U.S. Army National Ground Intelligence Center

Date of Publication: 2010-03-31

(U) Complex Environments - An Alternative Approach to the Assessment of Insurgencies and Their Social Terrain, Part 2: Constraint-Based Analytic Procedures

(U) Purpose

(U) This assessment offers and explains a new set of analytic procedures for assessing the behavior of local populations (LPs). It is based on the approach set out in (U) Complex Environments - An Alternative Approach to the Assessment of Insurgencies and their Social Terrain, Part 1: Identifying Decisive Factors. The procedures identify and analyze LP behavior in a way that facilitates the capability to target and to alter the influences that make the behavior likely. The procedures are designed to achieve both the short-term goal of minimizing undesirable behaviors and the long-term goal of encouraging desirable behaviors, particularly by improving the ability to derive decision advantage[a] from LP intelligence.

(U) Army and joint doctrine on intelligence preparation of the operating environment (IPOE)[b] advises ground forces to evaluate enemy courses of action (COAs) in terms of the enemy's physical setting and available resources, the COAs' consistency with doctrine and preferred/past practices, and so on. Conventional analytic approaches have often been clumsily adapted to insurgencies and other problem sets in which the LP decisively influences mission success, with culture, ideology, or traditions often used as placeholders for environment, doctrine, and preferred practices. These adaptations are often ineffective because LPs often operate differently than a combat force. This assessment offers systematic procedures for assessing LPs in the absence of doctrinal templates or command-and-control structures. The procedures can be used in any setting in which the LP influences mission outcomes.

(U) Intelligence on individuals or groups, no matter how extensive, generally fails to provide the insight necessary to make appropriate decisions about LPs. Instead of attempting the imprecise and insurmountable task of trying to know everything about an LP, resources can be economized by focusing attention on reducing uncertainty about those things that are already known to be important. This approach not only improves assessments of disruptive movements' abilities to emerge and sustain themselves within specific populations but also improves the ability of counterinsurgents to operate efficiently and successfully within those populations.

(U) The procedures explained in this assessment address various National Intelligence Priority Framework topics and CENTCOM Priority Intelligence Requirements. Details about these topics and requirements have been removed from this document in order to facilitate dissemination. For information about which topics and requirements this assessment addresses, please contact the author.

(U) Key Points

- (U) Analysis of constraints—limits on what behaviors are possible or desirable in a given setting—accurately assesses LP behavior by incorporating a scientific understanding of how the human brain processes information. (High Confidence)[c]
    - (U) There are two types of constraints: those that limit capability and those that limit intent. (Moderate Confidence)
    - (U) Each constraint has discrete features that influence behavior regardless of a

person's background, worldview, culture, or contextual setting. (Moderate Confidence)

- (U) The number, type, and arrangement of constraints within an LP are that population's social terrain, which influences people's behavior in the same way that physical terrain influences a military force. (High Confidence)

- (U) Procedures for analyzing social terrain use available intelligence to construct accurate, actionable forecasts and explanations of specific LP behaviors. (Moderate Confidence)
  - (U) Social terrain analysis (STA) procedures target constraints in support of behavior-modification operations. (High Confidence)
  - (U) STA procedures include standardized methods for calculating confidence estimates and measures of effectiveness. (High Confidence)
  - (U) STA assessments are structured to directly incorporate new information about an operating environment as soon as that information becomes available. (High Confidence)

(U) Source Summary Statement

(U) This assessment relies on the established body of findings within the brain sciences, such as neurophysiology, cognitive neuroscience, and behavioral psychology. *These findings are not cited here because their technical nature makes them of little direct use to operators and analysts.* However, these sources are all available from the author upon request, and Appendix D includes a sample of some of the more accessible sources.

(U) This document assumes that the reader is already fully acquainted with (U) Complex Environments - An Alternative Approach to the Assessment of Insurgencies and their Social Terrain, Part 1: Identifying Decisive Factors.

(U) This and the previous assessment will be used as the basis for many future products. The purpose of this assessment is to explain a new set of behavior-assessment procedures. It may use terms with which the reader is not familiar. Analogies and hypothetical examples are provided throughout to facilitate explanation. Real-world examples have been omitted in order to reduce the document's size and to simplify its presentation. More in-depth questions and clarification needs should be addressed to the author.

UNCLASSIFIED

(U) Background

(U) Combat forces observe and respond to the physical terrain in order to carry out their missions. Likewise, members of LPs observe and respond to important features of their own daily operating environments—their *social terrain*. A particular physical-terrain feature may clearly affect a military force's ability to achieve its objectives, such as a hill offering its occupier an advantageous position over the enemy. Operating environments contain many terrain features, but only certain key features influence COAs. Key social-terrain features give people an advantage in trying to live their lives successfully.[d] Key social-terrain features have the same effect upon the average person's behavior as key physical terrain features have upon a well-trained commander: both change their behavior to suit the terrain.[e]

(U) Key social-terrain features limit the extent to which people can develop the capacity and/or intent to engage in certain behaviors. These *constraints* close off certain options and make other options more likely by default. Because of the manner by which human motivation works in the brain, these social-terrain features are the only way to reliably explain or forecast LP behavior (see Appendix A.)[f]

(U) All perceptions take the form of object-behavior-result (OBR) combinations. The brain remembers incoming information as (1) a person, item, event, situation, entity, or any other thing that can be thought of as a distinct *object* of attention, (2) types of *behavior*—which may involve many discrete actions—that could potentially influence the object, and (3) the expected *result* of using a particular behavior to influence a particular object. Constraints influence behavior by limiting the range of objects upon which a person can act, the range of behaviors a person can enact, or the range of results that a behavior's influence upon an object can produce. Two kinds of constraints universally limit OBRs regardless of people's differences in geographic location, social or situational context, personality, or interest:

- (U) *Capability constraints* limit the degree to which a particular OBR can realistically take place.
- (U) *Intent constraints* limit the degree to which a particular OBR can be interpreted as desirable or undesirable.

(U) The constraints that members of a given LP operate within can be considered that population's key social terrain. People respond to this social terrain just as they respond to physical terrain.

(U) How to Recognize Key Social-Terrain Features

(U) Some key social-terrain features are easy to recognize in intelligence traffic or through simple observation, but other features can be confusing to people unused to thinking about them. Knowing what each key feature generally looks like helps to more accurately identify constraints and assess behavior within specific LPs.

(U) Clarifying the Problem Set

(U) Operators, analysts, and policymakers often identify problem sets that are too ambiguously defined or politically charged to be of much analytic use. "Corruption," "support for insurgents," "popular sentiment," and "governance" are all examples of problem sets that must be clarified before they can be productively analyzed. Developing that clarification can be difficult (see Appendix B). The following questions are guidelines for clarifying a problem set to the point that constraints can be identified:

(U) What Results Are the Actual Problems Within the Problem Set?

(U) Problem sets are usually made up of several problematic results. For example, "corruption" is not a result but rather a blanket term that covers many different observable results, such as public officials buying votes, intimidating political opposition into submission, selling favors, and so on. Those observable results are a starting point for clarification of the corruption problem set.

(U) What Objects Can Be Influenced To Produce Those Results?

(U) The problematic results within a problem set occur because certain objects are influenced to make them occur. In the case of officials buying votes, objects could include a voter who can sell his vote, an election official who can stuff the ballot box, the still-unreleased voting results themselves, and so on. Any or all of these objects can potentially be influenced to produce the result of an official getting votes he did not earn.

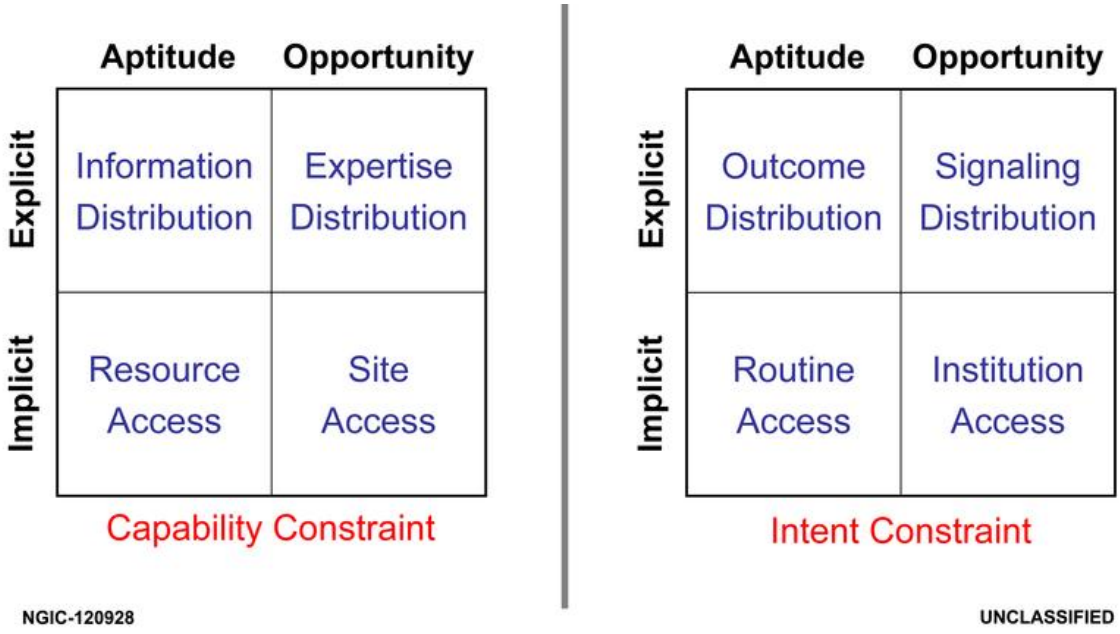
(U) What Behaviors Can Influence Those Objects To Produce Those Results?

(U) Objects produce results when a behavior influences them to create those results. Within the corruption problem set, these behaviors may include giving money to voters, voting officials, or couriers guarding the election results; making threats against political opponents; and accepting money in exchange for opposing a policy or ignoring an abuse. Any or all of these behaviors can potentially influence objects to produce the problematic results.

(U) Whatever the objects, behaviors, and results involved, ***each OBR represents a different perception that could potentially be a consistent influence on people's behavior if their social terrain were to make those objects, behaviors, and results a consistent presence in people's daily lives***.[g] Key social-terrain features vary in terms of what they constrain and how they constrain it.

- (U) A feature can either limit a person's *opportunity* to do or want something or a person's *aptitude* for doing or wanting something. For example, the capability to attack an enemy depends upon the target occupying a position that is vulnerable to attack (opportunity) and upon the attacker possessing the equipment necessary to mount an attack (aptitude).
- (U) A feature can limit opportunity or aptitude either *implicitly*, meaning it creates conditions that are generally unfavorable to developing the capability or intent to act on an OBR, or *explicitly*, meaning it creates conditions that hinder the capability or intent to act on that specific OBR. For example, a soldier may lack the opportunity to attack an enemy position because the location the enemy occupies is generally inaccessible (implicit) or because he specifically lacks information regarding the enemy's position (explicit).

(U) Four features in each constraint cover all of these variations, as shown in the figure below.



(U) Social-Terrain Features (click to enlarge)

(U) Social-terrain-identification procedures center on the issue of (1) which features allow people to develop the capability and/or intent to act on a particular OBR and (2) which social-terrain features *obstruct* people from developing the capability and/or intent to act on *alternative* OBRs (see tone box).

