterrorism specialists. However, the cell only become visible if one knows what to look for.

Indicators that subversive recruitment is taking place could be observed in the transformation of a group's outgoing communications via pamphlets or brochures. A group that is transforming from a discussion based organization to one that is advocating a more violent or radical viewpoint, is also indicative of subversive activity. Another indicator is the transition of an open group moving towards much more closed and secretive gathering. Often when this happens, large attrition rates and screenings will

take place within the group thus one will also see a transition in acceptable criteria to become a member of the group (Post et al., 2002, p.90).

This is the ideal time for counterterrorism specialists stop terrorist planners since it is the weakest point in the lifecycle of the cells progression, there is a single point of failure present in the recruiter or leader of the cell. New members of the cell have not committed to the plan yet and are still not as dedicated as the leader / recruiter. Also realize there is a tendency by Al Qaeda terror cells to think on a grandeur scale and thus the lack of moderation can be a source of breakdown. The more individuals that need to be brought into a cell's planning means the larger probability of its detection. Finally, counterterrorism specialists need to be aware of the growing connection between terrorism and crime; more and more illegal means are being used to fund terrorist activity.

B. DECISION TO MOVE FORWARD WITH CONCEPT

This phase is crucial in the development of a terror cell, but will not take very long to conclude. It only consists of a meeting or set of meetings that at least in this analysis have taken place in person. There will be very specific people involved with this phase including, whoever the financer (or future financer) of the plan will be, plotters or cell members, and the leadership or management. In some cases one individual may represent multiple roles present in this meeting. For example the leadership of a cell might also be financing their ventures. This meeting will be advanced by a leader to move forward, thus there will still be a single point of failure. By neutralizing the agitator (the individual pushing a decision) or by stopping the financing, all plans must be called off or at the very least postponed.

Additionally, this push for a decision can come as a result of many factors including a charismatic leader or a recent terror plot's success or failure. The most important result of this phase is the general consensus by all members to move forward. At the conclusion of this phase and the onset of the next represents an excellent point of infiltration for counterterrorism specialists, as the terror cell will be looking for field experts in certain areas to help execute the plot.

C. ACQUIRE RESOURCES

This period of cell development does not have an exact length although its beginning and end are specifically defined. The beginning is defined as the point brainstorming concludes and the cell concedes on one plot. It ends when the cell decides all resources are acquired and preparations are complete.

One advantage that counterterrorism specialists have is that this part of the cell lifecycle is the most observable. The cell will concentrate its energies on preparing specifically for the execution of the plot. Time is spent predominantly on acquiring resources, people and skill sets necessary to execute the plan. Additionally, the cell will spend a significant amount of time surveying their target; as such the terror cell will need to move to the location of execution. As such it is hard to pinpoint an exact amount of time needed for this phase. That is dependent on the plot and the amount of preparation needed to execute the plan. However, no matter how much resource gathering or surveying is accomplished, the cells primary goal will be to remain as inconspicuous as possible. The terror cell will be continually trying to assimilate themselves into the population.

There has also been a transition in cell structure by this phase; the focus will be on the terror cell specifically versus management or financers. As a result, the command structure at this phase can be considered much more horizontal as opposed to hierarchal. Generally, each cell member will have a specific role in the plan and will only focus on that role. There is less collaboration between cell members unless a certain portion of the plan overlaps. It is paramount that cell members keep their own secrets in order to preserve the integrity of the plot. There may be residual communication between management and cell but it will be minimized and often presented in coded language so as to avoid detection.

The cell will acquire non-suspicious resources like piping or timers during the *acquire resources* phase. Even though they will not purchase traceable items like explosives, they will at the very least research when and where to buy those items.

Additionally, they will improve their skills such as tactical military training or learning how to fly a plane in the example of the September 11 attackers.

D. DECISION TO EXECUTE

If a terror cell progresses to this phase their chances of actual execution is very high. Furthermore, their success is strongly linked to the efficiency with which they can execute their own carefully crafted and rehearsed plans. This phase, like the *decision to move forward with concept*, is very short, and also quite critical. Once again the cell must agree that they have thoroughly planned and trained and are ready to move forward with the last portion of their plan: execution.

In terms of command and control, the cell will momentarily return to a hierarchal structure before returning back to an asymmetric control structure. There will be contact with the cell leadership and financing to ensure that the group's leadership still wants the plan to proceed. Additionally, there will often be an exchange of money for any last resources — specifically those resources that are considered most vulnerable to detection by law enforcement, security, intelligence, or counterterrorism personnel. They want to wait as long as possible to acquire these items to give counterterrorism authorities the least amount of time to respond to any alerts.

