# Human Terrain: A Tactical Issue or a Strategic C4I Problem?

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## Abstract

*The term "human terrain" was coined recently by the Army in response to critical needs for information about the individuals, groups and the workings of the society in general in Iraq. The call for help and the response to date has focused on tactical operations, but it is essential to consider the possibility that the tactical need points to a strategic issue for the C4ISR community. In this paper I will consider some of the similarities and differences between physical terrain and human terrain and how that has contributed to the rift between the military and some vocal members of the social science community – notably anthropologists. Having alluded to the possibility of a strategic issue, I will attempt to make that case using an analogy from more familiar topics. Finally, I will attempt to point out disconnects and problem areas where the perspectives and capabilities of the C4ISR community could provide a foundation for creating a bridge from the current tactical solution space to the development of a valuable strategic capability for the military now and in the future.*

## 1. Introduction

Over the past several decades, the US military has found itself thrust into a wide range of activities that fell beyond the combat operations for which they routinely trained. While it would be nice to separate these activities into peace-keeping, humanitarian operations, nation-building and countering insurgency, the true is that all too often the fine lines drawn on paper blur in real life. In the early 1990's humanitarian relief and nation-building in Somalia turned into urban warfare in which regular military troops found themselves fighting in a society where tribal clan leaders ruled by whatever means possible. Their ability to distinguish between civilians and militia was severely compromised.

Time and again, particularly since the Vietnam War, the military has found itself involved in operation involving other peoples and cultures. However, the training and information systems that prepare and support the military in their operations have little or no emphasis on cultural knowledge. As a result, the military planner and the soldier on the ground are dangerously unarmed for the modern battle.

> *Conducting military operations in a low-intensity conflict without ethnographic and cultural intelligence is like building a house without using your thumbs: it is a wasteful, clumsy, and unnecessarily slow process at best, with a high probability for frustration and failure. But while waste on a building site means merely loss of time and materials, waste on the battlefield means loss of life, both civilian and military, with high potential for failure having grave geopolitical consequences to the loser. [1]*

This assessment so well expressed by the founders of the Human Terrain System echoes the assessment made in the Quadrennial Review that "recent operations have reinforced the need for U.S. forces to have greater language skills and cultural awareness." [2]

In the above statements you hear the voice of the tactical community reflecting the gaps they see in their daily activities in Iraq and Afghanistan and thereby giving form and shape to the strategic context of the Quadrennial Review. But is the real problem tactical? Would the tactical problem be as pressing if there were a clear mandate for strategic action? How is any of this a problem for the C4ISR community? In the following sections, I will attempt to make the case that the current urgency is, in fact, a result of a more strategic gap in our knowledge base and that if the efforts in place continue along their current trajectories, we have a good chance of perpetuating that gap. Moreover, the C4ISR community, as a result of its past efforts on providing systems that mix strategic content with real time response, has both skill

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and perspective vital to achieving a lasting solution to a pressing problem.

## 2. Human Terrain?

When we examine the screen displays of our C4I systems, in many cases we see information overlaid on geospatial displays. Air routes, shipping lanes, troop placements, reports of adversary activity are all displayed geospatially because in military operations we think and plan in terms of real world locations and terrain. When understanding the local people became a priority for the military, it was natural for them to think of local people, living in specific regions as being another "layer" of geospatial information. Just as an understanding of physical terrain could provide great advantage to the soldier, by analogy, understanding the human terrain could help him navigate the difficult urban world in which he found himself. Why then should such a term precipitate the kind of hostility it has from the academic community?