(U) Social-Terrain Features Are All or Nothing

(U) Unconstrained capability and/or intent—meaning it is not obstructed in any way—make it likely that people will act on that capability and/or intent. Neither capability nor intent is completely unconstrained unless all four related social-terrain features allow it.

- (U) People are capable of acting on an OBR if they have sufficient access to the sites, resources, information, and expertise necessary for that action. People who lack one or more of these four features are constrained in their capability.
- (U) People can have the intent to act on an OBR if they have sufficient access to institutions, routines, outcomes, and signaling that make the action desirable. People who lack one or more of these four features are constrained in their intent.

(U) Lack of access to any of the features *constrains* capability and/or intent and makes behavior *less likely*. The order in which a person is exposed to social-terrain features does not matter as long as all eight features allow the behavior and impede the alternatives.

UNCLASSIFIED

(U) The following sections discuss the four features of each constraint.

(U) Capability Constraints

(U) Social-terrain features relevant to capability include sites, resources, information, and expertise.[h]

(U) Site Access

(U) The capability to act on an OBR requires a site in which that action can take place. If a site never contains the object, does not permit the behavior, or makes the result unlikely, it constrains capability to act on the OBR. For example:

- (U) A road on which government troops rarely patrol limits the capability to carry out an attack on those troops.
- (U) A public place where police regularly patrol limits the capability to threaten a political opponent.
- (U) A government office to pay insurgents to participate in reconciliation that is so distant from the insurgents' homes that they cannot conveniently travel to it limits the capability of those insurgents to participate in the reconciliation program.

(U) Site access varies from population to population. In some LPs, the floor of the national legislature may be sufficiently private to facilitate threatening a political opponent. In other LPs, less public sites, such as restaurants or apartments, or hyperpublic sites, such as busy streets or the Internet, may be the only sites accessible for that purpose.

(U) Resource Access

(U) The capability to act on an OBR requires the resources necessary for that action to take place. If a resource cannot affect the object, cannot be used in combination with the behavior, or does not allow the result, it constrains capability to act on the OBR. For example:

- (U) Rounds that cannot pierce the enemy's armor limit the capability to carry out an assault.
- (U) Limitation of seed stocks to plants that cannot grow in the climate of the region

adversely impacts the capability to increase agricultural output in that region.

- (U) Communications technology that cannot reach a target audience limits the capability to convince that audience of anything.

(U) Resource access varies from population to population. In some LPs, any kind of crop may be sufficient to stimulate the agricultural sector of the economy. In other LPs, only very specific plants make such stimulation likely.

(U) Information Distribution

(U) The capability to act on an OBR requires information regarding when, where, how, and by what means the action can take place. If information does not reach those who would act or reaches them too early, too late, or in a form they cannot recognize, it constrains capability to act on that OBR. For example:

- (U) The failure of information about a government minister's whereabouts to reach potential attackers limits the capability of those attackers to assassinate that minister.
- (U) The failure of information about a local militia commander's desire to reconcile with the government to reach Coalition forces prior to the commander making a new alliance with other militants limits the capability to reconcile with that commander.
- (U) Tactics, techniques, and procedures (TTP) communicated in a language poorly understood by potential extremists limits their capability to familiarize themselves with those TTP.

(U) Information is "know-about" knowledge, and its distribution varies from population to population. In some LPs, everyone may know about the corrupt police chief. In other LPs, only a very few people may have access to that information.

(U) Expertise Distribution

(U) The capability to act on an OBR requires the expertise necessary for the action to take place. If expertise is not made available to those who would act or is not made available in a timely manner or in a way that they cannot see its relevance, it constrains capability to act on the OBR. For example:

- (U) Lack of access, directly or indirectly, to scientists and technicians who have the skills to develop weaponized diseases limits the capability to procure biological weapons.
- (U) Temporary imprisonment of an opposition political party's key operatives during an election limits that party's capability to challenge the current government.
- (U) The refusal of a country's judiciary to accept that fingerprints accurately indicate a person's identity limits the capability to use fingerprints as evidence in a trial.

(U) Expertise is "know-how" knowledge, and its distribution varies from population to population. In some LPs, everyone may know how to grow a certain cash crop. In other LPs, those skills may be limited to only a very few people.

(U) Intent Constraints

(U) Social-terrain features relevant to intent include institutions, routines, outcomes, and signaling.[i]

(U) Institution Access

(U) The intent to act on an OBR requires an institution that can justify that intent. Institutions are themes or symbols that have such a long tradition of usage that members of an LP alter their physical surroundings to reflect those traditions. For example, people often take ideologically or historically important themes and incorporate them into books, architecture, and meetings.

Institutions influence intent by giving people a reference point for arguing that their intent to act on an OBR has been standard practice in their community for a long time.[j] If an institution cannot justify the object, behavior, or result of an OBR, it constrains intent to act on that OBR. For example:

- (U) An institution of treating a plot of land as sacred limits the intent to support a road-building project on that land.
- (U) An institution that forbids close contact between the sexes limits the intent to support mixed-gender schools.
- (U) An institution that prioritizes community interests over regional or national interests limits the intent to engage in anticorruption efforts, which, while good for the country as a whole, may well be detrimental to the community's interests.

(U) Institution access varies from population to population. In some LPs, everyone may accept that any persons not of their religion, including women and children, constitute acceptable targets for attack. Within other LPs, many people who advocate violence against members of other religions may draw the line when it comes to attacking women and children.

(U) Routine Access

(U) The intent to act on an OBR requires routines that familiarize a person with that intent. Routines are any activities in which people engage on a regular and frequent basis. Routines can become familiar through personal experience, lengthy observation, or, more rarely, through detailed instructions. If a routine cannot be adapted to the object, the behavior, or the result of an OBR, it constrains intent to act on that OBR. For example:

- (U) Never having taken a life, despite having been exposed to violence, limits the intent to kill.[k]
- (U) Being familiar with only those negotiations that involve bribery and coercion limits the intent to engage in noncorrupt negotiation.
- (U) Being familiar with extortion activities, but only in private, limits the intent to publicly engage in corruption.

(U) Routine access varies from population to population. In some LPs, everyone may be familiar with certain routines that can be easily adapted to relevant OBRs. In other LPs, only very few people may be familiar with those exploitable routines.

(U) Outcome Distribution

(U) The intent to act on an OBR requires the expectation that the gains derived from the action will be greater than the losses. People generally realize that second- and third-order effects occur from acting on any OBR. They also generally see when initial gains will be eclipsed by later losses, such as retaliation by parties who oppose the action. If an outcome makes those who act on an OBR experience more losses than gains, experience gains only long after the losses are felt, or experience meaningless gains combined with meaningful losses, it constrains intent to act on that OBR. For example:

- (U) A high vulnerability to insurgent retaliation against those who work with the government limits the intent to work with the government.
- (U) The distant likelihood of living in a prosperous country in exchange for the immediate likelihood of poverty that results from refusing to engage in corruption limits the intent to abstain from corruption.
- (U) Decisive and consistently implemented punishment for government officials who engage in corrupt activities limits the intent to engage in corrupt activities.

(U) Outcome distribution varies from population to population. In some LPs, a person who attacks an enemy target may expect to suffer immediate, personal, and drastic consequences. In other LPs, the attacker may be able to quickly blend back in among local residents to make it more likely that the retaliation for the attack will be felt by others instead.

(U) Signaling Distribution

(U) The intent to act on an OBR requires social pressure to act, which takes the form of signaling: nonverbal cues (body language, tone of voice, facial expressions, demeanor, etc.) by which people convey how they feel about an OBR. Signaling occurs among any people with whom a person regularly discusses or attempts to act on an OBR when those people consistently and publicly convey how they feel about the topic. If signaling takes place in a way that those who might act on an OBR do not see that other people want them to act, do not feel the need to respond to those other people's desires, or do not see the connection between the signaling and the OBR, the intent to act on that OBR is constrained. For example:

- (U) General dissatisfaction with extremist violence that is never openly voiced within a community limits the intent to oppose extremist violence.
- (U) Written or broadcast messages telling people to oppose extremism without ever engaging those people in a discussion limits the intent to oppose extremism.
- (U) Convincing a person to support development in general without ever winning support for particular developmental projects limits the intent to support any of those specific projects.

(U) Signaling distribution varies from population to population. In some LPs, there may only be a general but unspoken sentiment that the ruling regime or occupying force is a target deserving of attack. In other LPs, there may be prolonged, explicit, and intense signaling that those targets should be attacked.

(U) Procedures for Analyzing the Social Terrain

(U) Recognizing the general kinds of features that constrain capability and/or intent make it possible to then identify specific situations in which those features exist. STA identifies social-terrain features that reliably constrain behavior within a chosen LP.

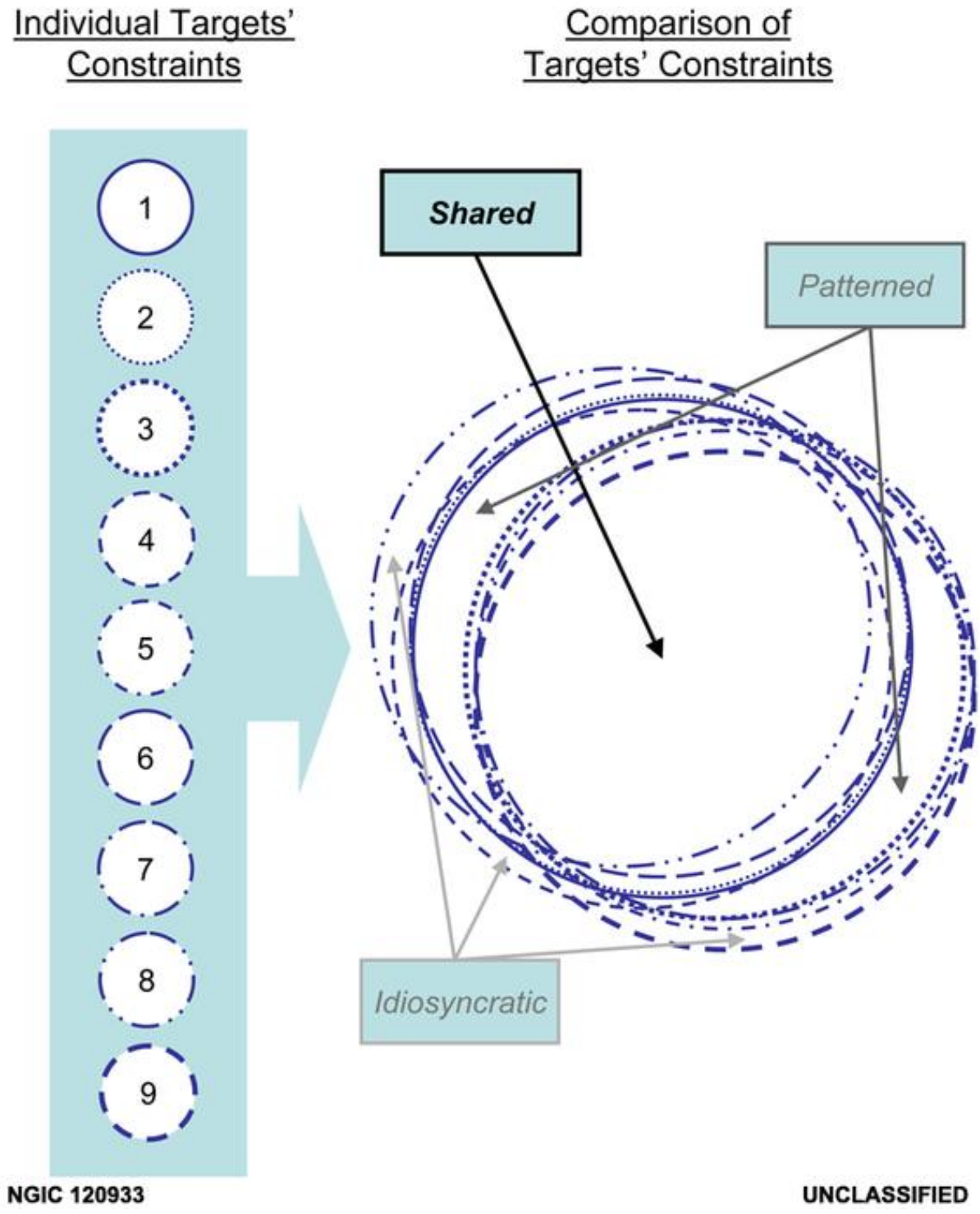
(U) Procedures

(U) STA assessments use specific information about individual LP members to triangulate information about social-terrain features.[I] STA assessments aggregate information about individual people to identify key features that are likely to produce widespread behavioral tendencies. Conceptually, STA assessment procedures work by identifying validated targets: people within the LP who actually acted on the OBR of interest. People who demonstrate only the capability or the intent to act on the OBR are not validated targets unless the development of the capability or intent alone is precisely the OBR that analysts seek to understand. Once these validated targets have been identified, the following procedures are performed:

- (U) Pick one validated target and identify the eight social-terrain features that permitted his or her capability and intent.
- (U) Pick a second validated target and identify his or her social-terrain features.
- (U) Record the similarities and differences between the two validated targets' social-terrain features.
- (U) Repeat the above steps for a third target, then a fourth, a fifth, and so on, incorporating new details about the layout of the social terrain with each new target.

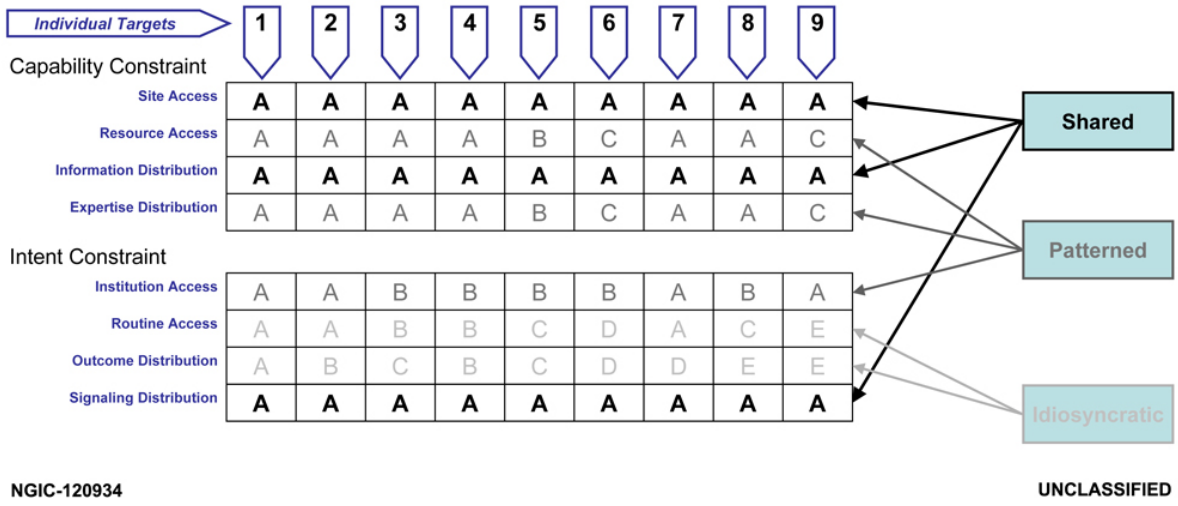
(U) Layering the intelligence about each validated target allows the analyst to map an LP's key social

terrain (see figure below). Some social-terrain features are largely *shared*, meaning they influence nearly all members of the LP. Other social-terrain features are *patterned*, meaning they influence only certain subsets of the LP. Some social-terrain features are *idiosyncratic*, meaning they vary so much from person to person that they cannot be considered key features of the social terrain.



(U) Conceptual Explanation of STA Assessment (click to enlarge)

(U) The actual process of conducting STA can take some getting used to. It often helps to organize information about targets and their social-terrain features into a table for convenient comparison. The following table will be used as an example to illustrate the process.



(U) Analytic Procedures for STA Assessment (click to enlarge)

(U) Targets can be included in the table in any order as long as each is validated. The social-terrain features of the first target included in the table act as the baseline against which the features of subsequent targets are compared.

(U) In an actual analysis, it will often be useful to give a short description of each of these features. In the illustration table, all of the features for each target are labeled by letters of the alphabet for the sake of simplicity. All eight social-terrain features for the first target are by definition part of the same pattern (and are therefore all labeled *A* in the left-most column of the table).

(U) Similarities and differences between the first target's eight features and subsequent targets' features are noted. In the table, the second target's features that are similar to the first target's features are also labeled *A*. Features that differ are labeled *B*.

(U) This process is repeated for each new target for which there is credible information. Each time a new target's features match those of some previous target, those similarities are noted. Each time the new features differ, those differences are likewise noted (in this example, by giving a letter of the alphabet not already used).

- (U) As the table shows, getting information on even a small number of validated targets yields information about the social terrain. Three features (site access, information distribution, and signaling distribution) are all shared—they are the same for all targets analyzed, which means those three features are part of the social terrain for the entire LP.
- (U) Three features (resource access, expertise distribution, and institution access) are patterned—they are the same for only certain subsets of the targets, which means those three features are part of the social terrain for only part of the LP.
- (U) Two features (outcome distribution, routine access) are idiosyncratic—they include numerous departures from the baseline, but the differences vary so widely that they yield little information about the social terrain. Idiosyncratic differences are not consistent enough to make generalizations.

(U) Systematically comparing the social-terrain features for each validated target allows the analyst to describe the social terrain within which a given LP operates. If the analyst encounters a situation in which no shared or patterned features can be found, the features should either be redefined to be more inclusive (see Appendix B on the lumper-splitter problem) or the analysis should be performed

on a smaller population.

(U) Variations on STA Procedures

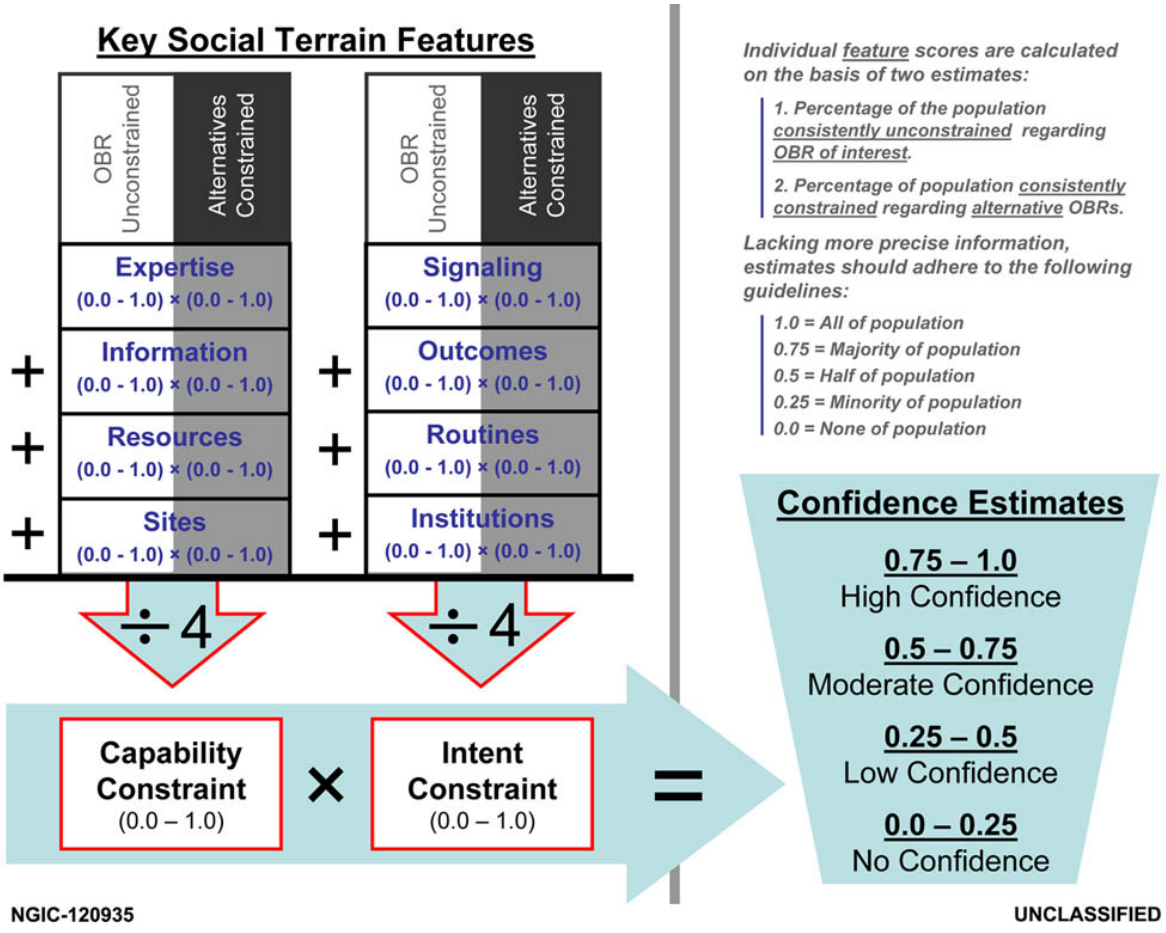
(U) The STA procedures outlined here are a middle-ground approach. The comparison of multiple validated targets can be done statistically if the analyst needs more precise measures or if there is information available about so many targets that comparing them by hand would be unfeasible. Alternatively, STA assessments can be made based more on a general situational awareness or "gut feeling" if that is all that limited time or information allows. Going with a gut-feeling STA assessment is better than an assessment that does not consider constraints at all, because constraint-based assessments at the very least can be assumed to evaluate factors that are known to be decisive in producing behavior.

(U) As a general rule, the analyst should use the most precise analytic methods possible that time and information allow. However, there are times when a gut-feeling approach is actually more appropriate. If the evidence suggests that, say, a particular institution is entirely shared within a population—everyone has access to it—then there is little use in recording and analyzing each validated target's access to that institution. In other words, when a social-terrain feature is completely shared, it can be taken as a given. If it is possible that the feature is not widely shared, it should be included in the analysis.

(U) Confidence Estimates

(U) Confidence estimates for STA assessments reflect the analyst's judgment as to how likely it is that individual LP members operating within the social-terrain features will act on the related OBR.[m] Confidence in a population's tendency to act on an OBR can be systematically calculated from confidence estimates concerning each individual social-terrain feature. Judgments about the features themselves are based on estimates of how many LP members are unconstrained in their capability and/or intent to act on the OBR as compared to how many LP members are *constrained* in their capability and/or intent to act on *alternatives* to that OBR. ***Analysts must make these estimates from the perspective of the person who would make the decision to act on or not act on the OBR.*** In the case of a military offensive, for example, the decisionmaker is probably a commander, or even a politician, while in the case of an extremist attack, the decisionmaker may be the individual extremist. When multiple decisionmakers are involved in a problem set, each of their respective OBRs should be analyzed for constraints.