During this phase, there will also be test executions. For example, in Operation Bojinka there was a minor explosion on an airliner to test security. Other common tests are to leave bags or vehicles unattended with nothing in them just to see how long it takes someone to notice.

An interesting aspect to this phase is that once the cell has received approval from their leadership, all communication with those individuals is severed. The cell is now acting as an independent group and will carry out the rest of the plan without external input. Thus when the cell has acquired their last minute resources like explosives and feel satisfied that test executions (if there are any) are acceptable, they will gravitate directly into the execution phase.

E. EXECUTION

The final phase is completed within weeks of the conclusion of *decision to execute* and as stated earlier will have no observable communications external to the execution cell. At this point the cell can be treated as well trained separate entities each completing their portion of the plot within the parameters decided upon during earlier phases. This phase can be likened to a well-oiled machine; there is no need for discussion or preparation, only action. Counterterrorism specialists must now rely on preventative security measures already in place to stop terrorist attacks.

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VII. IMPLICATIONS FOR THE FUTURE

The 2006, Uniting Against Terrorism Conference proposed a broad solution to combating terrorism, presented in a compact list:

- Denying access to financial support
- Denying access to weapons
- Denying access to recruits and communications by stopping internet use
- Denying access to terrorist travel
- Denying access to terrorist intended targets

It may seem rather simple to state this list since there are so many things that terror cells can do to combat our attempts to deny access. Before the 9/11 attacks, the United States had terrorists entering our borders from other countries; today a rising concern is the possibility of homegrown, self-directed terror cells. Homegrown cells have an advantage in that they typically do not need to rely on false identification to function within the U.S. borders. Additionally, terror networks are learning to avoid technology that is traceable such as cell phones and email. Finally, it is difficult to follow the financing of terror plots since many of these cells are becoming self-financed versus money being sent from outside sources. However, the reality is that we can control what see and observe, and if a counterterrorism authority knows what to look for then they will be much more effective.

As we move forward in our pursuit of terror cells within and outside the United States we are confronted with several major obstacles. The director of the FBI said it best, “We don’t know what we don’t know” (Klaidman, 2003). Although some of our intelligence communities are able to bring in information, parse it and send it back out at incredible speeds so that action can be taken on that information. Other agencies like the FBI are not set up as efficiently and thus there is delay in response time between receiving intelligences and being able to act on that intelligence. (Suskind, 2006). The model presented in the previous chapter was created to reduce the search space for domestic organizations.

The question now becomes: what are the implications for future counterterrorism efforts given this model and the patterns gleaned from the three case studies used in this paper? The following details observables for counterterrorism specialists for each stage of the model.

A. PHASE I: CONCEPTION

From these three cases, observables for which counterterrorism personnel should focus on primarily are that terrorist's tend to recruit and plan in areas where they feel comfortable and safe. This will be especially true if that area has community members supporting their ideas such as areas where social conformity and trust between community members is very high. Counterterrorism personnel will need to be mindful of areas where terror cells or sympathizers have been located in the past or where known extreme ideological groups reside. Additionally, counterterrorism authorities will want to monitor for a group that changes from discussion-based to becoming increasingly extreme in their solutions to discrepancies. This type of transformation is a strong risk indicator for counterterrorism authorities to take notice of.

Additionally, "Moderation frequently has been the element that has made the difference between success and failure for Al Qaeda operations" (Burton, The U.K. Plot, 2006). The goal behind organizing and executing terrorist activity is to achieve a level of fear among their targets, thus terror cells will want to make a statement, and so the probability of going big is higher (Burton, The U.K. Plot, 2006). This is ideal for counterterrorism specialists since they can use this fact to their advantage. "With every person who is brought in on a secret, the risks of detection or infiltration of a cell increase. Given the large number of arrests that have been made in the U.K. case, and the fact that authorities believe as many as 50 people perhaps were involved in the plot, it is not surprising that operational security was compromised" (Burton, The U.K. Plot, 2006). Also with an expected increase in homegrown terrorism there will not be the same precision and experience of having Al Qaeda leaders providing guidance and lessons learned.

In all three cases, there was a leader guiding the discussion. “An effective identity entrepreneur can create identity where none exists, or can magnify identity in such a manner as to create nostalgia for a greatness or stature that may have never existed, or can manipulate or distort identity to a point of convincing his audience that their identity is synonymous with victimhood, injustice, and discrimination” (Thomas, Kiser and Casebeer, 2005, p.86). The terror cells that have been recently discovered in the United States, including the Virginia Jihad Group and the Portland Seven, the leader is generally a recruiter (McNulty, 2006). Thus they have been trained to gain the trust of members so that members will brainstorm openly.