There are probably two major reasons. The first is that the term itself is devoid of association with any specific academic discipline. Cultural geography is the closest match, but it does not encompass the full extent of cultural knowledge, perhaps more aptly termed cultural intelligence, sought by the military. Of cultural geography, the Association of American Geographers says, "*This concentration focuses on the aspects of geography that relate to different cultures, with an emphasis on cultural origins and movement and the cultural characteristics of regions (e.g., language, religion, ethnicity, politics, historical development, agricultural methods, settlement patterns, and quality of life).* [3] The emphasis on current thought patterns, decision modalities, ethnic rivalries and deeply rooted values is more directly associated with anthropology and psychology. The second and perhaps more difficult problem is the perception that the military would choose to use the knowledge and skills of social scientist to conquer or kill people more effectively. All of us who work in scientific research have to consider the problem that the knowledge that we develop could be used for good or ill. The rapid transition from coining the term "human terrain" to naming a program that sends social scientists into the field with soldiers burdened the term with the notion that social sciences was the newest and most lethal weapon in the military arsenal.

Couple an ill-defined term with a rapidly conceived program that grows exponentially and you have a recipe for disaster. The words we use shape the way we grow to think about a subject; thus, there is a legitimate fear that the military may think that human society can be treated as physical terrain – something to be used, moved, measured and won by diverse maneuvers. The natural tendency to think geospatially has thus led to an unnatural and vitriolic controversy that threatens the rational understanding of how information about people can be used to save lives rather than destroy them.

We now have a heavily burdened term. We cannot turn back the clock and retract the terminology; therefore, we must take on the task of clarifying its meaning. The fact that the terminology is problematic does not obviate the fact that there are real issues that must be addressed and challenging problems that must be solved.

## 3. The Need Stated but Lacking Specificity

> *I asked my brigade commanders what was the number one thing you would have liked to have had more of, and they all said cultural knowledge.*[1]

But what did his brigade commanders mean by culture? While the Defense Science Board 2004 Summer Study on "Transition to and from Hostilities" points to the need for cultural awareness at every level in the military, it falls short of indicating the nature of the content that achieves awareness for any specific military role, pointing only to cultural training of deployed troops. [4] One of the tenets of this study is that irregular warfare is neither irregular, in the sense of being a rare or unusual occurrence, nor warfare fought solely on military terrain. Irregular warfare is fought on the human terrain and encompasses every factor that determines how an indigenous population lives, thinks and acts. When the Regional Combatant Commanders were asked about their skill base for handling this human terrain, the indicated gaps in the following areas: [5]

- Societal/cultural/tribal knowledge,
- Knowledge of economy,
- Knowledge of infrastructure,
- Knowledge about evolving threats, and
- Language capabilities.

This gap in knowledge is translated directly into our inability to represent these factors in the tools and processes now used for force sizing, planning, training and executing operations. It is incumbent on us, if we wish to operate successfully in the human terrain, to map the type of knowledge needed onto every phase of

[1] MG Peter Chiarelli, Commander 1st Cavalry Division, 2006.

military operations; to understand the gaps and explain them in actionable terms; and to provide measured means for closing the gaps.

This lack of specificity also prevents us from distinguishing between tactical and strategic needs and solutions. In the process of meeting a critical tactical need, we are failing to recognize the strategic issues and how they are linked to the current tactical gaps. Unless we address the issues simultaneously and with malice of forethought, we are, like the person who fails to learn from history, doomed to suffer from the same problem at a future date.

### 3.1 Interplay between tactical and strategic

There is reason to think of strategic and tactical knowledge and data as being in constant interplay. To make this case, I will offer an analogy with an incident that created headlines less than a decade ago. This particular case involves the careful use of planning tools populated by historical data developed with a well thought out strategic plan; however, lack of tactical assessment wiped out all the good done at the planning table and created a major problem for the Navy.

For many decades the military has understood the impact of weather on military operations. The Navy, in particular, pays close attention to both atmospheric and oceanographic conditions, provides libraries of historical conditions worldwide and delivers current meteorological and oceanographic (METOC) conditions for use in its C4ISR system databases. Not only do METOC conditions impact the performance of shipboard sensors and systems, they also affect the migration paths of marine mammals. The Navy deals with environmental impact statements on a routine basis and must plan fleet exercises with a careful view to the impact of sonar on marine mammals. Therefore, when training exercises were planned for March 2000 in the Northeast and Northwest Province Channels of the Bahamas, historical surveys of the meanderings of the Gulf Stream were used to locate the exercise away from the migration and feeding patters of the local cetaceans. In spite of best planning, six beaked whales beached themselves and died. According to the best historical data, the whale should not have been in the area.