(U) The effect of each feature is estimated according to common statistical principles by multiplying together (1) the percentage of the LP unconstrained in its ability to act on the OBR of interest and (2) the percentage of the LP constrained in its ability to act on alternative OBRs. Averaging feature totals for each constraint (adding them together and dividing the total by 4) produces a confidence estimate for capability and intent constraints: values closer to 1.0 indicate higher confidence while values closer to 0.0 indicate lower or no confidence (see figure below). Confidence in an assessment that an LP will develop both the capability and the intent to act on a problem set can be estimated by multiplying the separate capability and intent estimates together.[n]



(U) STA Assessment Confidence Estimates (click to enlarge)

(U) Measures of Effectiveness

(U) In the illustration table presented in the procedures section, routine access and outcome distribution were both labeled "idiosyncratic." However, these two features had some commonalities among targets (e.g., targets 1, 2, and 7 all had the same routine access). In real-world analysis, it is impractical to demand that a feature be the same for every single target in order to be considered "shared" or that features show absolutely no exceptions in order to be considered "patterned," or that a feature be different for every single target in order to be considered "idiosyncratic." Those inconsistencies can serve as a measure of an STA assessment's accuracy, and steps can be taken to improve assessment accuracy over time.

(U) STA assessment accuracy is estimated by dividing the number of targets that fit the assessment by the total number of targets. So, for example, if an analyst looking at the illustration table decided to assess that, rather than being idiosyncratic, routine access was patterned, the accuracy estimate for that assessment would be calculated by dividing the number of validated targets who showed commonalities with at least one other target (seven–three As, two Bs, and two Cs) by the total number of targets (nine).[o] The result would be 0.78, or 78%. The same calculation can be made in assessments of shared features. For example, if the analyst wanted to assess that routine access was actually a shared feature, the number of targets that were consistent with that assessment (three as) could be divided by the total number of targets (nine) to produce an accuracy estimate of 0.33, or 33%.[p]

(U) The reliability of STA assessments can be assessed and potentially increased over time by adding more validated targets to the original analysis. If accuracy stays the same over time, even as new validated targets are added, then the assessment is reliable. Reliability is a gauge for how LPs

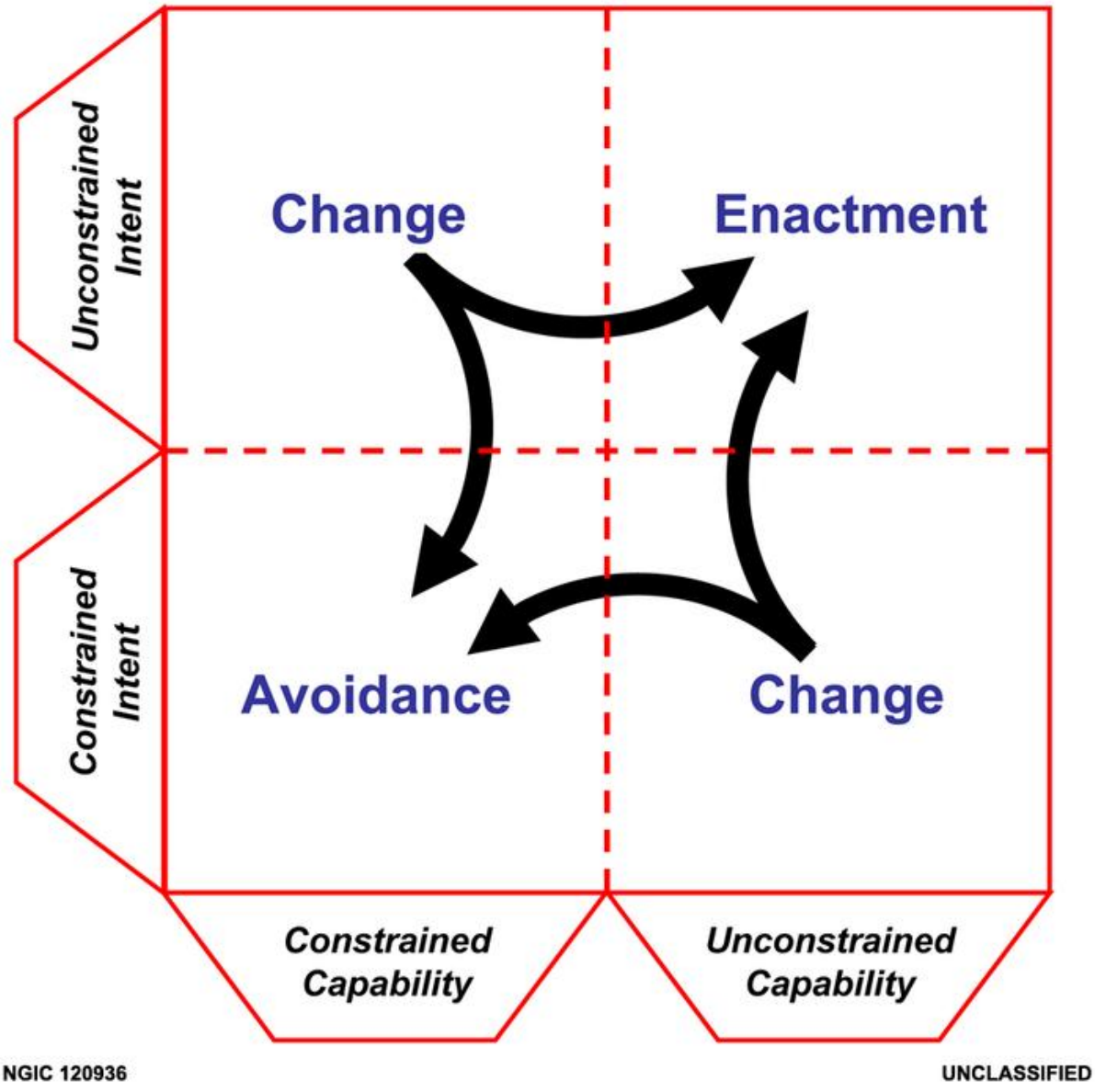
are defined: if an assessment is highly reliable for certain targets and then suddenly becomes much less reliable when new targets are added, the two separate groups of targets may be more usefully treated as separate populations.

(U) Decision Advantage

(U) STA assessments increase decision advantage by organizing and prioritizing LP intelligence:

- (U) Intelligence about constraints matters more than intelligence about other aspects of the lives of a population's members. Focusing intelligence on constraints makes it easier to allocate scarce collection and analysis resources to topics that are more likely to produce relevant and actionable information.
- (U) Decisions about when and if to carry out kinetic or influence operations can be made based on the completeness of constraints. While each feature of a constraint can exist independently, an LP must have access to all four features to be completely unconstrained in its capability or intent to act on an OBR. Intelligence indicating that one feature of a capability constraint is in place may not justify an operation, but intelligence that all four features of both capability and intent constraints are in place may justify immediate action.
- (U) Unintended consequences of operations are more foreseeable when constraints are well known. Breaking up a complete constraint by eliminating one of its features will automatically lead to the development of new OBRs as the remaining features are recycled in new settings. The process of identifying the features of capability and intent constraints that make behavior likely also identifies other features of other constraints—some of which will become involved in the unintended consequences of an operation.

(U) People who are unconstrained in both their capability and intent to act on an OBR can be expected to maintain that action indefinitely. On the other hand, people who are *constrained* in both their capability and intent to act on an OBR can be expected to avoid that action indefinitely. Both types of constraint combination make a specific pattern of LP behavior more likely. In contrast, contradictory capability and intent constraints—where people can do something, but do not want to, or want to do something, but cannot—make a *change* in behavior more likely. People exposed to contradictory constraints have two options: find a capability that matches current intent or find an intent that matches current capability (see figure below).



(U) Behaviors Expected from Constraint Combinations (click to enlarge)

(U) Constraint-based approaches to behavior modification must plan on these tendencies. If a pair of constraints makes the capability and intent to act on a problematic OBR likely, and an operation eliminates one of the features of, say, the capability constraint in that combination, people previously exposed to that combination will either develop a new capability that conforms to their already-formed intent or develop a new intent that conforms to their new lack of capability. These changes are certain to take place and should be considered when making decisions about how to carry out an operation.

(U) The arrangement of constraints must also be considered in making decisions about modifying constraints (see tone box below).[q]

(U) Arrangement of Constraints

(U) Decisions regarding if and how a constraint should be targeted depend upon the way the constraints are arranged.[r] Social-terrain features can either occupy a centralized arrangement or a distributed arrangement.

(U) **Centralized Arrangement of Constraints**

(U) Features that occupy a centralized arrangement are specifically intended to fit together: sites in a centralized arrangement, for example, are designed to fit the information, expertise, and resources necessary for a specific capability. Likewise, signaling, for example, is specifically tailored to fit familiar routines and institutions and to highlight outcomes necessary for a specific intent. Because they are intended to work together, features in a centralized arrangement tend to be homogenous: the best way to ensure that any particular site fits the other three capability social-terrain features is to ensure that *all* potential sites meet those specifications; the best way to ensure that any particular signaling fits the other three intent social-terrain features is to ensure that *all* signaling conforms to those requirements. Because of these characteristics, social-terrain features that occupy a centralized arrangement tend to have few alternative ways of achieving the same behavioral results. Eliminating just one or two features disables the others, and there are typically few potential replacement features available within the LP. Centralized arrangement is typically employed by actors who are concerned with increasing the quantity, frequency, and consistency of a result. The price of increased output is heavy investment of time and resources and near-constant monitoring.

(U) **Distributed Arrangement of Constraints**

(U) Features that occupy a distributed arrangement of constraints are not designed to fit together—they just happen to fit together some of the time. Certain sites, for example, may be designed to meet a wide variety of purposes (or may not be designed to fit any purpose at all), but when combined with particular resources and a particular distribution of information and expertise, those sites create a specific capability that may be of concern. Likewise, signaling that serves a benign purpose may create a problematic intent when it happens to be combined with specific routines, institutions, and outcomes. Features in a distributed arrangement tend to be diverse: they are not specifically intended to support one another, so people generally take no steps to make them fit together better. Because of these characteristics, social-terrain features that occupy a distributed arrangement tend to have many alternative ways of achieving the same behavioral results. Eliminating specific features in such situations does little, as any particular feature usually has many alternatives that can serve the eliminated feature's purpose just as well. Actors who are more concerned with simply having any output at all can employ distributed arrangement of constraints and still obtain their desired results. As long as they have no particular need to outpace the results of other actors, distributed arrangement works well enough and requires little investment.

(U) Behavior that arises from a centralized arrangement of constraints can most efficiently be altered by eliminating a few specific features of the constraints that make the problematic OBR likely while also introducing and supporting replacement features that better allow alternative OBRs. On the other hand, behavior resulting from a distributed arrangement of constraints can very rarely be modified by directly attacking the constraints themselves. In such situations, it is typically more effective to modify the overall layout of the social terrain—in other words, to remove constraints on alternative OBRs in order to decrease the overall number of people who act on problematic OBRs.

UNCLASSIFIED

(U) Limitations

(U) STA assessments depend upon obtaining intelligence on all eight social terrain features for most validated targets. The type of information necessary to perform a STA assessment is often not the type of information that is collected on individuals of interest. Limited information about individual targets can threaten the quality of STA assessments, and such limitations should be taken into account when evaluating the assessments.