Given this ambiguity, there is one encouraging aspect: a plot in its infancy of conception generally has a single point of failure, especially for homegrown terror cells that are not directly connected with a terrorist organization. This is because for a homegrown terror cell there is usually one person (or at least a minimal number of people) guiding the discussion at this phase. The final cell that will execute the plot has not been created and members have not bought into the idea yet. The leader of this group, usually a leader within a mosque or religious center, will hold offsite meetings to brainstorm and encourage members to commit themselves to furthering Islam.

> A change in the pattern of the radicalization process and that those responsible for the change are taking extra precautions, including appearance in limited circles in marginalized Islamic activity or Islamic centers such as: home gatherings, country clubs, libraries, and schools. This pattern of activity is quite difficult to detect when dealing with a limited cell, although it is evident that the leader of a terror cell will search for his potential recruits in this type of environment (Azani, 2006).

These cells are aware that they are being watched and are taking the extra precautions necessary to ensure that they are successful.

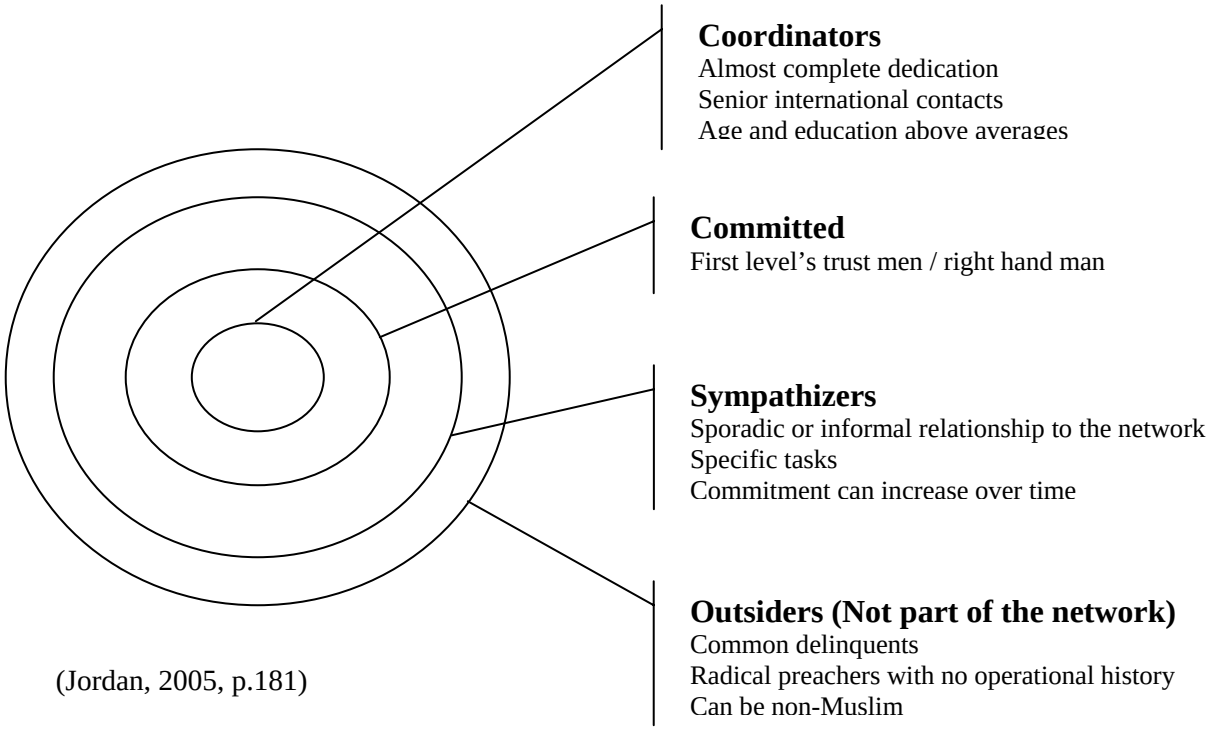
There are number of additional items that counterterrorism specialists should be aware of as indicators to terrorist activity in this phase. First, most cells are now establishing their own means to finance plots. According to authors of Warlords Rising, terrorist “almost always raise funds through illegal means” (Thomas, Kiser and Casebeer, 2005, p.83). Illegal means are the easiest way to do this. For example “it has been

established that the attacks" carried out in Madrid Spain in 2004 "were financed largely by money from drugs trafficking in North Morocco" (Jordan, 2005, p.175). In the Millennial Bombing, Ressam's cell was a group of poor Algerian robbers who worked for a man to steal from the tourists of Montreal. Additionally in Los Angeles there was a raid of car burglary fraud that was discovered to be financing Chechen Terrorist activity in the Republic of Georgia (Block, 2007). "This case was a breakthrough in that what we found didn't look like terrorism: it looked like regular criminal activity but when we followed it long enough it developed what we believed [was] a nexus to terrorism" (Block, 2007). Thus, one avenue for counterterrorism authorities is to look for areas with increased reports of theft of identification, money or computers. Ressam's cell acquired false identifications to use for their own gain, but also stole identifications, social security numbers, money and computers from tourists so that he could sell these to fund his plot.