We all learn in our statistics classes that the historical mean cannot be applied reliably to a future event; nevertheless, historical data measured with the right geo-temporal resolution is the best indicator we have for making forecasts. Time and effort applied to acquiring a current, local picture of the oceanographic conditions and comparing them to the conditions assumed in the planning process would have produced evidence that the Gulf Stream had meandered unexpectedly and contrary to the best forecasts, the cetaceans could well be in the local area.

Like MG Chiarelli's battalion commanders, the Navy suffered from a lack of tactical data. All the strategically gathered knowledge could not replace the value of *in situ* awareness. Why might this have occurred? Even though the fleet has the capability to measure METOC conditions on location, and do so routinely to establish the "sonar range of the day", surface ships have not embraced the idea that they can be environmental sensors or other purposes. Even when the means are available, it takes purposeful action to make the tactical dynamics inform the strategic picture.

In the case of the beached whales in March 2000, we can point to a gap in communication, a gap that prevented the operational situation from being updated to reflect a more complete awareness of the operational environment. All the capabilities were present – the ability to probe and refine the operational environment was available, but the need to connect the tactical to the strategic was not translated into mission essential tasks.

In the area of human terrain awareness, we are now struggling to provide tactical situation awareness, but there is very little attention paid to the lack of strategic information of a kind that could inform the planning process.

### 3.2 Role of R&D

Using the same analogy, it is appropriate to reflect on how Navy came to have both the long-term knowledge to support informed planning and the *in situ* capability to provide on location situation awareness. No significant capability is developed without careful planning and investment, and that is certainly true of Navy's commitment to understand meteorology and oceanography and to translate that knowledge into estimating operational impact.

The specific understand that Navy required was the propagation of sound in the sea as sound is the only effective means of probing the sea. There is no doubt that man has studied weather and the ocean from ancient times; however, the study of the ocean directed specifically toward understanding its impact on the propagation of sound developed just prior to World War II. The lethal use of submarine warfare by the German Navy gave impetus to this study and provided ample opportunity for collecting information that would be useful in antisubmarine warfare. The information obtained under different oceanographic

conditions and tactical situations was immediately applied to the more effective use of our offensive and defensive capabilities. The current focus on human terrain is much like this opportunistic collection of wartime acoustic information of more than sixty years ago. Engaged in a lethal conflict, our forces seek to exploit opportunities for gathering information that can be turned around into more effective use of the resources at hand to win the battle.

However, the Navy came to understand that in the long term, underwater sound could be most effectively used if the phenomena were not merely observed, but also explained. Thus Navy launched a multi-faceted program of research into both dynamical oceanography and underwater acoustics. By making the subjects into research priorities, Navy could and did attract the participation of the academic community nationally and internationally. As a result, Navy's planning processes are enriched by a depth of knowledge and understanding reflected in a wealth of computational models and databases and updated through a robust program of remote and *in situ* sensing and near real time data integration.

In comparison to the complexity of understanding human terrain, Navy's problem was simple, involving well-understood physical principles and methods. Yet, it took a multi-decade, focused research and development program to accumulate the knowledge required to support strategic, operational and tactical needs. This program also included the development and coordination on a worldwide basis, a taxonomy for METOC data to enable data sharing across multiple users and platforms, including Global Command and Control System – Maritime (GCCS-M).

It would seem appropriate to urge the military to think seriously of undertaking a similarly coordinated effort, vertically integrated (6.1 – 6.4) research and development program in human terrain studies that could inform the full scope of operations rather than stop with developing a singular, tactical capability.

