Recognizing Patterns of Anomie that Set the Conditions for Insurgency

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Keywords:
Anomie, insurgency, stability operations, social, culture, behavior, modeling

ABSTRACT: New challenges to analysis, modeling and simulation have arisen in recent years as decision-makers and policy makers seek a better understanding of human social culture behavior. The Office of Naval Research has tasked a team of researchers to investigate the specific question of the relationship between the well-established theory of anomie and the emergence of insurgency. This project proposes to identify patterns of anomie that set the conditions for insurgency, categorize the events that trigger the start of an insurgency, and simulate the path of a nation state from peace into political violence using wargaming and modeling. Anomie — the loss of compelling norms that enable populations to meaningfully interpret social change — threatens nation states with instability-induced conflict. Nation-states that experience anomie-induced conflict are similar in that they share common factors that make them susceptible to insurgency. We will utilize pattern classification algorithms to identify associations of conditions to outbreaks of insurgency. The presence of anomie alone does not lead to insurgency, but helps establish conditions upon which pivotal events trigger the political violence. Micro-level analysis will complement macro-structural concept and data analysis. The research will develop case studies for nation-states that have suffered insurgency to understand the types of triggers that were involved. Understanding the roots of anomie that set the conditions for insurgency and the triggers that initiate the violence will enable creation of wargames and models to examine the onset of an insurgency and develop mitigation strategies. These allow vicarious learning for decision makers to experience the onset of an insurgency before the first shot is fired, providing time and understanding to potentially prevent or mitigate the outbreak of the violence in real-world regions of interest. The project’s multi-level approach offers a needed methodological step forward, and its outputs include new empirical grist for fellow scholars and field practitioners.

This paper provides an overview of the project and proposed methodology, as well as progress to date and planned go-forward efforts. Moreover, the paper will serve as a representative example of exploration into social theories, real-world data collection, and various modeling approaches to stimulate SISO community consideration of the need for model and data standards in the area of human social culture behavior (HSCB) modeling.
1. Introduction

New challenges have arisen in recent years as broader elements of the Modeling and Simulation (M&S) community have become engaged in human, social, culture, behavior (HSCB) modeling. Understanding decision-making at the individual, small group, organizational, societal, national, and trans-national levels is important to policy development, nation-building, social intervention, and other activities dealing with human populations. In warfighting, decision makers in today’s Joint Operational Environment speak of taking Diplomatic, Information, Military, Economic, Financial, Intelligence, and Law Enforcement (DIME-FIL) actions to create desired Political, Military, Economic, Social, Infrastructure, and Information (PMESII) effects. The M&S community has long focused on the military dimension. Now, modeling requirements and development need to expand to determine appropriate representations of the other dimensions of the modern battlespace.

One area of major interest is the emergence of insurgencies in nation-states. A proactive approach to the problem of insurgency requires analysis to begin before the violence starts. The Office of Naval Research has tasked a research team from the Naval Postgraduate School, Army Training and Doctrine Command (TRADOC) Analysis Center, Monterey (TRAC-Monterey), and the Swiss Academy for Development (SAD) to investigate and model the relationship between the well-established social theory of anomie and the origins of insurgency. This project proposes to identify patterns of anomie that set the conditions for insurgency, categorize the events that trigger the start of an insurgency, and simulate the path of a nation state from peace into political violence in wargaming and modeling.

Anomie, the loss of compelling norms that enable populations to meaningfully interpret social change, threatens nation states with instability-induced conflict. We hypothesize that nation-states that experience anomie-induced conflict share common factors that make them susceptible to insurgency. Early work with pattern classification algorithms is helping to associate various factors to outbreaks of insurgency. Micro-level analysis will complement macro-structural concept and data analysis to investigate this hypothesis. The research will develop case studies for nation-states that have suffered insurgency to understand the types of triggers that were involved. Understanding the roots of anomie that set the conditions for insurgency and the triggers that initiate the violence will enable design of wargames and models to examine the onset of an insurgency and develop mitigation strategies. These allow vicarious learning for decision makers to experience the onset of an insurgency before the first shot is fired, providing time and understanding to potentially prevent or mitigate the outbreak of the violence in real-world regions of interest. The project’s multi-level approach offers a needed methodological step forward, and its outputs will provide new empirical grist for fellow scholars and field practitioners.