B. PHASE II: DECISION TO MOVE FORWARD WITH CONCEPTION

A cell will move to the next stage once active planning of details within the plot begins. General finances for the plot will be established such that base expenses will be covered and initial research can begin. This is crucial. A cell can not move forward if they do not have the money. Ramzi Yousef, the mastermind behind the initial World Trade Center Bombing "told his captors that his plan … might have succeeded if he'd had more funding" (Hirschkorn, 2003). In fact, theories suggest that is the reason that Yousef chose to operate in the Philippines after his failed attempt at the World Trade Center – there was more funding in the Philippines. "The success of this financial network created by Bin Laden, intelligence officials believe, was the reason Ramzi Yousef chose to operate a cell in the Philippines. 'He came here [the Philippines] because of an existing support network and structure,' Col. Rodolfo Mendoza tells CNN" (Ressa, 2001). Ressam was given $25,000 before he returned to Canada and Yousef could not fly to Manila before Osama and KSM had approved finances. Like Ressam's cell, José Padilla also returned to the U.S. from a variety of Middle Eastern countries with a large amount of cash hand-carried on the plane with him.

Additionally, new members of the cell will be brought in as field experts for certain portions of the plot. This is a very important aspect at this stage since it will be a point of infiltration for counterterrorism specialists. After KSM and Bin Laden had their meeting in 1999 to move forward with the 9-11 plot "Bin Laden quickly provided KSM with four potential suicide operatives" that already had visas to enter the United States with (National Commission on Terrorism Attacks, 2004, p.2). Javier Jordan describes a diagram that illustrates the layers of a terror cell in terms of circular shells:



(Jordan, 2005, p.181)

Figure 2. Layers of Terror Cells

With this diagram Jordan describes operational cell member (the individuals that will execute the plot) as levels three and four in the diagram. Thus this diagram shows the inherent advantages and disadvantages for terrorist organizations. "An advantage is the enormous difficulty security agencies face in infiltrating the center to obtain quality preventative intelligence and the contents of the international relations of the network. The disadvantage consists in that exterior circles are vulnerable to infiltration and detection. From these circles, it is possible to ascertain who inhabits the inner circles, and

these could be arrested" (Jordan, 2005, p.184). According to Jordan this is the reason the Madrid cell was dismantled (Jordan, 2005, p.184). Clearly outlining an advantage for counterterrorism specialists since these networks, in order to survive, must keep their exterior open. Terrorist organizations "are obliged [to] fulfill: propaganda, recruitment, logistical support or terrorist activity preparation" (Jordan, 2005, p.185) and the only way to do this is by allowing their outer shells to be infiltrated by new members. The downside of course being that there is still great difficulty in obtaining the initial intelligence that would make a counterterrorism specialist suspect terror activity.

Terrorism is suspected and infiltration possible, one should be aware that there will most likely be a process by which trust is built. This could take place through a series of conversations between new members and old, such was the case with Ressam and Meskini in the Millennial Bombing. Trust could also be established through a series of activities that must be completed like when Faris met with Al Qaeda operatives in Afghanistan. Faris was tasked with ordering sleeping bags, extending tickets and delivering a bag that contained money and cell phones.

No matter how trust was established, each plot had new members brought in at this stage. In Operation Bojinka, Yousef's friend was contacted since he was an American airline pilot and such expertise would be needed in the Bojinka Plot. Iyman Faris contacted an associate that was familiar with cable cutting torches to help him acquire such tools. He established these contacts while keeping in constant communications with his original cell which consisted of members in Al Qaeda leadership including KSM and Majid Khan. Finally, Ressam used Dahoumane as an assistant in Vancouver to steal explosives and build the bomb later in the process. Ressam also stayed in contact with his original leader from Afghanistan, Abu Doha, as a source of information and false identification.

Additionally, there were a number of similarities that emerged from these plots that highlights patterns that exist in the conception phase. First and foremost, the *plot conception* phase is the weakest part of the cell formation. Many cells do not make it past this point. If counterterrorism authorities had an ideal time to stop a plot, this would be the phase in which to most easily deter progress or apprehend suspects. There is usually a

single point of failure since the largest driving force is the leader. This source of motivation pushes hedging members to be more confident so that they move forward with active planning. The cell is still in its infancy, so individuals are still unsure of themselves and their compatriots. Now is the easiest point in time to infiltrate a suspected terror cell. Planning at this stage usually takes place in person at a location where cell members feel safe and secure. This is to create an environment where frequent meetings can exist to support open brainstorming and ultimately decide on goals for the cell.