## 4. Can We Be Specific?

Since there is a problem in defining human terrain, it may be possible to extract a sense of what we really mean in terms of militarily relevant human terrain by examining the topic from the perspective of the kinds of information we would like to have available for different missions and planning venues. If we can specify that information, we can begin to use the information sharing capabilities we are evolving in our C4I systems to inform the collection and management of the requisite data. Thinking in terms of collection and management of specific data would help us be more specific about the disciplines required to contribute to, not only data collection, but our ability to explain and interpret the underlying phenomena.

### 4.1 Situation awareness

> *I had perfect situational awareness. What I lacked was cultural awareness. I knew where every enemy tank was dug in on the outskirts of Talil. Only problem was my soldiers had to fight fanatics charging in pick ups and firing AK 47s and RPGs. Great technical intelligence. Wrong enemy.*[2]

At a theatre level, questions involve such factors at long term economic stability, political stability, effect of foreign influence on any nation or group of nations, and whether a change in a pattern of national hostilities is reflective of instability. The Command would like to know if diplomatic contacts, military-to-military cooperation, material aid or other means would be most appropriate in a particular circumstance. Accurate assessment in all of these areas requires cultural knowledge, an understanding of how the particular society functions and responds to external influence.

Further, the subordinate commanders responsible for activities undertaken under the Theatre Security Cooperation Plan must be culturally sensitive in their actions. They could be capable sensors of stability, but to make the essential assessments, they must understand the cultures in which they find themselves. Any information they currently collect is limited by their understanding of ethnography and lack of a repository for their information.

The above activities are strategic in nature, but when we have military units operating on the ground among citizens of another nation, the needs change dramatically.

Once forces are on the ground, local commands produce detailed plans based on the broader plans drawn up by Headquarters. Both our planning systems and command information systems focus on the activities of military forces. In each irregular warfare engagement we re-learn the lesson reflected in the comments of the Battalion Commander of the 3rd ID that our forces must contend with both traditional military forces and non-traditional enemies. The problem becomes all the more difficult when those non-traditional enemies are indistinguishable from the

[2] Comment from a battalion commander, 3rd Infantry Division operating in Iraq in 2005

indigenous citizenry. While plans must take into account the values, customs, activities and beliefs of the populace, none of our supporting systems are build to do so. Tactical and operational planners in theatre and in forward operating bases must rely on the scant acculturation training provided during their per-deployment preparations.

**Figure 1. The Modern Battlefield**

Today's battlefield as depicted in the above picture, one of the many taken of our forces in Iraq, is foreign in many ways. There is little or no information available to the soldier about the context in which he will be required to execute his mission. There is no uniformed enemy or order of battle. In fact, the enemy and the civilian population are indistinguishable. Mistrust abounds on both sides. The indigenous population does not trust our motives and our forces have no preparation for understanding the motivations and interests of the population. In this sea of unknowns, we often make the mistake of mirroring – assuming that they want what we would want in their position. They may want water medical care, but not if it comes with democracy, a notion unsuited to their culture.

In discussing the situation in Sadr City, GEN Chiarelli, 1st Cavalry Division, noted that the number of attacks were reduced from 160/week to 5 or fewer per week when his forces delivered to the populace services (water, sewage, electricity, garbage collection) that improved their living conditions.[3] The people are a critical factor in irregular warfare; thus, military plans must take into account their needs as well as their culture.

While providing services is one approach to working with the indigenous populace, Cultural Affairs officers and those involved in information operations have a more critical need for detailed cultural information. The ability to understand the potential effects of an information operation requires an understanding of how people communicate, what avenues of communication are traditionally trusted, who in that culture holds power and influence, how tribal and trade associations interact and where there are societal values that can be exploited to achieve the desired ends. This is precisely the type of knowledge that would be available if we did ethnographic typing.

Just this brief review of information we might like to have for different purposes illustrates human terrain as a multi-dimensional problem in which the emphases change as we move from mission to mission. The obvious ensuing question is how to structure and codify all the various types of information that falls under to broad umbrella of human terrain.