This paper provides an overview of the project and proposed methodology, and will describe progress to date and planned go-forward efforts. For the Simulation Interoperability Standards Organization (SISO), the paper serves as a representative example of exploration into social theories, real-world data collection, and various modeling approaches to stimulate community consideration of the need for modeling and data standards in the area of HSCB modeling.

2. Social Science Theory: Anomie

The sociological concept of anomie is based on the theories of Durkheim and Merton. Durkheim (cited in Merton 1938) [1]) perceives the source of anomie in the collapse of the social structure caused by rapid social change. The social structure normally regulates the infinite human drives. If the social structure collapses, these drives are no longer regulated and the valid regulations and norms of behavior lose their function. This finally leads to deviant behavior in one form or another.

Merton (1938, 1959) [1,2] claims that it is not the breakdown of the social structure that is responsible for anomie but that anomie is an inherent part of the social structure itself. Anomie emerges when the social structure prescribes specific goals to the majority of its members but does not provide the legitimate means to achieve these goals to a portion of them. Anomie results from the discrepancy between culturally defined goals and means. Deviant behavior is caused by social pressure. Therefore, society is structurally anomic insofar as legitimate means to achieve generally valid goals are not distributed equally among all societal groups (Legge et al., 2008) [3]. The predisposition to anomie depends on a person’s specific position in a particular society (defined by age, sex, ethnicity etc.). Anomie can occur on different systemic levels (i.e. in different subsystems to which an individual belongs) and can also be of varying degrees.

Cloward (1959) [4] expands upon Merton’s theory and states that a person’s position in a certain society determines not only his/her access to legitimate means but also his/her access to illegitimate means. Accordingly, deviant behavior is dependent on the following variables: (a) a socially conditioned pressure
towards deviant behavior caused by the discrepancy between goals and means (i.e. anomie); (b) a lack of internalized values which would otherwise prevent a person from engaging in deviant behavior; and (c) access to illegitimate means. Merton (1959) adds that this list of variables may not be exhaustive. Furthermore, an individual does not choose a certain behavior and maintain it throughout his/her entire life; individuals show a sequential pattern of different kinds of deviant behavior, the sequence depending on the social structure which enables one or the other sequence.

There has been widespread criticism about Merton’s theory being too individualistic. Cohen (1959) [5] states that deviant behavior always develops through the process of an interaction; i.e., a person’s adaptation to his/her social environment. Accordingly, Thio (1975) [6] introduces the distinction between “relative” and “objective” deprivation. Individuals set their goals in relation to others in a similar position. The source of anomie is thus not objective deprivation (i.e., the inability to reach certain goals due to the social structure), but rather relative deprivation (i.e., the inability to reach certain goals which are considered by the respective person to be reachable). Furthermore, the research of Wulff (as cited in Ortmann, 2000) [7] leads to the assumption that it is not reasonable to talk about “the” goals and “the” norms. Goals, norms and means have to be differentiated in correspondence to their thematic realm. This could also imply a different degree of explanatory force of the theory in accordance with different combinations of goals, means, and norms. Lastly, both, Hüpping (2005) [8] and Ortmann (2000) suggest that the explanatory force of anomie theory may be higher when concerning severe crime rather than minor delinquency.

Further criticism has been raised on the lack of distinction between individual anomie (“anomia”) and social anomie. The psychological approach to anomie deals with this relationship between the psychological state of anomie and the various characteristics of the social state of anomie:

“A common assumption behind this approach is that individual anomie is reflective of the conditions of social dysfunction and, as such, may be used to mirror the social dimensions of anomie. Moreover, the reciprocity of the relationship between individual and society suggests that a high level of psychological anomie within the individual may very well contribute to a social state of anomie.” (Lanyon et al., 1995, p 12) [9]

However, the study of Vladimorov et al. (1999) [10] show that individual anomie does not necessarily correspond with institutional anomie.

More recent approaches to anomie link the theories of Durkheim and Merton to the context of globalization. Lanyon et al. (1995) suggest that it is above all the modern processes of globalization, mass migration and urbanization as outputs of our times that lead to an increase in the complexity of social life and can therefore cause social anomie. The process of globalization leads to accelerated social change, increasing complexity of social life due to increasing competition between different value systems, and more widespread social inequality.