C. PHASE III: ACQUIRE RESOURCES

There are a number of things that counterterrorism specialists should be looking for as a cell progresses to phase three: *Acquire Resources*. The first part of this phase will include a lot of surveillance as the cell continues to refine their plot. Early on in this phase counterterrorism specialists will look for suspicious individuals or just the same individual showing up to a site day after day. According to Mr. Holschen, Regional Manager of Triple Canopy (2007), "Surveillance is where we usually detect terrorists", he continued to explain that this is where they are most observable and it is the weakest part of their lifecycle. Thus it would be advantageous for counterterrorism specialists to know that terror cells are forced to survey and in doing so they create a scenario that makes them observable and accessible.

Additionally, if members of the cell are not U.S. citizens then it can be expected for the cell to thrive on fraudulent identification. Identity theft is a growing problem in the United States and does not appear to be on the decline (Identity Theft Resource Center, 2007). In the Millennial Bombing and Operation Bojinka members of the cells frequently used false identification. Additionally, in each scenario there were other key individuals that the terrorist used to supply their false identification and travel. From the law enforcement perspective, additional public training and education need to support and encourage the reporting of stolen identities. If identify theft victims know to report stolen identities with local police reports this will better enable law enforcement to "red flag" that ID. This will now act as a deterrent to this particular stolen identity and will further deter individuals trying to steal identities from continuing in this line of work.

Additionally, there needs to be more control on immigration laws, Ressam and Faris both functioned within their respective societies for years without ever being detained by immigration. Having a functional false ID makes it very easy for terrorists to move in and out of our society. By making this aspect of their plot more difficult it will slow or may even stop the process entirely. The goal of any terror cell during this phase is to operate fluidly but inconspicuously as plans and resources are finalized, anything that could jeopardize their anonymity would greatly hinder their progress.

With the threat of homegrown cells higher than ever there is a silver lining - many of these were not specially trained in terrorist plots or attacks. When constructing the original cell, the terrorist will attempt to acquire field experts that will support the ultimate goal of their attack. However, anything that can not be performed by current members at this stage will need to be learned. Iyman Faris had no idea how to acquire metal cutting blowtorches or train derailment tools – he was forced to talk to an acquaintance that he barely knew to get more information. Yousef and Murad accidentally blew up their kitchen while trying to construct their explosives. In other cases, like the Northern Virginia Jihad Group, members were seen performing tactical training exercises at a local paintball facility. The Portland Seven trained in martial arts, firearms, and paramilitary tactics at myriad rural areas around them. These homegrown cells although elusive can be detected. These cells will need a more time and training in order to be effective and this is a clear counterterrorism advantage that can not be overlooked. Furthermore, counterterrorism specialists will want to watch for fires / explosions in remote or unpopulated areas or civilians inquiring or practicing military training exercises, these are all possible indicators of cell planning.

Based on the cases analyzed in this paper, one can develop a list of patterns to look for:

1. Unusual purchasing patterns, good examples include Ressam’s interest in agricultural fertilizer and Yousef’s large amounts of acquired explosives.
2. Unusual interest in products or supplies like Iyman Faris’s search for cable cutters and train derailment tools.
3. Missing or stolen supplies like Ressam’s stolen chemicals from the agricultural plant in Vancouver.

4. Attempts to buy commercial / industrial / concentrated products like Faris' interest in tools used on large bridges or Ressam's interest in large scale farming fertilizers.
5. Unusual activities taking place in inconspicuous or unordinary locations such as the Virginia Jihad groups training at the Paintball facility or the Portland Seven's paramilitary training in backwoods areas.
6. Individuals with unusually large sums of cash on them which Yousef and Ressam operated on almost exclusively.

Each of these may not necessarily mean a terror cell is present but these are strong indicators. For homegrown terror cells, the conspirators will face a very similar problem and will be forced to work through trial and error while acquiring all of their own resources for their plot. In the CERT (Community Emergency Response Team) training manual provided through the Department of Homeland Security, DHS cautions local law enforcement to be suspicious of things like

- Out of place and unattended packages, boxes, or vehicles. Terrorists have a long history of hiding explosive devices in packages, boxes, or vehicles. Items that are out of place and unattended could signal a possible terrorist attack.

- Packages that are leaking may be harmless—but they may also signal a terrorist incident. The terrorists who released Sarin in the Tokyo subway system (Aum Shinrikyo) merely poked holes in bags containing Sarin, then left the area as the poison leaked out.

- Materials or equipment that are unusual for the area. Dispersal devices, lab equipment, or quantities of hazardous materials that are not typically located in the area may indicate that a terrorist attack is occurring or is about to occur.