## 4.2 Developing a taxonomy

Over the past several years a number of groups have been engaged in the development of socio-cultural taxonomies. Some of the earliest work was done by the Marine Corps Intelligence Activity. That became the basis of a taxonomy adapted for a project called the Cultural Preparation of the Environment (CPE) originating out of the Joint Staff and JIEDDO and tested in Diyala Province, Iraq. That taxonomy was then modified for use by the Human Terrain Teams working in Afghanistan and Iraq. These foundational efforts were directed at tactical operations where the focus was on day to day interaction with the indigenous populations. They are not directly applicable for more strategic operations.

The desired end of many military, diplomatic, information and even economic activities is to influence the action of another party – in other words, to affect their decision making process. In response to a request from USSTRATCOM, the Joint Staff developed a set of typologies in support of deterrence operations. [5] The typologies we not so fully structured as to be taxonomies, but they contained most of the categories of information discussed above.


**Figure 2. Socio-Cultural Typologies**

[3] Speech by MG Pete Chiarelli, AUSA dinner at Ft. Hood Officers Club, March 2005

The typology illustrated in Fig. 2 is generalizable and can be applied to individuals, groups, organizations and nations. The application of capability at the country level seems obvious and entails understanding the national economy, the factors that are part of estimating the state of the economy as tracked by a number of national and international organizations; the country's technical capability and capacity for technological advancement in such areas as infrastructure development and communications; and in a military context the status of the country's military in terms of equipment and readiness. Applying the same categories to a group within the nation would focus on the situation of that group within the country's economic strata including its primary occupations; in terms of technology the desired information might be the group's use of cellular technology or access to computers and computer networks; military capability might be whether or not the group had guns, ammunition or other weapons in ready supply. Thus the categories are appropriate, but the specific type of data and its resolution would depend upon the application.

Perhaps the most attractive feature about this particular typology is its emphasis on decision making and the manner in which the other characteristics play into the overall decision process. The factors considered under "context" and "interests" have a strong influence on the way an individual or group approaches a decision.

In examining the human terrain, the military does not require the totality of cultural information, rather it has a critical need to understand all factors that influence decision making on the part of countries, sub-national groups and individuals.

In addition to understanding decision-making, the military must be aware of the manner in which members of a different culture interact with the external world – the habits of discourse and social interaction. The above social-cultural typology is not structured to deal with social mores, but could be adapted to do so.

## 5. About the Data

If we had a structure, would we be able to populate it with useful, quality data? At the country level, some of the information is available and while it might not be as current or accurate as we would hope, it still exists. However, it exists in many forms and across a large number of organizations. Brief summaries about individual nations can be obtained from the Library of Congress and the CIA has unclassified country summaries available online. The World Bank, the United Nations, the Department of Agriculture and the Department of State all have a variety of economic, political, demographic and civil data available in strikingly different formats. There are organizations that provide indices of corruption. Many nations have offices that produce statistics about their economy, resources, infrastructure and demographics. However, nations in transition often have little time, resources or interest in producing statistics – survival is a more immediate issue. Therefore, in areas of greatest interest, we experience the greatest gaps in data.

While we can acquire factual data in the manner described above, gaps in cultural understanding are even more difficult to fill. As culture embraces everything from foundational values to matters of costume and cuisine, gathering all information about the culture is overkill. Clearly, we have to be specific about what we need. Further, cultural knowledge and understanding does not come in readily digested, tabulated form. Such knowledge is the result of years of study and analysis by experts and imparting that knowledge effectively depends upon the ability of the listener to understand a context that itself requires background. It is certainly possible to overlay tribes, ethnic groups, groups with particular political interests and agendas on our country maps, much in the way we paint the US map with red and blue states during a political election. However, as in the case of our red and blue states, there are depths of meaning masked by those colors. Just as the politician needs to understand far more than blue or red, our military, in fact all our national institutions that deal in the international arena, need to acquire and have ready access to in-depth information about other cultures.