Special emphasis is placed on the influence of economic institutions and their corresponding value systems in explaining the rise of anomie. Passas (2005) [11], for example, sees neo-liberalism as a major source of an increased level of anomie and thus a greater amount of illegitimate means being used in poorer countries while they try to adapt to new global circumstances. These theories are in accordance with Lanyon et al. (1995) who assert that a state of “normlessness” (i.e., the breakdown of values and the disruption of the moral order) very rarely exists. Rather, anomie results in the state of flux of competing core and peripheral values of a society.

Recently, the Institutional Anomie Theory of Crime (IAT) as introduced by Messner and Rosenfeld (cited in Messner et al., 2008) [12] has found wide application. The theory is based on the assumption that social institutions (i.e., family, education, economy, polity) guide individual behavior inasmuch as they provide the social actor with goals and means. Since there is a wide array of institutions, the individual is confronted with a multiplicity of goals and means. In turn, for the social order to exist, the individual actors have to coordinate their actions. The basis for this coordination is provided by the value system of a society on which the social institutions are based. The IAT goes on to suggest that anomie is a result of the dominance of the economy over other institutions and its penetration into all parts of life. This dominance – which emphasizes the value of efficiency and money, devalues the moral status of the means of action and is characterized by a disintegrated individualism – may lead to a high degree of anomie and finally to a high crime rate.

2.1 Empirical Testing of the Theory

Ortmann (2000) highlights that no studies in the German speaking nor Anglo-American region studies have been conducted which take all variables into account which are relevant for anomie theory. In the few studies which
examine all relevant variables there is still a profound gap between the concepts, variables or scales, and their concrete operationalisation. In sum, Ortmann (2000) asserts that research on anomie theory has hitherto strongly lacked validity. This may be due to the fact that assertions of anomie theory may be strong but nevertheless quite imprecise.

Lanyon et al. (1995) stress that any research endeavor which attempts to detail the parameters of anomie must take into account all forms of anomie (i.e., on a societal and on an individual level) or specify clearly the forms relevant to the research. Indeed, most research focuses on either the institutional/structural level or the individual level, neglecting one or the other. In order to measure the conditions of anomie at different levels of society, Lanyon et al. (1995) point to the need to include both subjective and objective indicators. According to them, objective indicators most appropriately measure social structural and cultural structural aspects of anomie. Subjective indicators on the other hand are most effective in measuring the impact of different types and degrees of anomie upon the individual and in highlighting socially patterned behavior in response to anomie. Ideally, anomie research should be conducted as a long-term study.

**Measurement of anomie on an institutional/structural level**

Recent research on anomie on an institutional/structural level predominantly focuses on testing the relationship between the economic conditions of a state and its crime rates (Messner et al., 2008). According to Bjerregaard & Cochran (2008) [13], at least three aspects should be included in an analysis of the impact of the economy on crime rates at a national level: (1) the economic freedom/regulation (measured, for example, by the index of economic freedom as developed by the Heritage Foundation); (2) the economic obstacles to economic success (measured by indicators of economic inequality such as the Gini coefficient, the index of economic discrimination, unemployment rate, etc.); and (3) the strength of the economy itself (indicated by the gross domestic product). As indicators for the strength or weakness of non-economic institutions, Bjerregaard & Cochran (2008) suggest the following measures: the divorce rate for the strength of the family unit; a lack of voter turnout for the ineffectiveness of the political system; and the ratio of educational expenditures to the GDP for the educational system.

A shortcoming of research on the IAT is the lack of cross-cultural data since most research has almost solely focused on data collected in the United States (Entorf & Spengler, 2002) [14]. Furthermore, much of the research on the IAT considered only single indicators of anomie or, when examining multiple indicators, tested only the direct effects of these measures instead of a multiplicative construct (Bjerregaard & Cochran, 2008).

**Measurement of anomie on an individual level**

It is partly due to the diverse definitions of anomia and anomie that there is a wide range of scales available for recording anomie on an individual level (Legge et al., 2008). Robinson et al. (1991) [15] highlight two different approaches to anomie which can be discerned in current research: (1) anomie in the sense of normlessness as a deviance from prescribed rules and customs; (2) anomie as normlessness describing the absence of behavioral regulations or the ambiguity of behavioral norms (i.e., a condition of meaninglessness).

The second concept of normlessness is strongly founded on the ideas of Durkheim. However, it still remains unclear whether anomie is a condition of society or a mental state. In any case, anomie scales do not measure the structural version of anomie. Nevertheless, they can approach this version in several ways; for example, by aggregating the individual responses in one society and thus measuring the condition of the normative order which the members of a society encounter (Robinson et al., 1991).