- Small explosions that disperse liquids, mists, or gases are an obvious sign that something is wrong.

- Unusual odors or tastes
(Human Technology Inc, 2003, p.8-7)

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In general the CERT manual warns "Being aware of what is not in the environment that should be is as important as being aware of what is in the environment but is out of place" (Human Technology Inc, 2003, p.8-7). The above list contains physical or environmental factors that counterterrorism specialists should be aware of.

However, Post (2002, p.92) also details behavioral factors that could be equally as indicative of subversive training activity:

1. Group members appear in known terrorist training camps, sites or organizations.

2. Group members train in operational skills such as tradecraft (e.g. surveillance, counter-surveillance, and secure communications), weapons and explosives.

3. The group engages in operations such as bank robberies, thefts, kidnappings requiring skills similar to terrorist operations.

An essential part of planning is constant and reliable communications, something that also creates observables for counterterrorism specialists. As the plot progresses communications styles will change. The beginning of this phase will have many discussions with the cells leadership. As the cell becomes more trained and better prepared for execution the communication with cell leadership will wane. This is due to the fact that as the cell gets closer to execution, it will become more self-reliant and better able to make its own decisions on how the attack will be carried out. Furthermore, any communication that does take place whether that is between cell members or cell leadership will not be open. The communication methods used will be carefully placed and often coded so that messages can not be easily understood by onlookers or an eavesdropper.

In general, counterterrorism specialists need to think in a broad encompassing view, something seen in isolation gives an entirely different viewpoint than when taken in context of the larger picture. For example, flight instructors from the Venice Florida training facility that trained three of the 9-11 conspirators “described Atta and Shehhi as aggressive and rude, and in a hurry to complete their training” (National Commission on Terrorism Attacks, 2004, p.6). Additionally, “according to their flight instructors, Hazmi and Mihdhar said they wanted to learn how to control an aircraft in flight, but took no interest in take-offs or landings” (National Commission on Terrorism Attacks, 2004, p.14). This seen in hindsight suggests of information that was not even conceivable before 9/11.

D. PHASE IV: DECISION TO EXECUTE

In this fourth phase, counterterrorism specialists should be cautious of smaller acts of violence. Many high profile plots always begin with a test execution. The list provided above by the CERT training manual cautions against sightings of certain environmental conditions. Those conditions could be evidence of the previous phase (training exercises) or this phase (test executions), either of which should be cause for immediate action by counterterrorism authorities. For example the attack on the USS Cole was preceded by Al Qaeda operatives with an attack on the USS Sullivan. "Al Qaeda has repeatedly demonstrated its ability to test — and then return to — strike plans. For example, the attack against the USS Cole in October 2000 was at least the second attempted suicide strike against a U.S. naval vessel that year; the first was a failed attempt against the USS Sullivan in January" (Burton, The Lessons of the Library Tower Plot, 2007). In the case studies being analyzed in this paper that came in the form of an explosion in a local theater and a smaller explosion on an airliner in Operation Bojinka. Additionally, Ressam given the opportunity would have left an empty suitcase inconspicuously around the Los Angeles Airport to watch response times of employees and bystanders (Ollen, July 5, 2001).

Furthermore, the disappearance of dangerous chemicals or strange purchasing patterns of any substance that in large quantity could cause harm should prompt further investigation. This phase has a large escalation component from previous phases, so there is considerable room for accidents or detection. It is imperative for counterterrorism specialists to think in a broad sense, because being able to see the larger picture may mean the difference between isolated incidents versus observing components of a larger plot.

E. PHASE V: EXECUTION

A cell at the *execution* stage will likely function as a well-trained, dynamic team. Each person in the cell has a role and completes that role independent of what other cell members are tasked. There will be minimal communications to trace and there will be no

need for monetary transactions since at this point all resources are in place. The only opportunity that counterterrorism specialists may have is that something suspicious draws their attention at the time of execution.

The question becomes, '*what is suspicion and where does it come from?'* Elliot Grollman, member of Washington's Law Enforcement Working Group on Weapons of Mass Destruction (2007), in a recent personal interview described it as a "gut feeling and you can't ignore that…You've got to go by behavior". When the plan is in motion there is nothing left to act on but instinct itself.

Ressam was on his way to pick up Meskini to transit to the execution location when border patrol became suspicious of Ressam's behavior. Shortly after he was detained, explosives were discovered in the trunk of his vehicle. Likewise Yousef had tested everything to ensure that his plot would be a success but was discovered when a chemical fire started in the kitchen of his Manila apartment. Local authorities became suspicious of all the apparatus and chemicals in his apartment. Police eventually discovered the plans for the destruction of twelve airliners on a laptop that was left in the apartment after Yousef fled.