(U) Operations Based on STA Assessments

(U) All STA assessments are probabilistic. They provide information about likelihoods and tendencies—things that will probably happen within an LP. Exposure to constraints will not always prevent a person from acting on an OBR, and lack of exposure to constraints does not mean a person will necessarily act on an OBR. Behavior is too random to forecast with that much certainty.

(U) Operations designed to modify constraints should not be expected to yield an immediate change in the behaviors that make up the problem set. Success of such operations is measurable, but only over a time period of successive operations. An STA-based operation can be considered to have produced results if, over a period of consistently carrying out the operation, successive STA assessments show consistent changes in the makeup and prevalence of social-terrain features. An operation can be considered a success if, over this same time period, the behaviors that make up the problem set show a steady change in prevalence consistent with the goals of the operation.

(U) In some cases, STA assessments can be adapted for targeting purposes. More information on this subject can be found in Appendix C.

(U) Conclusions

(U) The procedures in this assessment use information about the social terrain to better anticipate LP behavior. There is no way to know everything about an LP, but intelligence on constraints reduces uncertainty about current and future LP behavior to address operational needs in ways that other analytic methods have not. The procedures provided here are designed to define operational environments of LPs, describe those environments' effects, evaluate potential threats, and forecast probable COAs.

(U) The principles outlined in this assessment allow analysts and operators to know certain things about LPs before any specific intelligence has been gathered or analyzed. The features that make up the two constraints are the factors that directly limit LP behavior; other aspects of the operational environment, while perhaps beneficial in terms of adding nuance, are not so directly relevant to mission objectives. The procedures outlined in this assessment allow analysts and operators to sift through the sometimes overwhelming amount of LP intelligence to specifically extract the information that is more likely to be useful and to analyze that information in a way that is more likely to be actionable.

(U) Consideration of Alternative Analyses and Contrary Evidence

(U) Alternatives to the approach outlined in this assessment are addressed in the previous NGIC assessment: (U) Complex Environments - An Alternative Approach to the Assessment of Insurgencies and their Social Terrain, Part 1: Identifying Decisive Factors.

(U) Intelligence Gaps

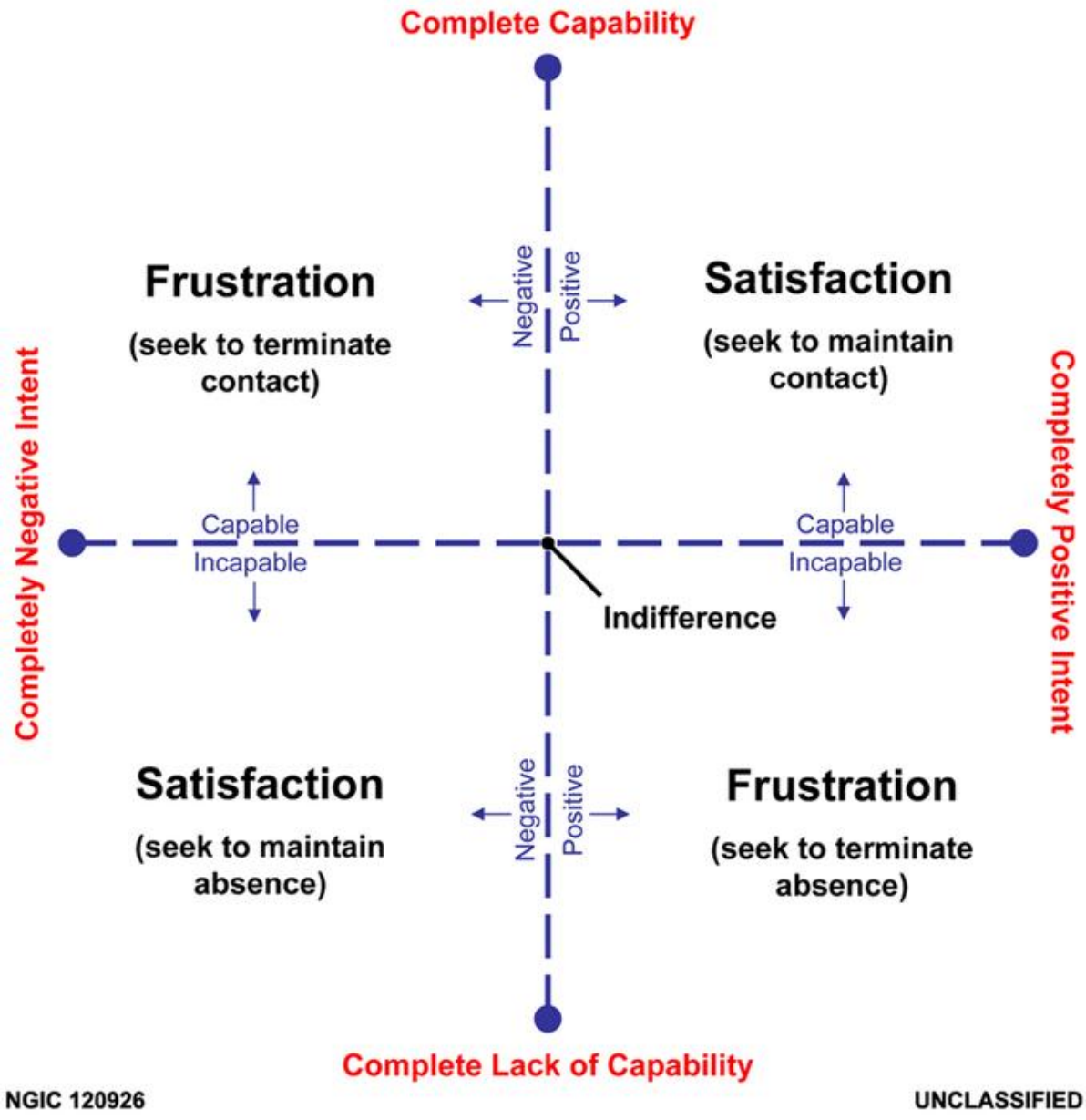
(U) All eight of the social-terrain features discussed in this assessment constitute gaps in our understanding of any particular local population. The procedures in this assessment can be applied to any situation in which multiple people seem to be channeled toward participation in specific patterns of behavior.

(U) Appendix A: Mechanisms and Behavior

(U) Certain factors limit the range of behaviors possible within a given setting. These *constraints* make some behaviors more likely than others because of the way the human brain digests information. This appendix explains the means by which constraints cause behavior.

(U) The brain automatically assigns two attributes to any OBR, which, in combination, determines the behavioral response. The first attribute is the amount of time it takes an expected result to occur after combining a behavior with an object—some results happen immediately, others can take years, and most happen somewhere in between those two extremes. This first attribute is the brain's understanding of a person's *capability* to produce a result. The second attribute is the amount of emotion assigned to the result—some results can be seen as entirely positive, others as entirely negative, and most fall somewhere in between those two extremes. This second attribute is the brain's understanding of a person's *intent* regarding a result.

(U) For the sake of simplicity, each attribute can be split into two basic categories: a person can either have or lack the capability to produce a result and have either positive or negative intent toward that result—either he wants it or he does not. The brain perceives capability of positive intent as a source of pleasure and incapability of negative intent as the *absence* of a source of *displeasure.* Both types of combinations make a person feel satisfied (see figure below). The brain perceives capability of negative intent as a source of displeasure and incapability of positive intent as the absence of a source of pleasure. Both types of combinations make a person feel frustrated. The more extreme the attributes (the more completely capable or incapable a person is, or the more absolute the positive or negative nature of his intent), the stronger the sense of satisfaction or frustration the combination elicits.



(U) Motivational Responses to Perceived Results (click to enlarge)

(U) Because of the biology and chemistry it uses for information storage, the brain automatically responds to capability-intent combinations. These responses are behavior. A combination that elicits satisfaction motivates a person to maintain his behavior. Frustration motivates a person to change to an alternative behavior.[s]

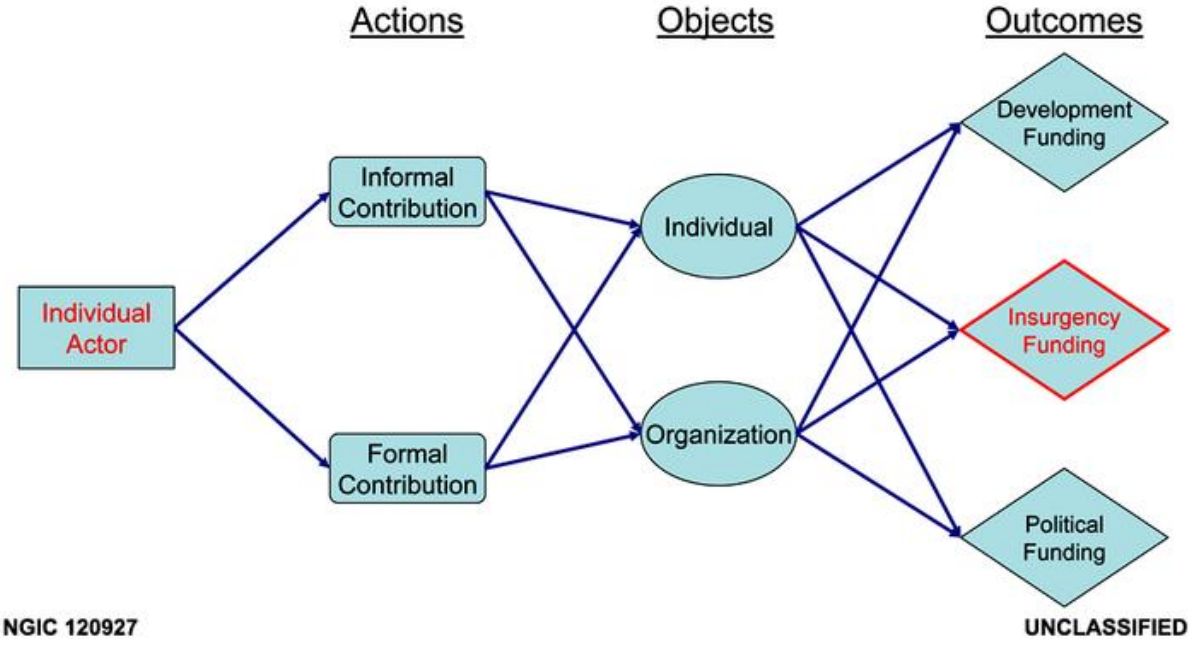
(U) Behavior in general is fully explainable, based on the brain's mechanisms. However, specific behaviors are difficult to explain or forecast because persons' experiences—and, therefore, their perceptions—change constantly and often erratically. The random changes in persons' perceptions make individual person's behaviors highly variable and very unpredictable. The only way behavior becomes consistent enough to forecast is for it to take place in settings in which persons are limited in the range of objects upon which they can act, the range of behaviors on which they can act, or the range of results they can produce.[t]

(U) Appendix B: The Lumper-Splitter Problem

(U) There are too many individual results, objects, and behaviors to identify them all. However, there are usually limited numbers of *kinds* of results, objects, and behaviors. For example, threats can take many forms, but they are all still threats, and threats of all forms are different than bribes. A threat and a bribe are each a different *kind* of behavior, even though they can each technically involve many different discrete behaviors.

(U) There is practically no limit on the number of ways the objects, behaviors, and results within a problem set could be categorized. This requires that some OBRs be lumped together as a single kind of OBR while other OBRs are split into different kinds. There are no standardized procedures for deciding which OBRs to lump and which to split. This puts the responsibility on the analyst to explain how the OBRs were categorized in any particular analysis.