As Ortmann (2000) suggests, however, the mere measurement of anomie as normlessness is not sufficient to prove anomie theory. Other theories also suggest a relationship between normlessness and deviant behavior. Only the evidence of an interdependence between normlessness and its postulated causes (according to Ortmann goals-means-discrepancy) can lead to the conclusion that anomie theory possesses explanatory power.

**Towards a (working) definition of anomie**

The literature on anomie provides varying definitions of the concept. A key factor in these definitions is that anomie describes “the lack or ineffectiveness of normative regulations in society” (Deflem, 2007, p 144) [16]. The ideas about the causes of anomie, however, diverge. Durkheim (as cited in Merton, 1939) argues that social change leads to the deregulation of norms. Thus, anomie in his definition is the absence of normative regulations.

Merton (1939, 1959) adapted and expanded Durkheim’s concept in his theory of deviant behavior. He suggests that anomie results from the discrepancy between culturally defined goals and the institutionalised means to reach those goals. According to him, anomie describes
the “resulting demoralization or deinstitutionalization of a society’s legitimate means, leading people in some social categories, depending on their socio-economic conditions, to be more likely to adopt illegitimate and often illegal means to reach culturally approved goals” (Deflem, 2007, p 145).

On the other hand, recent approaches like the IAT define anomie as a result of the predominance of economic values over other institutional values.

The concept of anomia refers to the “social psychological mental states of individuals who are confronted with social conditions of anomie” (Deflem, 2007, p 145). Deflem (2007), however, further emphasizes that “caught between the polarization of micro and macro perspectives, the relation between anomia and anomie at a theoretical level has never been adequately addressed” (p 145).

For the purpose of this research, we propose the following (working) definition of anomie, based on a synthesis of the prevailing theories:

Anomie is a condition of social structures whose regulative and integrative social forces are weak. The weakness of these structures has either resulted from rapid structural change whereby the processes which reinforce social integration decline in salience and force. Or it is structurally inherent, caused by the discrepancy between culturally defined goals and accessible legitimate means, or the predominance of economic values.

On the individual level, social anomie is reflected by the psychological state of anomia which is associated with great difficulties in individual adaptation, resulting in a loss of general social orientation, the development of feelings of insecurity and marginalization, and the questioning of the legitimacy of core values. Previously valid behavioral norms as well as personal competences disintegrate.

In accordance with Robinson et al. (1991) we assume that the psychological state of anomia is most compatible in regard to Durkheim’s conceptualization of anomie.

### 3. Insurgency

The literature review on possible causes for the emergence of non-state armed groups shows that studying the issue is highly complex. Several aspects need to be taken into account and a holistic approach applied in order to understand the phenomenon. It is probably due to the complexity of the problem and difficulties in gaining access to the field that most of the studies so far are based on secondary statistical analyses of data or reports.

The emergence of non-state armed groups needs to be understood as a dynamic process rather than based on static causes. Historical aspects as well as developments over time need to be considered. Another element which asks for a complex study design is the interconnectedness of possible causes. Possible factors of influence cannot be studied in an isolated manner.

Today there is a broad consensus that the underlying causes are multidimensional. However, most of the studies either look at macro- or micro-factors. Only a few have managed to combine the different levels of analysis. Approaches such as Collier’s & Hoeffler’s “loose molecule” hypothesis (1998) [17] which reduce the causality of conflicts to the question of material incentives (“greed”) and neglect the demand-side such as specific grievances within the population, are criticized. Equally, it is criticized that thus far there has been too much focus on political leaders and organizations as agents, and on economic growth, topography, or demography as structural factors explaining the duration of conflicts. A lack of research on social forces (civil society or societies) is an important shortcoming. Societies can convey exhaustion of war, demand peace, and promote social and political space for negotiations, and thus effect the duration of conflicts. On the other hand, communities can also inhibit social negotiations; for example, when they are the carriers of nationalist narratives, racism, etc. which mobilize sentiments that are counterproductive to peace processes (Heiberg et al., 2007) [18].

Influencing factors can be found at different levels and classified in different ways. One way to organize and study the various causes of insurgency is to look at the individual/group level, at the societal or national level, as well as at the systemic or international level. Smith (2004) [19] proposes the study of background causes (basic elements of social and political structure), the mobilization strategy (political behavior, the causes for which people fight), triggers (events, actions by significant actors), and catalysts (that affect the intensity of the conflict; e.g., material factors).