At this point in the lifecycle of the terror cell it is literally do or die and we as citizens are entirely dependent on local counterterrorism authorities (police and first-responders). Thus it is imperative that local law enforcement be as informed and prepared as possible. This can be achieved in a variety of ways: creating local intelligence agencies that will collect, analyze and disseminate pertinent intelligences to local authorities as New York City Police Department has implemented. Likewise, a department could follow the Los Angeles Police Department model and create a joint task force with federal intelligence to create a constant dialogue that supports both entities. No matter what is put in place, any intelligence is better than none at all since local law enforcement know what looks right for their area. More often than not these officers have grown up in their community and know the people and day-to-day business of their town. As such a local officer will be much more likely to observe suspicious activity than a remote intelligence officer would. Making that local department as prepared and informed as possible is paramount.

F. CLOSING REMARKS

"The relationship between nascent non-state organizations and the environments that create and nurture them remain largely unexplored;" however, we know that "organizations must interact with their environment to survive; it both consumes resources and exports resources to the environment" (Thomas, Kiser and Casebeer, 2005, p.xi, 11). These resources are all evidence that can be used by counterterrorism specialists to detect and deter plots within their environment. This paper takes a closer look at the relationship formed between a terror cell as it progresses through conception to execution and the impact that it has on the environment it exists in. Through the analysis of three major thwarted terrorist attacks we can discern that as a cell moves through its environment it leaves a trail of patterns. By evaluating those patterns and commonalities between cases I have created a notional model of the lifecycle of a terror cell into five main phases, as outlined above.

Each phase is distinct, unique and touches different elements of the Counterterrorism structure. The initial phases of a terror plot will be much more dependant on intelligence communities since at this point in time the cell is in its infancy and there are only a few key figures involved. The main activities taking place include general brainstorming and the formation of a cell. There will not be a lot of actionable indicators at a local level whereas intelligences may be able to track the terrorist recruiter that has now moved into that area or communication trends in certain groups.

As the cell moves into the third through fifth stages there will be more physical indicators in the local area of the cell since the cell will be surveying and training in the area of attack, acquiring resources, and performing test executions. Thus as the cell progresses from an idea to an actionable plot it will become incumbent upon local law enforcement to be aware of suspicious activities in their areas of expertise.

Thomas, Kiser and Casebeer (2005, p.23) pose an intriguing question in response: "One way of preventing niche construction on the part of a developing VNSA [Violent Non-State Actor] would be to ask what affordances would this organization strive to make a part of its environment?"

The analysis of these case studies highlights what those affordances might be, and thus highlight patterns that will support the goals of counterterrorism authorities. Some of the patterns that emerge from this analysis include a growing relationship between terror cells and crime rings, the overwhelming dependency on fraudulent identification and other stolen goods, transitions in leadership as the cell progresses, the use of coded communication methods between cell members, and the realization that every cell no matter the plot must survey its target in some fashion.

"Where as once we would have caught a robber red-handed and that would have been enough to satisfy the legal case, we now have to stop and ask ourselves, who is this robber? … Is he stealing to feed a drug habit? OK, who is he buying his drugs from? Or is he robbing to raise funds to buy guns for a gang? Which gang? Who are his associates? Or is he part of organized crime or something else? The aim is to drill down into crime to get a complete picture of the crime landscape in your community."(Block, 2007) Chief Barton from the Los Angeles police department explains the issue of fighting the war on terror within our own country quite well in this previous quote by highlighting the growing connection between crime rings in our country and terrorism on an international scale. As a result of this paper a law enforcement officer or an intelligence analyst can now look at a situation and know what to look for. Furthermore, given certain feedback from the environment they will be able to see how progressed a certain plot may be.

One thing that seems to be a recurring theme in terrorist activity is the use of fraudulent id in order to acquire resources both legally and illegally. Terror cells, by the very definition of their mission, need to travel. They must travel to communicate, train, acquire resources and plan, the only easy way to do this in today's society is through fraudulent identification. In two of the case studies there was travel to or from Afghanistan for a meeting or training. Additionally, upon their return to the United States Faris and Ressam each brought a large amount of cash with them to start their resource acquisition phase. In Ressam's case, he also brought back chemicals that would later be used to construct a bomb.

Every terrorist group analyzed in this paper and most terrorism cases include travel from one location to an execution destination. Aydinli, author of *Searching for the*

Global Jihadists' Achilles Heel (2006, p.302) warns that we should be careful to only rely on money trails that are produced by these terror cells, but rather what that money trail supports. "Traditionally, terrorist groups have tended to view money-making as an essential collective effort…to raise money for the group's operational costs. Not only do such money-making endeavors become an integral part of the group's activities, but such a comprehensive system generally leads to established methods and routes…both greater opportunities for counter-terrorists to track down the money, and often significant results when they do". Additionally, Aydinli explains that there is "continuing misconception of bin Laden and, subsequently, Al Qaeda, as being financially limitless…costs are kept low both through the methods used and the general frugality of the terrorists" (2006, p.303).