(U) For example, one problematic result within the general problem set of insurgent support is the receipt of funds to carry out insurgent attacks. Those funds could be given to individual people who used the funds to mount an attack or to organizations that would then redistribute the funds to insurgents. The funds could be channeled to either of those two objects through either informal contributions, such as handing money to a friend, employer, or even a person on the street, or through formal contributions, such as a bank transfer or official donation. While each of these OBRs could potentially produce the result of insurgency funding, the same behaviors could influence the same objects in a way that channeled funds toward development projects or to legitimate political parties (see figure below).



(U) Example of Lumping and Splitting (click to enlarge)

(U) The above diagram shows only one way to lump and split the problem set. The types of results could include individual theft or personal savings, to name a couple additional options. The types of objects could split individuals into those who have a personal relationship with the giver, such as a relative, and those who have a more institutionalized relationship, such as a boss. Both types of behaviors could be further split into subtypes: both formal and informal contributions could be made either online or in person, for example.

(U) The number of potential categories is virtually limitless. The number and range of kinds will need to be determined by the time and resource limitations imposed on the analyst and by the overall purposes of the analysis itself. Too many categories may only create noise and lengthen the time needed to produce the analysis. Too few categories may ignore important differences and decrease

the decision advantage offered by the analysis. These decisions depend upon the judgment of the individual analyst but should be made explicit in any given analysis as part of the description of the methodology.

(U) Appendix C: STA Assessment for Targeting Purposes

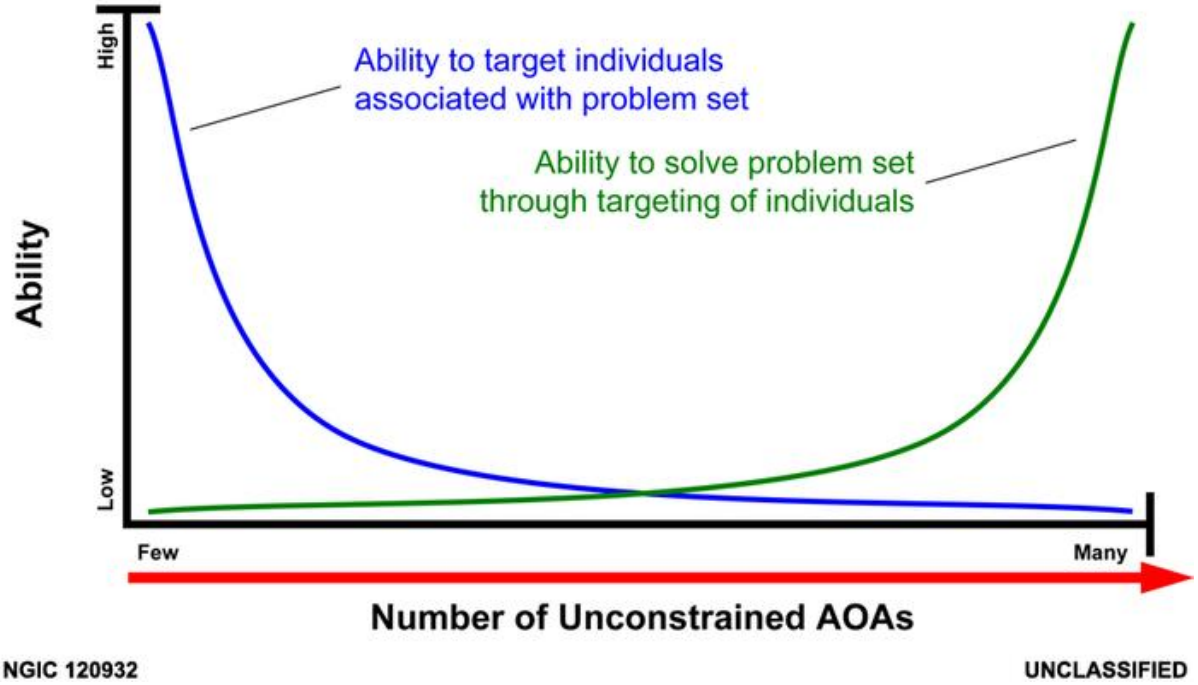
(U) STA can be used to target individuals who are likely to act on OBRs of interest. STA targeting is somewhat different than normal STA procedures and has some definite limitations in how and when it can be usefully employed. This appendix outlines STA targeting procedures.

(U) Targeting refers to any effort to locate specific people of interest among all of the other people within a given area of operations. As such, it may be used in "capture-kill" operations or in nonkinetic operations, such as efforts to identify potential collaborators or powerbrokers.

(U) Limitations

(U) STA targeting is not always the appropriate choice for understanding and forecasting behavior. If nearly all members of an LP are *unconstrained* in their intent and capability to engage in extremist violence, for example, and nearly all are *constrained* in their intent and/or capability to act on alternative OBRs, then it is relatively easy to target individual people who conduct that violence. However, these same conditions create too many targets: the constraints make that OBR generally likely among the entire population, so removing individuals will not remove the threat.

(U) On the other hand, if nearly all members of an LP are *unconstrained* in their intent and capability to act on many alternative OBRs, including extremist violence, then it is relatively easy to fix the problem of extremist violence by targeting and neutralizing problematic individuals. The small number of people exposed to the problematic constraints makes this possible. However, these same conditions make it difficult to target individual violent people, as those people are a much smaller—and therefore harder to find—portion of the total LP. This means that targeting becomes a less desirable option as the number of unconstrained OBRs within an LP increases.



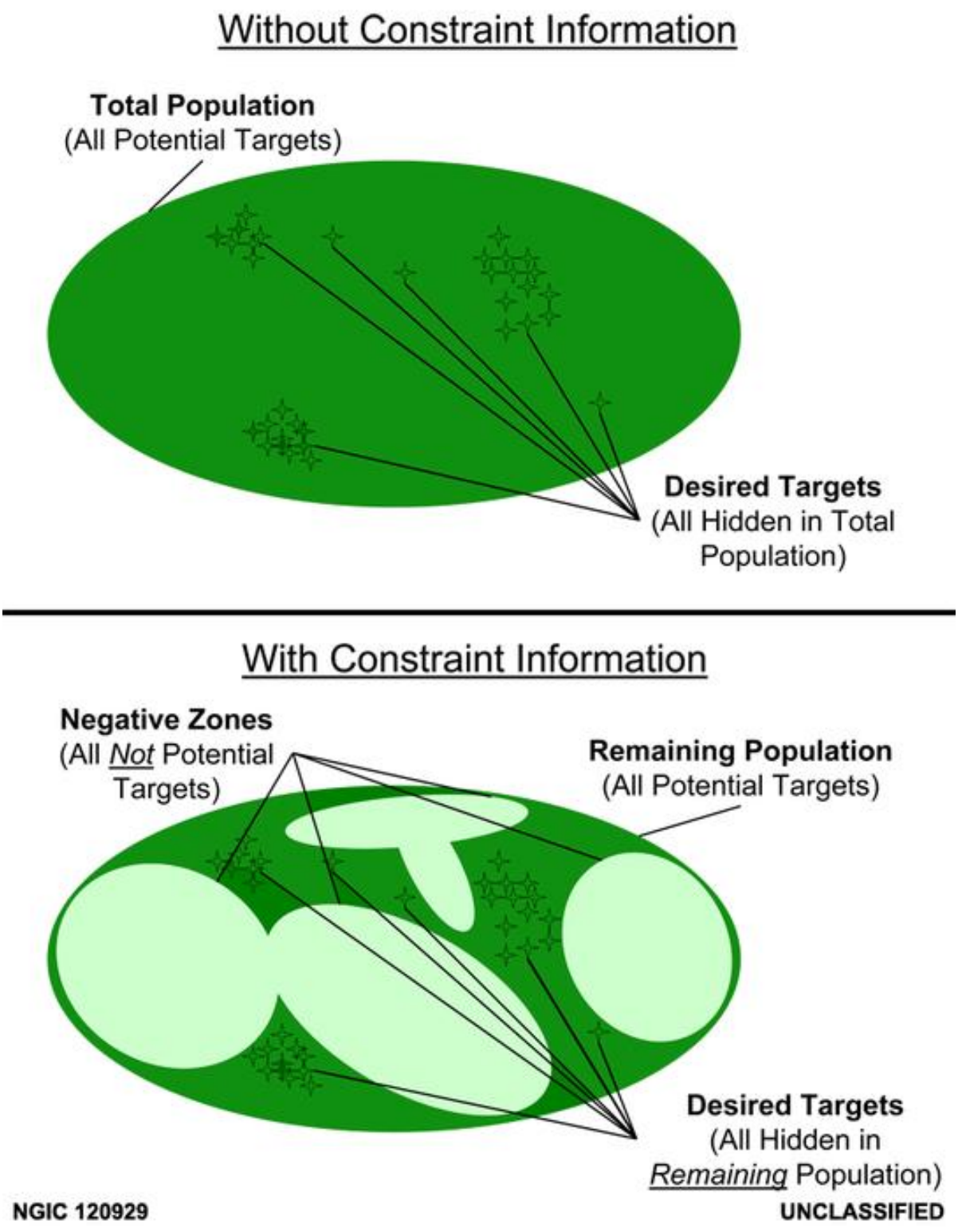
(U) STA targeting Assessment Limitations (click to enlarge)

(U) Targeting is very resource intensive. Even the best equipped military force usually lacks the

manpower, resources, and time to reliably identify most of the viable targets. Policing is a more suitable avenue for such targeting, but even that presents a major resource burden.[U] Even if the number of constraints in an LP is conducive to it, targeting can only truly be appropriate if the force that does the targeting has the technical capability and political will to eventually identify, monitor, and neutralize nearly all targets that have both the capability and intent to act on problematic OBRs and to identify and continuously monitor all targets that have the intent to act on those OBRs. This usually requires highly embedded security forces capable of removing targets without hurting nontargets and maintaining constant (usually covert) proximity to the majority of potential targets. If such operations are not feasible, then targeting is not the best way to use STA.

(U) Targeting Procedures

(U) Most potential targets either do not want to be found or do not know that someone is looking for them. Constraint analysis facilitates identification of these targets by identifying people who occupy "no-go" social terrain: people who are *unlikely* to be involved in the problem set (see figure below).