Bjørgø (2005) [20] distinguishes structural causes, facilitator (accelerator) causes, motivational causes, and triggering causes. Structural causes are causes that affect people’s lives – that they may or may not comprehend – at a rather abstract macro-level (e.g., demographic imbalances, globalization, rapid modernization, transitional societies, class structure). Facilitator causes make joining an armed group possible and attractive without being prime movers (e.g., media, transportation,
weapon technology, weak state control, diaspora funding). Motivational causes are the actual grievances that people experience at a personal level, motivating them to act. Motivational causes may also be seen as concrete symptoms of structural causes. Triggering causes are the direct precipitators of violent acts (e.g., outrageous acts, political calamity or provocative events).

On a motivational level, Guichaoua (2007) [21] distinguishes three crucial considerations for potential members of non-state armed groups: (1) economic considerations (or “greed”) as described by Collier and Hoeffler (1998); (2) a feeling of danger which rouses the “desire of protection against fuzzily identified risks (criminality, unknown future, menace from other ethnic groups, etc.)” (p 27); and (3) the social proximity to militia insiders may lead to the participation in non-state armed groups.

Towards a (working) definition of insurgency

Insurgency can be defined in several ways. Based on different definitions of insurgency, we identify the following main characteristics:
- Insurgency is an organized movement.
- It is a political effort with a specific aim.
- Insurgents use non-violent means, such as political mobilization or propaganda, and armed conflict and subversion which can – but do not necessarily – include guerrilla warfare or terrorist means.
- The ultimate goal of an insurgency is to challenge or weaken the existing government or established leadership for control of all or a portion of its territory, or force political concessions in sharing political power.
- Insurgencies require the active or tacit support of some portion of the population involved. External support, recognition or approval from other countries or political entities can be useful to insurgents, but is not required.

Within this study, we will draw upon the definition of Ricigliano (as cited in Dudouet, 2009 [22]) which includes a variety of aspects. Resistance/liberation movements as she calls them are “groups operating primarily within state borders engaged in violent attempts to challenge or reform the balance and structure of political and economic power, to avenge past injustices and/or to defend or control resources, territory or institutions for the benefit of a particular ethnic or social group.” (p 5) This definition thus excludes groups with a private agenda (criminal organizations, drug cartels, etc.) and focuses on groups with a political, economic, or social agenda.

In order to study insurgency on a micro-level, it might be useful to further differentiate according to types/degrees/intensity of participation in non-state armed groups (sympathizing, logistical support (direct, indirect), political activities, using arms, status within the group, etc.). It may also be important to include the aspect of time as eventual membership of non-state armed groups needs to be seen as a progressive process of becoming active.


A conceptual framework for studying patterns of anomie that set the conditions for insurgency must synthesize anomie theory and existing knowledge of predictors of the participation in non-state armed groups. Meanwhile, predictors related to anomie only represent one aspect of a bigger and more comprehensive picture. The conceptual framework shown in Figure 1 aims to reflect this variety of causes at different levels of society as well as their interactions.

The framework forms the basis for developing research questions and hypotheses to be verified or disproved through desk research (in the case of macro-level indicators) and empirical field research (in the case of micro-level indicators). Intermediary variables such as motivational causes, facilitators, and trigger events mediate between macro-level structural causes (independent variables) and insurgency (dependent variable). Structural causes and motivational causes are considered part of an indicator system aiming at early detection of insurgency.

The primary objective of the research on the micro-level is to analyze to what extent anomie on an individual level is a motivational factor which can explain the support of and participation in non-state armed groups, and what factors may lead to anomie. Taking into account the previously discussed theories of anomie we will examine three potential motivational causes of insurgency: (exposure to) social change and anomia (Durkheim), ends-means-discrepancy (Merton), and the prevalence of economic values (Messner et al. and other authors).
We define the key terms of the conceptual framework as follows:

- **Values** are defined by Oyserman (2001, p 16150f.) as “implicit or explicit guides for action, general scripts framing what is sought after and what is to be avoided. [...] At the individual level, values are internalized social representations or moral beliefs that people appeal to as the ultimate rationale for their actions. [...] Values are not simply individual traits; they are social agreements about what is right, good, to be cherished.”