### 5.1 Filling the gaps

One of the ways to think building a knowledge base of cultural information is to separate the desired factors into those which are relatively long term constants and those that are highly local and most changeable. Another perspective on the information is to think about the factors that are almost always needed and separate them from the details that are essential for addressing a specific problem. While these approaches do not decrease the amount of data needed, they help frame an orderly way of breaking down the problem of acquiring vast amounts of data in ways that separate reasonably well into remote and *in situ* data gathering.

There are a number of means for acquiring data, including quantitative research of the kind that produces the aforementioned economic and statistical

data sets, public policy research that can shed light on local issues of social concern, media reports that can provide insight into current events and public reactions to them and ethnographic research. The latter is the proper focus understanding the link between culture and behavior and as such is the ideal instrument for unearthing the local details of importance.

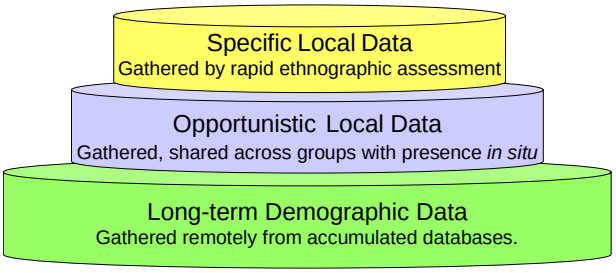


**Figure 3. Layered Collection Strategy**

The layered collection strategy illustrated in Fig. 3 is an attempt to divide the necessary information into categories amenable to different modes of collection. The information on the base layer is the kind of data needed for any country or region where the US is likely to have an interest. Much of the data resides in sets scattered among many sources and in multiple formats, but it is characteristically fairly stable often with yearly refresh rates. Long term cultural information, tribal or ethnic groups, customs, languages, long term rivalries and local histories can be accumulated and added gradually before there is a crisis. Such information would also assist strategic planners in monitoring their regions of interest and detecting changes in stability as they observe changes in the data over time.

The top layer would have to be populated when some particular interest in a country or region emerges. This type of assessment extracts highly specialized anthropological, social and political information about a region through the use of trained field workers who have some understanding of a region, possess the necessary language skills and are equipped with guiding questions designed to elicit cultural understanding germane to issues of immediate relevance. Information so gathered should be available though the same overall data framework to everyone working in the area of interest. This is the type of information the human terrain teams are attempting to provide to the deployed forces in Afghanistan and Iraq, but they are forced to do their work without benefit of guiding questions and in response to the commander's guidance. However, there is no current means of storing or broadly sharing the information they acquire.

The opportunistic data collected by anyone with time in the country of interest could be of longer term interest of be time critical. It, too, should find a place in the overall data structure and be made available to other users.

The layered structure also provides a means of prioritizing collection capabilities. Much of the bottom layer can be made amenable to at lease semi-automated acquisition and can thus be updated without involving scarce, expert resources. Opportunistic collection depends upon shared understanding of the type that can be supported by service oriented architecture and network centric data strategies now being adopted by the C4I community. If the potential stakeholders were to establish a community of interest and push out their information upon collection, this data could be available to all pillars of national power who could use it.

A common information structure would enable the crosstalk among the layers thereby allowing the tactical data to impact the overall situation awareness while the long-term data informs the planning process and local collection priorities.

## 6. Planning Tools

Military C4ISR systems are populated with a variety of planning and assessment tools. This is yet another serious gap in capability when considering human terrain.

The military has long experience using modeling, assessments and tracking tools, but the areas in which these tools have been employed rest on the concrete laws of the physical sciences. There is a general discomfort in the DoD, particularly in the research community to looking at the soft sciences.

Developing models and simulations that are able to work with cultural, social, political and economic data and incorporating them into our existing capabilities is a daunting problem. While there are a few tools that address part of the problem space, there are virtually no tools that work the entire socio-cultural, political and economic domain. Yet understanding the domain implies looking at the interrelations among the diverse drivers that impact the rise of insurgency and the employment of effective countermeasures. The fact that the causative factors are multi-disciplinary (from a tools perspective) confounds the military modeling community that is expert in handling kinetic models (physics-based where even probabilities rest on well-documented performance data). In the socio-culture and economic arena, only the economic models come close to the

types of relationships the military work with in their simulation spaces.