(U) Constraints and No-Go Social Terrain (click to enlarge)

(U) Any area of operations begins as an open field of possibility, where it is reasonable to assume a total lack of constraints—all members of the LP have both the intent and capability to act on the OBRs relevant to the problem set. STA targeting assessments systematically reduce the pool of

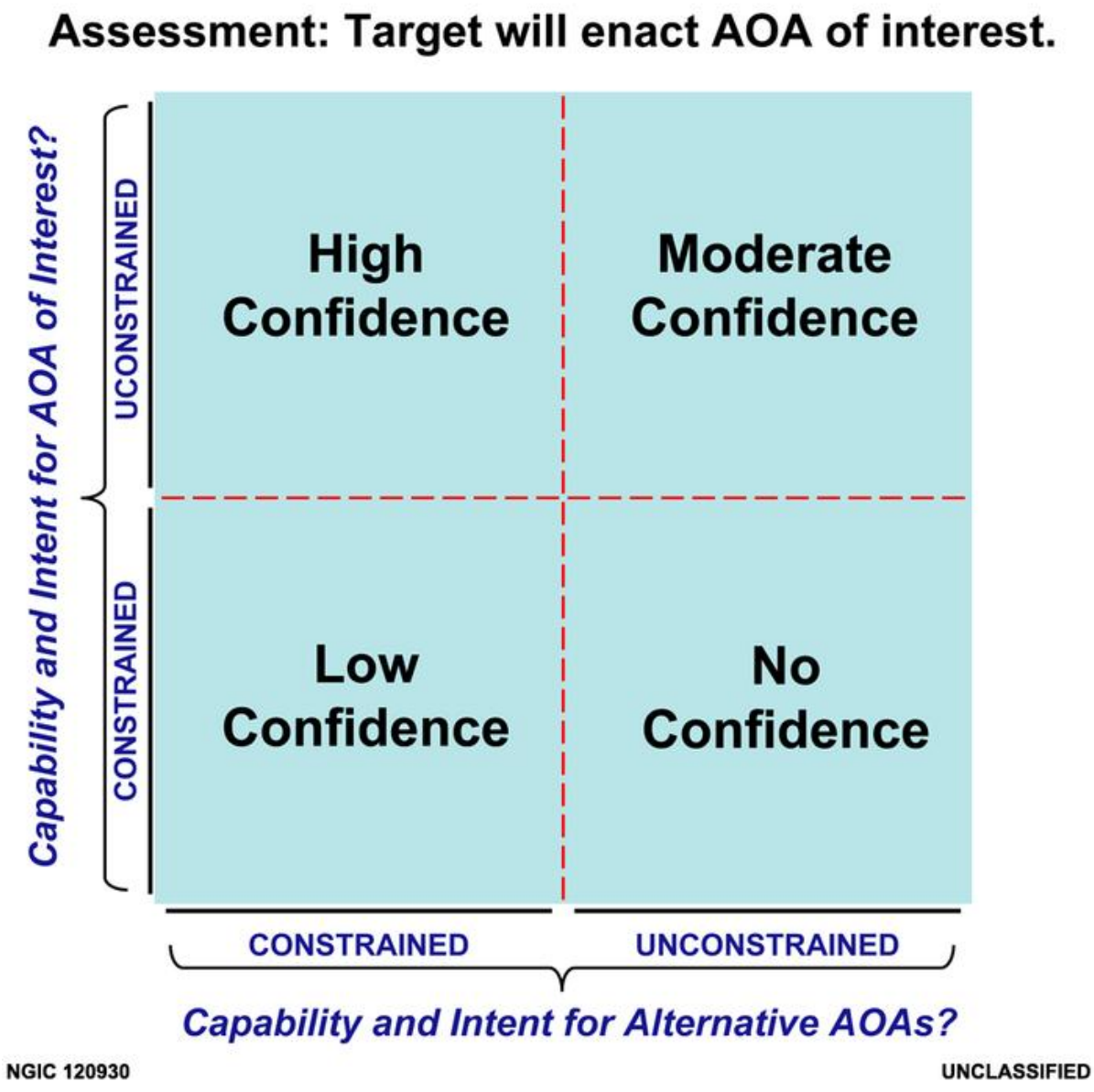
possible targets by determining which people are unlikely to act on the problematic OBR.

(U) STA targeting assessments can begin with any of the four features of either of the two types of constraints. For example, certain sites may not offer access to the OBR's object and, therefore, would not be exploitable. These limitations indicate that any people who operate only within these sites should be removed from the analysis in order to focus attention and resources on other people more likely to act on the problematic OBRs. Similarly, investigating other features identified as no-go social terrain identifies areas where analysts and operators know they do not need to look. Determining which people are constrained in regard to the OBR reduces the overall number of people who must be monitored in efforts to identify individuals who really are of interest.

(U) To clarify, when people are *unconstrained* in their capability and intent to act on an OBR, they are *likely* to act on it. People who have multiple sites, plenty of information, consistent signaling, and so on, face no opposition to acting on an OBR. On the other hand, when any of these features hinder people's capability or intent, those people are *constrained* and are therefore less likely to act - with the likelihood decreasing in direct proportion to the degree to which they are constrained.

(U) Confidence Estimates

(U) By themselves, numerous and high-quality intelligence sources are usually not enough to estimate confidence in STA targeting assessments because even a simple STA targeting assessment *must* involve multiple hypotheses: the hypothesis that a person is unconstrained in his capability and intent to act on an OBR as well as the hypothesis that a person is constrained in his capability and intent to act on alternative OBRs. Confidence estimates for STA targeting assessments must balance confidence that a person will do something against confidence that he *will not do something else instead*.[V] This balance can be achieved by using the following table.



(U) STA Targeting Assessment Confidence Estimates (click to enlarge)

(U) The table offers four options for estimating confidence:[w]

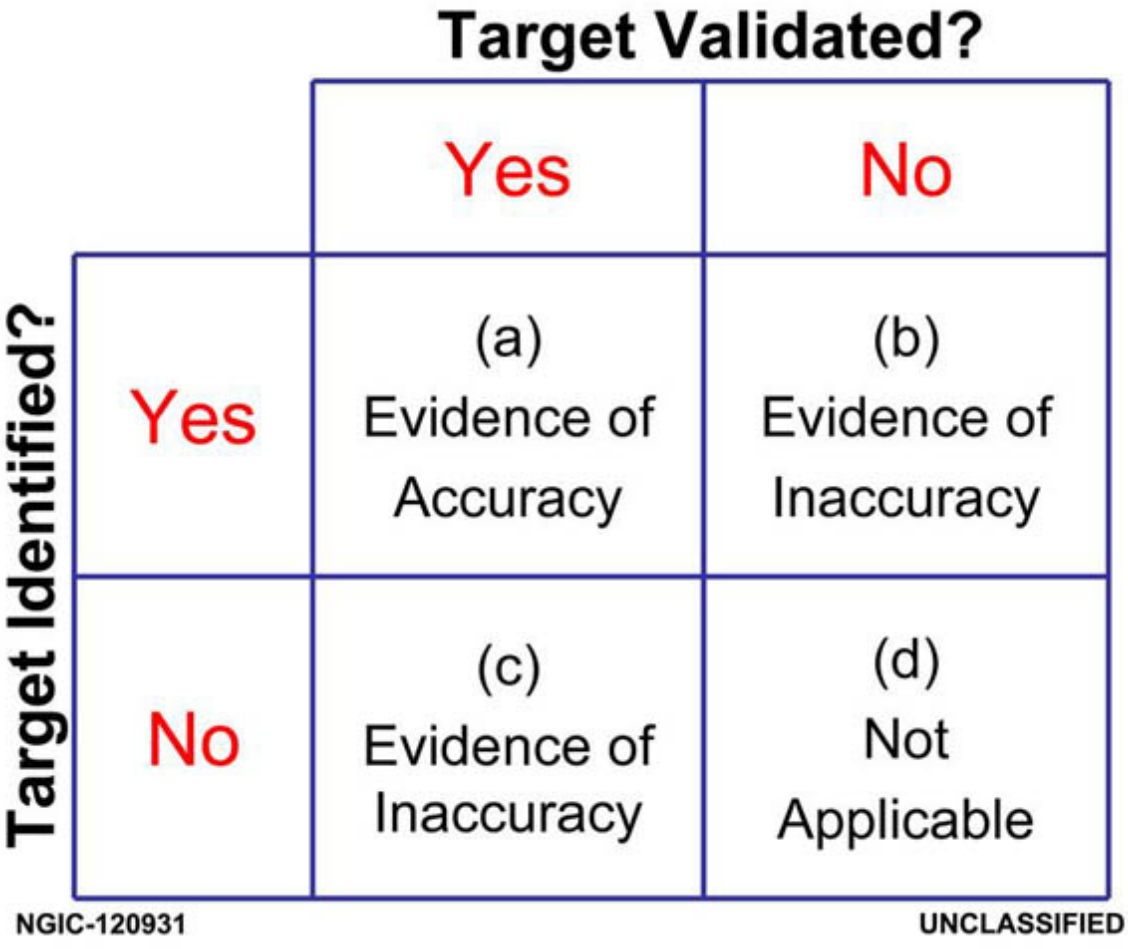
- (U) An assessment that a person will act on an OBR warrants *high confidence* when that person is *unconstrained* in regard to the OBR and *constrained* in regard to alternatives.
- (U) An assessment that a person will act on an OBR warrants *moderate confidence* when that person is *unconstrained* in regard to the OBR but also *unconstrained* in regard to alternatives.
- (U) An assessment that a person will act on an OBR warrants *low confidence* when that person is *constrained* in regard to the OBR but also *constrained* in regard to alternatives.
- (U) An assessment that a person will act on an OBR warrants *no confidence* when that person is *constrained* in regard to the OBR and *unconstrained* in regard to alternatives.

(U) These procedures generate overall confidence estimates for an assessment but can also be used to assess capability or intent separately. An estimate of high confidence does not mean the analyst

believes the person will certainly attack, and an estimate of low confidence does not mean the analyst believes the person will not attack—low confidence just means that there is no reason to believe that the person will attack. An estimate of no confidence can be useful in situations in which a topic or explanation is already widely held: no confidence that something will take place automatically indicates high confidence that the thing will *not* take place. By the same token, low confidence that something will take place automatically indicates moderate confidence that the thing will not take place.

(U) Measures of Effectiveness

(U) The effectiveness of STA targeting assessments can only be determined over time and is measured by tallying the number of different kinds of analytic surprises. An assessment is more accurate the more it can (1) target all of the individuals who should be targeted, (2) avoid failure to target individuals who should be targeted, and (3) avoid targeting individuals who should not be targeted. Accuracy can be estimated on a 2x2 matrix, with one side representing whether a person or location was identified in the assessment as an appropriate target and the other side representing whether the target was validated—the person actually ended up acting on the OBR of concern.[x]



(U) STA Targeting Assessment Measures of Effectiveness (click to enlarge)

(U) People who fit into the top, left-hand box (a) are not surprises: the assessment forecasts their involvement in the OBR, and experience validates that forecast. The top, right-hand box (b) and bottom, left-hand box (c) are surprises: they represent identified targets that were never validated (false positives), and targets that were not identified before validation. The final box (d) is irrelevant,

as it is impossible to count all the unidentified, unvalidated targets. High numbers in box (a) and low numbers in boxes (b) and (c) indicate accuracy.[y]

(U) Decision Advantage

(U) There are several general ways in which an STA targeting assessment's decision advantage can be evaluated:

- (U) Effective STA targeting should make it easier to allocate scarce resources. It is impossible to monitor all people at all times. Identifying people who do not need to be monitored allows potential targets to be prioritized in terms of their probable relevance to a problem set.
- (U) Effective STA targeting should identify areas for improvement of subsequent STA efforts. Accuracy problems generate records of people who are analytic surprises and thereby assist in subsequent analyses by automatically identifying poorly understood aspects of the problem set.
- (U) Effective STA targeting should assist in falsifying incorrect hypotheses. Constraint analysis is designed in a way that makes it difficult to ignore alternative explanations. The eight features of the two constraints require analysts and decisionmakers to find complete explanations for an OBR, and when more than one complete explanation exists, STA procedures make it relatively easy to weigh the evidence for and against each option.

(U) Appendix D: Selected Sources

(U) This assessment relies on many sources, some of them very technical. This appendix presents a few general sources for customers who want to learn more about scientific underpinnings of STA. The appendix also includes a sampling of some of the more accessible technical sources.