He suggests a better mechanism to track terrorist activities is their inclination towards transnational mobility; it is the very basis of their movements and belief. Terror cells want to make the biggest impact possible with each attack, thus bringing the attacks to U.S. or other Western nations will be ideal. In order for a cell to achieve this they will need to have the ability to travel here, get inside our country and operate freely within our borders. "If mobility is accepted as essential for successful operation of Jihadist terrorist network, and travel documents are clearly the tools with which the states can monitor such transnational mobility, it is essential to seek ways of coping with the dilemma that these key tools can be forged and manipulation techniques" (Aydinli, 2006, p.307). This is something that counterterrorist know terror cells will rely on and use, thus the prevention of fraudulent identifications and the enforcement of border control will be essential to our success in this war on terror.

Once the cell was in place they would transition in leadership and begin to use a more coded and secretive communication methods. A plot, no matter its origination, would be approved and initially funded by a source. However, as the cell becomes more independent and self-reliant, the leadership will transition from an outside source to an internal hierarchy that is much more asymmetric in nature. Ressam's cell needed initial approval from Abu Doha, but once the cell was into the *acquiring resources* phase, Ressam's communication with Doha was discreet and becoming significantly less frequent. Likewise, Yousef had initial discussions with KSM and other Al Qaeda

leadership, but once he was in Manila the cell become much more autonomous. As the cell moves toward execution it will make its own decisions on how to accomplish logistic issues; outside leadership is no longer necessary and as such it spawns a change in leadership from external to internal.

Additionally, the cell will move to a more guarded and secretive communication style. As the cell progresses its communications with members outside the cell will wane and any communications that take place will make use of ciphered language. Iyman Faris used a language that was given to him by his superiors such as gas station for metal cutting torches or a mechanics shop for train derailment tools. This is not the first time we have seen coded language, other cases have used coded language as well. (Suskind, 2006, p.155-57). Ressam would just speak in Arabic if he did not want to be understood.

Finally, realize that any terror plot will need to survey the site before attacking it and this is a major weakness in their progression. It is hard to survey a target without repeated and careful observation, something that makes these cell members readily observable. This can be highly beneficial to counterterrorism authorities. Ressam noted that when preparing for a terrorist act there is a number of precautions that can be completed to ensure their own success. These things included practicing to look like a tourist so that one can spend as much time as needed surveying their site of attack. Also when working within the cell, one must take care to preserve their own secrets from other members. Thus each person in the cell is operating on a need-to-know basis. Finally if speaking on a phone, ensure that you are using a controlled and normal tone so that eavesdroppers are not likely to take notice to your conversation. If that does not work then just speak in a different language. (Ollen, July 3, 2001, p.551-2)

Counterterrorism specialists need to rely on their gut feeling of suspicion and always be aware of what is taking place within the environment they exist in; to realize something abnormal is taking place. These specialists have the advantage that they are experts in their own field, they know their area and what normal operations look like; terrorists do not have this benefit. They are coming in from another area and trying their best to blend in, but an expert will be able to tell the difference.

In general we see that information provided to counterterrorism authorities is extremely dependent on connectivity and information flow. “The government’s so called war-on-terror is about making friends” (Suskind, 2006, p.48). In order to be successful in our attempts to combat the war on terror there needs to be an emphasis on ensuring that information flow is frequent, stable and secure from the top most member of the CIA down to the law enforcement officer in the New York City subway. Being able to rely on information cues in the environment means that someone has to be there to observe such changes, thus if one person observes something out of the ordinary he needs to be able to inform anyone necessary to ensure that the proper response is completed in enough time to make a difference. This type of response can only be accomplished when communication pathways are open and frequent.

In each case study there is a certain progression with the cell development and known weaknesses for that stage. By realizing that certain weaknesses exist, counterterrorism specialists can use that information to their advantage to exploit that stage limitation. In order to be successful with terrorist attacks there needs to be an increase in communication and a realization that each phase brings different aspects to the forefront. Counterterrorism specialists will need to consider each stage in terms of how they can affect that phase. Each step in the process of a terror cell lifecycle brings with it different cues within its environment, as such each phase requires a different set of counterterrorism tools, expertise and authorities. Mr. Grollman, member of Washington’s Law Enforcement Working Group on Weapons of Mass Destruction (2007), in a recent interview said “Sharing information is critical, communication is critical”.

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