Values differ from goals inasmuch as goals are more specific and demand particular methods to achieve them. Values, on the other hand, provide the general rationale for specific goals (Oyserman, 2001). **Norms** may be described as values on a behavioral level; i.e., they refer to values that prescribe a certain course of action.

Social institutions are based upon value systems which are shared by a community. Institutionalized value systems can be differentiated according to the functional aspects of the behavior they guide (for example, the family as guiding behavioral patterns concerning the biological reproduction or the economy as guiding behavioral patterns for the subsistence of the human organism.)

- **Anomie** is a condition of social structures whose regulative and integrative social forces are weak. The weakness of these structures has either resulted from rapid structural change whereby the processes which reinforce social integration decline in salience and force. Or it is structurally inherent, caused by the discrepancy between culturally defined goals and accessible legitimate means, or the predominance of economic values.

On the individual level, social anomie is reflected in the psychological state of **anomia**. This state is associated with great difficulties in individual adaptation, resulting in a loss of general social orientation, the development of feelings of insecurity and marginalization, and the questioning of the legitimacy of core values. Previously valid behavioral norms as well as personal competences disintegrate. In accordance with Robinson et al. (1991), we assume that the psychological state of anomia is most compatible with Durkheim’s conceptualization of anomie.

- **Ends (Goals)** are the intentions of a person concerning future results of a certain behavior.
They are normally located outside the person. Goals are thus images about the future and desired final conditions which a person wants to achieve deliberately and which are normally located outside of a person.

- **Means** refer to the resources of a person to achieve those goals. Resources comprise the knowledge of a person, physical objects, and his or her social network (Ortmann, 2000).

- **Ends-Means-Discrepancy** results when a person does not have enough resources to achieve his or her goals; the person experiences deprivation. However, as Cohen (1959) highlights, a distinction must be made between absolute/objective and relative deprivation. He suggests that the source of anomie is not objective deprivation (i.e., the inability to reach certain goals due to the social structure) but rather relative deprivation (i.e., the inability to reach certain goals which are considered by the respective person to be reachable). We intend to measure both, absolute and relative deprivation.

- **Social change** according to Lanyon et al. (1995) involves three social processes: political, economic, and cultural globalization, urbanization, and mass migration.

Alternative explanatory paths to the support of or participation in non-state armed groups which will be examined are based on the work of Guichaoua (2007):

- **Feelings of threat, danger, and/or indignity**: Guichaoua (2007) highlights that vulnerability – whether perceived or real – triggers feelings of threat and danger. The concept of vulnerability does not merely focus on poverty (and thus differs from the theory of “loose molecules” by Collier and Hoeffler (1998)). Rather, it describes the inability to counter threats on different levels (i.e., with money, knowledge, social capital, etc.). We will thus use the socio-economic status as well as the socio-demographic status (including affiliations to a minority or a majority, age, and gender) as an indicator of vulnerability which encompasses more than just economic aspects. With regard to the resulting feelings, we will distinguish between feelings of threat, danger, and of indignity. While Guichaoua (2007) already lists threat and danger, indignity is also widely mentioned in research on insurgent movements and seen as the result of being in an inferior position.

- **Proximity to militia insiders**: Guichaoua (2007) also identifies proximity to militia insiders as a motivational force. The impact of the social network has previously been emphasised in other research as well: The attitudes of friends and family may foster the support of or participation in non-state armed groups; coercion and the perception of violence as normality are also seen as potential causes. In sum, the impact of the social network and therefore the subjective norms (i.e., the norms that an individual thinks are important for relevant persons) finds strong support in current research on non-state armed groups. It is for this reason that we will include this approach as an alternative explanatory path to the support of or participation in non-state armed groups; the thought being that it is not a state of normlessness but the perception of violent behavior as a socially accepted value (i.e., anomie in the sense of deviance as the social norm) that is the cause of the support of or participation in non-state armed groups.

At the macro-level, the study aims to contribute to understanding the linkages between structural factors (regime type, economic situation, etc.), social change (globalization, deteriorating environment, modernization, etc.), anomie and insurgency. In addition, “trigger events” will be identified which lead to the emergence of armed groups. Macro-level research will be combined with micro-level field research to identify objective as well as subjective indicators of insurgency. Micro-level research aims to target motivational factors of influence (individual attitudes and perceptions, psycho-social conditions) that promote the use of violent means in a given context. More specifically, it aims to uncover why people sympathize with armed groups (i.e., their motives) and why they decide to join armed forces, which act against established structures; and conversely, why people do not become active and desist from participating in armed forces or why people support the established structures. The macro-level analysis is using pattern recognition, based on the insights of anomie theory. The desk research is intended to identify the economic, political, and social indicators that can serve as proxy measures for the level of anomie that a nation state experiences. Further literature review is needed to investigate research into institutional-anomie theory and relative deprivation (for example) which will help inform the macro-level analysis.