(U) General

- (U) Barkow, J.H. John Tooby, and Leda Cosmides, eds. 1992. *The Adapted Mind: Evolutionary Psychology and the Generation of Culture*. Oxford: Oxford University Press.
- (U) D'Andrade, Roy G. 1995. *The Development of Cognitive Anthropology*. New York: Cambridge University Press.
- (U) Greenspan, Stanley I. and Stuart G. Shanker. 2004. *The First Idea: How Symbols, Language, And Intelligence Evolved From Our Primate Ancestors To Modern Humans*. Da Capo Press.
- (U) Mohr, Lawrence. 1996. *The Causes of Human Behavior: Implications for Theory and Method in Social Science*. Ann Arbor: University of Michigan Press.
- (U) Pinker, Steven. 1997. *How the Mind Works*. New York: Norton.

(U) Technical

- (U) Andersen, S. M., Moscowitz, G. B., Blair, I. V., and Nosek, B. A. 2007. "Automatic Thought." In A. W. Kruglanski & E. T. Higgins, eds., *Social Psychology*
- (U) Bargh, John A. and Tanya L. Chartrand. 1999. "The Unbearable Automaticity of Being." *American Psychologist* 54(7):462-479.
- (U) Cahill, L., and McGaugh, J. L. 1998. "Mechanisms of Emotional Arousal and Lasting Declarative Memory." *Trends in Neurosciences*, 21(7), 294-299.
- (U) Chiel, H., & Beer, R.. 1997. "The Brain has a Body: Adaptive Behavior Emerges from Interactions of Nervous System, Body and Environment." *Trends in Neurosciences*, 20,

553–557.

- (U) Compton, Rebecca J. 2003. "The Interface Between Emotion and Attention: A Review of Evidence from Psychology and Neuroscience." *Behavioral and Cognitive Neuroscience Reviews* 2: 115-129.
- (U) Dijksterhuis, A., and Bargh, J. A. 2001. "The Perception–Behavior Expressway: Automatic Effects of Social Perception on Social Behavior." In M. Zanna, ed., *Advances in Experimental Social Psychology*, vol. 33. San Diego" Academic Press, 1-40.
- (U) Eagleman, David. 2004. "The Where and When of Intention." *Science* 303:1144-1146.
- (U) Haidt, Jonathan 2001. "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment." *Psychological Review* 108(4): 814-834.
- (U) Marks N.L and H. Miller 1984. "Ten Years of Research on the False-Consensus Effect: An Empirical and Theoretical Review." *Psychological Bulletin* 8: 728-735.
- (U) Nairne, James S., Sarah R. Thompson, and Josefa N. S. Pandeirada. 2007. "Adaptive Memory: Survival Processing Enhances Retention." *Journal of Experimental Psychology: Learning, Memory, and Cognition*. 33(2): 263-273.
- (U) McGaugh, James L. 2000. Memory – a Century of Consolidation. *Science* 287: 248-251.

Footnotes

a. (U) Decision advantage is the possession of information or analysis that enables a more appropriate decision than would otherwise be possible. To provide decision advantage, information or analysis must either convey the range of choices, the range and likelihood of choice results, or both. Information improves knowledge. Analysis improves understanding. Decision advantage improves behavior.

b. (U) IPOE is the joint term. Army field manuals generally refer to this as Intelligence Preparation of the Battlefield/Battlespace. See JP 2-01.3 and FM 2-01.3.

c. (U) Confidence in Assessments. Our assessments and estimates are supported by information that varies in scope, quality, and sourcing. Consequently, we ascribe high, moderate, or low levels of confidence to our assessments as follows: High confidence generally indicates that our judgments are based on high-quality information, and/or that the nature of the issue makes it possible to render a solid judgment. A "high confidence" judgment is not a fact or a certainty, however, and such judgments still risk being inaccurate. Moderate confidence generally indicates that our judgments are based on information that is credibly sourced and plausible but not of sufficient quality or corroborated sufficiently to warrant a higher level of confidence. Low confidence generally indicates that our judgments are based on information that is of questionable credibility and/or plausibility, that may be too fragmented or poorly corroborated to support solid analytic inferences, or that relies on sources that present significant concerns or problems.

d. (U) People's environments are the product of years of adaptation to different constraints, so people always see more than just the key features when they look at their own lives. When asked to explain their behavior, people often cite education; family, tribal, or other community practices; well-known historical accounts; religious doctrine; or other explanations. Traditions, ideology, and other local practices usually include a number of factors that actually influence behavior, but these factors also include a lot of irrelevant or trivial information. People's reasons for their own behavior are usually inaccurate. They adjust their behavior to suit those parts of the environment that matter, but they think and talk about both the things that matter and the things that do not matter. Constraints—key social terrain features—are the things that matter.

e. (U) A population's social terrain may facilitate behavior that ground forces find undesirable. For those forces, that behavior is bad, but the social-terrain features themselves are neither good nor bad.

They are just there. Just like the physical terrain, specific social terrain is only desirable or undesirable in the context of particular mission objectives.

f. (U) For an explanation of why behavior is generally difficult to predict, see (U) Complex Environments - An Alternative Approach to the Assessment of Insurgencies and their Social Terrain, Part 1: Identifying Decisive Factors.

g. (U) If the diagram in Appendix B were used, constraints could be identified for personal contributions to individuals for development, personal contributions to individuals for insurgency, personal contributions to individuals for political activity, personal contributions to organizations for development, and so on, for a total of 12 possible OBRs.

h. (U) People become aware of capability constraints through trial and error as they attempt to act on OBRs. When experience shows that an environment affects capability to act on an OBR more often, more consistently, or to a greater extent than other environments, people remember the features of that environment.

i. (U) People become aware of intent constraints through trial and error as they attempt to act on OBRs. When experience shows that an environment affects the desirability of acting on an OBR more often, more consistently, or to a greater extent than other environments, people remember the features of that environment.

j. (U) Ideology, tradition, and history do nothing by themselves. For example, religious doctrine may include calls to kill unbelievers, but those passages only justify actual killing in cases where they have enjoyed a long-enough tradition of usage to become represented in physical environment, as in a book or a meeting place.

k. (U) This is partially why extremist groups have been known to have new recruits slaughter animals as part of their training. This is also one of the reasons why computer-game violence, where those "killed" do not really die, does not necessarily make a person more likely to engage in actual violence.

l. (U) In industry, the practice of using individual examples to triangulate information about underlying patterns is called reverse engineering. When a company comes out with a new technology, for example, its competitors often buy multiple copies of the product, take them apart, examine them closely, and then develop their own product plans based on their observations. People's behavior is the product of their social terrain. This behavior can be used to triangulate key social-terrain features in the same way that a product can be used to estimate overall technical specifications.

m. (U) Confidence estimates do not suggest that all members of the population will act or that any specific members will act. LP behavior is too random to forecast with that sort of accuracy. STA assessments are best used to direct the attention of analysts, policymakers, and operators to areas that need to be addressed if they wish to change the *prevalence* of a behavior within a specific population.

n. (U) Estimates for STA assessments simultaneously indicate what the analyst thinks is the case and what the analyst thinks is not the case. For example, an estimate of no confidence in an assessment that a population's social terrain encourages the intent to engage in violence is the same as an estimate of high confidence in an assessment that the social terrain hinders that intent. Likewise, an assessment of low confidence that something is the case is the same as an assessment of moderate confidence that it is, in fact, not the case.

o. (U) Deciding whether a constraint feature is shared or patterned depends upon the number of alternative forms of the feature. If 75% of the targets exhibited one version of the feature and the other 25% exhibited 10 different versions, then an assessment that a constraint feature is shared might warrant an accuracy estimate of 75%. However, if only 10% were exposed to 10 different versions of the feature and the other 15% were all exposed to a single version, then it may be more appropriate to assess that the feature is patterned, with an accuracy estimate of 90% (75% for the larger part of the pattern, plus 15% for the smaller part).

p. (U) Percentages can give misleading impressions about accuracy. Fifty-one percent is the lowest percentage upon which an assessment should be considered accurate. A 50% estimate indicates that there are just as many inaccurate as accurate. Anything below 50% indicates differing degrees of inaccuracy; anything above 50% indicates differing degrees of accuracy.

q. (U) The basic concept of arrangement of constraints is addressed in (U) Complex Environments - An Alternative Approach to the Assessment of Insurgencies and their Social Terrain, Part 1: Identifying Decisive Factors.

r. (U) Naturally, such decisions are also affected by the capabilities and objectives of commanders and forces making the decisions.

s. (U) Satisfaction can mean maintaining contact with an object that leads to satisfying results (for example, staying in a warm, sheltered space during an ice storm) or maintaining absence from an object that leads to frustrating results (for example, staying away from a cold, unsheltered space during an ice storm). Frustration can mean terminating contact with an object that leads to frustrating results (for example, coming in from a cold, unsheltered space during an ice storm), or terminating absence from object that leads to satisfying results (for example, trying to find a warm, sheltered space during an ice storm).

t. (U) For a more complete discussion of random processes and their relevance to the issue of behavior prediction, see (U) Complex Environments - An Alternative Approach to the Assessment of Insurgencies and their Social Terrain, Part 1: Identifying Decisive Factors.

u. (U) To put it into perspective, the New York Police Department (NYPD) devotes much of its time and resources toward monitoring and countering radical and extremist elements through roughly the same targeting methods described in this assessment. The city's population of about 8 million people is contained within about 305 square miles (790 square kilometers). The NYPD conducts that monitoring with 30,000 to 40,000 officers and civilian employees (many of whom work undercover), an LP connected by an advanced transportation and communications infrastructure, multiple reliable investigative media outlets, and nonpolicing government services designed to handle incoming information from an LP that has been trained for many years to self-monitor by reporting out-of-the-ordinary or potentially disruptive events. Even with these resources, the NYPD still struggles to monitor the city effectively. By comparison, Afghanistan has an LP of about 29 million people contained within about 404,375 square miles (647,000 sq km). That is over 3 1/2 times as many people in a space 1325 times larger than New York City, and Afghanistan has virtually none of New York's public connectedness.

v. (U) In cases where an OBR of interest has an alternative, there are usually multiple alternatives. This creates some nuance in confidence estimates. An assessment that a person who is unconstrained in his capability and intent to enact a violent OBR and will, in fact, attack deserves more confidence when there is only 1 unconstrained alternative than when there are 20 unconstrained alternatives.

w. (U) These procedures, of course, assume that the assessment in question is based on all-source intelligence.

x. (U) Constraints predict any attempt to act on OBRs, not just successful attempts. Therefore, failed attempts should not be differentiated from successful ones for the purposes of assessing accuracy.

y. (U) Overall accuracy can be roughly estimated by dividing the number in box (a) by the combined numbers from boxes (b) and (c). Results that are less than one indicate different degrees of inaccuracy. Results higher than one indicate different degrees of accuracy. A result of one indicates that accuracy cannot be determined.

NGIC-1584-7089-10

Information Cutoff Date: 2010-03-12

External Coordination:

JSOC
NASIC
UK DI

Author(s)

Schaun J. Wheeler
NIPRNet Email: schaun.wheeler@mi.army.mil
SIPRNet Email: schaun.wheeler@mi.army.smil.mil
NGIC
IANG-PMA-IWC

COM: (434) 980-7309
DSN: 521-7309

Approving Division Chief

Richard L. Comfort
NIPRNet Email: richard.l.comfort@mi.army.mil
SIPRNet Email: richard.l.comfort@mi.army.smil.mil
NGIC
IANG-PMA-IW
COM: (434) 980-7714
DSN: 521-7714

NGIC Contact

NGIC 24-Hour Operations Center
SIPRNET Email: rmNGICS3-OPCTR@mi.army.smil.mil
COM: (434) 980-7085
DSN: 521-7085