To date, we have collected macro-level data for economic, political, and social indicators. Our primary source is the 2008 World Development Indicators database. The database contains over 800 indicators by nation state and year for over 200 nation states. The most
significant challenge with the data has been dealing with missing observations. The current solution is to replace missing observations with the regional mean for the given year. A possible alternative solution would be to regress the other indicators against the missing indicator for all observations in the given year. We have also collected insurgency data from the 2008 RAND Counterinsurgency Study, “War By Other Means: Building Complete and Balanced Capabilities for Counterinsurgency” [24]. The dataset identifies 87 insurgencies since the end of World War II.

From this foundation, we fit logistic regression models, regressing economic, political, and social indicators against insurgency. We created a preliminary measure for macro-level anomie as the weighted sum of economic, political, and social goals-means differences. Four inferences emerged from this exploratory analysis:

1. Non-Insurgent states experience all levels of anomie.
2. The likelihood of insurgency increases with anomie.
3. Insurgency requires a minimum level of anomie.
4. A high level of anomie is not a sufficient condition for insurgency.

These inferences support several of our assumptions and suggest that our hypothesized relationship between anomie and insurgency is plausible. Finally, we have classified patterns of anomie that led to insurgency using the k-nearest neighbor algorithm. The algorithm recognized a high percentage of nation states that experienced insurgency, but had a high false positive rate. We infer from these results that our assumption that high levels of anomie are a necessary, but not sufficient condition for insurgency is correct.

The creation of “war games” and models to examine the onset of an insurgency and develop preventive mitigation strategies will be concrete outputs of the project. These war games and models will facilitate decision makers’ vicarious experience of the onset of an insurgency under simulated conditions. In addition, the work hopes to produce early detection mechanisms, which allow a timely understanding of the processes taking place in a specific context. Models and instruments will be tested in different cultural contexts (case studies), starting with Nigeria/the Niger Delta, in order to validate the instrument cross-culturally and to arrive at a set of macro-level and micro-level indicators that help to explain the rise of insurgent movements beyond cultural boundaries. Efforts are underway to negotiate with research partners in the region of interest and to prepare all assurances to comply with all requirements of the DoD Human Research Protection Program.

6. Cultural Geography Model and Use of Anomie Data

The Cultural Geography (CG) model is an agent-based simulation of the operational environment based on doctrine and social theory designed to address the behavioral response of civilian populations in conflict environments [25, 26]. The CG model consists of entities (people) interacting with each other and responding to specific events. Each entity is defined primarily by a set of narrative identities and secondarily by a set of demographic dimensions. These collectively shape the entity’s beliefs, values, interests, stances on issues, and behaviors.

The CG model enables the user (or, alternatively, other simulated actors in the conflict ecosystem) to schedule events that impact population beliefs and stances on critical issues. This change is accomplished through implementation of Bayesian belief networks. The parent nodes of the belief networks are the beliefs and interests of target population groups derived from their narrative identities. The end nodes of the belief networks are the population’s issue stance. Scheduled events or population behaviors impact belief nodes that influence the end node issue stance. An example of a scheduled event may be insurgents targeting market places which threaten security and economic stability. An example of population behaviors may be seeking and acquiring essential services. Figure 2 provides an example of a belief network for a case study of Amarah, Iraq assessing the population’s stance on security.

![Figure 2. Beliefs Impacting Stance on Security (Network developed using Netica®)](image)

Belief nodes are often impacted through communications in the social network. The CG model supports representation of a social network by applying concepts of propinquity (physical proximity/opportunity for interaction) and homophily (tendency to associate with those of similar interests). Specifically, when an entity’s belief nodes change due to processing influence from an event, the entity attempts to communicate the result to
other entities within a pre-defined social distance that possess similar interests. If communication is successful, the receiver’s beliefs are impacted accordingly.

Population behaviors are modeled in CG through Bayesian networks using the Theory of Planned Behavior (TpB) [27]. The TpB accounts for an entity's perceived attitude, norm, and control regarding a specific behavior. Figure 3 shows the Bayesian network and starting conditions for a notional entity seeking electricity. The normative belief (NB), behavior belief (BB), and control belief (CB) are conditions that impact the entity’s intention to seek electricity (Do Action) or not (Do Nothing). The '55.0' in the 'Intention' node indicates the likelihood that the entity will ‘do nothing’ (not take action to seek electricity); whereas ‘45.0’ indicates the likelihood the entity will ‘do action’ (take action to seek electricity).

Figure 3. TpB Network for a Notional Entity Seeking Electricity (Network developed using Netica®)

Starting conditions for an entity’s TpB are determined based on subject matter expert (SME) input. Nodes are impacted by success or failure of acquiring the essential service. For instance, if the entity successfully seeks electricity, the entity would likely feel more perceived control regarding successfully acquiring electricity in the future. Likewise, success or failure of acquiring an essential service impacts an entity’s stance on issues. For instance, successfully acquiring electricity may positively impact beliefs associated with the issues of infrastructure or governance, leading to changes in the entity’s issue stance.

Data development requirements for the CG model are extensive. Requirements include:
- Identifying prominent identify dimensions and influencing groups to model within the target population
- Researching the narrative identities of population dimensions and groups
- Deriving beliefs, values and interests of population groups as related to issues of interest
- Developing social network and affective/instrumental ties between groups
- Developing starting conditions for belief networks and TpB networks
- Developing case files that impact beliefs and TpB nodes based on events or population behaviors.

Automated tools exist to support the data development process; however, analyst input and SME review are required throughout the process. Additionally, given the focus on behavioral responses of target populations, CG model input data is highly specific in both location and time. Specifically, the analyst must complete the data development requirements listed above for each population case study in differing locations. Also, population beliefs and interests may change significantly over time, requiring the analyst to refresh data input. For instance, population beliefs and interests for Fallujah, Iraq in 2004 vary significantly from Fallujah population beliefs and interests in 2007 during the Anbar awakening.

Work has been performed to relate the project research questions to the CG data development process to look toward future incorporation of data collected from the project into the CG model. The work shows that mutually-supporting data development requirements exist for anomie research and CG model development. It is anticipated that the anomie research will broaden behavior modeling for the population in the CG model, albeit tailored to anomie. Additionally, modeling anomie behavior in CG will enable analysts to research study questions such as: “How do specific population groups react to anomie?” Also, setting behavior thresholds enables analysts to impact belief networks when intention thresholds are satisfied. For instance, if poor unemployed groups reach a specified level of rebellion likelihood, then beliefs such as “perceived legitimacy of the government” are impacted negatively.
7. Interoperability Standards for Human Social Culture and Behavior Modeling

As mentioned earlier, the Anomie project serves as a representative example of exploration into social theories, real-world data collection, and various modeling approaches that can be used to stimulate community consideration of the need for model and data standards in the area of HSCB modeling. SISO can play an important role in identifying, developing, and promoting standards that aid the community in developing and employing these models [28]. The community is invited to participate in the SISO HSCB Forum to address this critical area to help advance the state of the art.

8. Summary

The Anomie project shows the strong reliance on social theories and real-world data collection to support research questions of utmost importance to world social and political conditions. Today’s interest in modeling human society, culture, and behavior presents a unique opportunity for the SISO community to step out as leaders in advancing M&S standards for this domain.

9. References


Author Biographies

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Disclaimer

The opinions expressed in this paper are those of the authors and not necessarily those of their respective organizations or any of their sponsoring organizations.
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NIKLAUS EGGENBERGER-ARGOTE is Executive Director, Swiss Academy for Development (SAD), Biel, Switzerland. He has worked extensively in Iran on youth and anomie research, mental health needs assessments in cooperation with the World Health Organization, and on projects to support resiliency and strengthen civil structures after an earthquake in Bam. Dr. Eggenberger holds a PhD in International Affairs and Governance from University of St. Gallen, Switzerland including a thesis on the political socialization of the Cuban citizen and its effects that built on 1.5 years of field research in Cuba focusing on processes of decentralization, development of civil society, civic culture, prevailing norms and values and citizen participation in decision-making. Niklaus Eggenberger also completed postgraduate studies in development cooperation at the Federal Institute of Technology in Zurich (ETH).

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