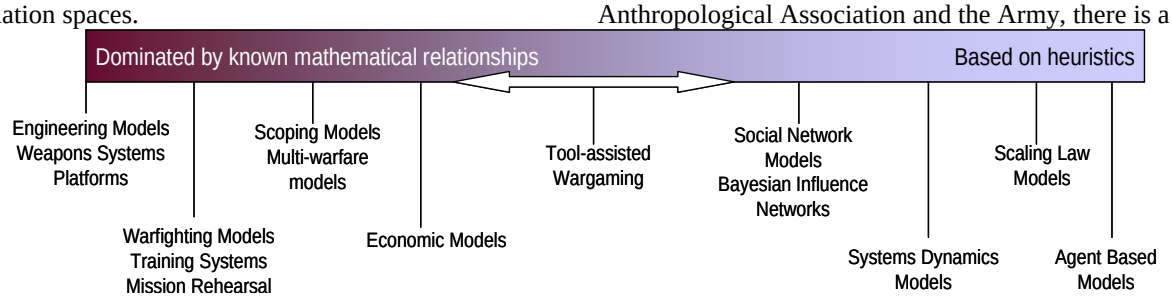


**Figure 4. A Modeling Taxonomy**

The comfort zone for DoD is to the left; however, the modeling capability in the socio-cultural domain is squarely to the right. Further, while military decision support systems use AI tools like neural networks, the underlying relationships in the training sets are supported by what might be termed "hard data". Not only do the models on the right rely upon "softer" heuristic relationships. They are dependent on data that is collected largely by experts outside of the military, and often outside the government. Even when the more traditional systems dynamics models are retooled for use in the social sciences, they must base their interactions on soft heuristics and data that are hard to collect.

The data collection strategy outlined above would be a huge step in enabling the development of models and projection tools for socio-cultural understanding. The ability to host social network analysis tools and provide them with organized and structured data as a situation awareness and planning capability lies in the range of near term possibility.

## 7. An Issue for the C4I Community?

Absolutely. The place where technology enables the nexus of the strategic, the operation and the tactical is the C4ISR system. Further, the C4ISR community has a functional understanding of data, data structures, modeling tools and information sharing. Current hot topics under study in the C4ISR community include service oriented architecture, information sharing policies and multi-level security, all of which are critical to the success of a human terrain information system.

One of the primary obstacles in achieving the goal of developing such as system is cultural – not in the sense of a foreign culture, but in the sense of communication across different cultural enclaves within our own society. Just as there has hostility has followed in the wake of the human terrain system because a cultural difference between the American Anthropological Association and the Army, there is a cultural gulf between the information technology community and the social sciences. In both cases, there are reasons for the lack of understanding. Just ass the Army took the liberty of coining a phrase when referring to the subject matter of social scientists, particularly the anthropologists, the technology community has been so bold as to tread into the problem domain of social sciences with its modeling tools and expertise, but no in-depth understanding of social science. In the latter case, the social science researchers resent the intrusion of technologists who throw around social science terms without in depth knowledge of the content in their eagerness to provide solutions. There are human terrain research groups, human terrain modeling groups and human terrain resource managers run exclusively by engineers and physical scientists. It's no wonder the social scientists are skeptical.

We technologists must enter into a collaborative relationship with the social science community in which the scientists with in-depth content are given a strong voice and we get to listen very carefully. Our tools and methods may be both powerful and inappropriate. Even on the topic of taxonomies, the social scientists are cautious to dive in because they realize that there are gaps in their own understanding. There is no connective tissue, no underlying calculus that ties together the different perspective from which human society is studied and understood. Human society does not yield to the same type of empirical methods and experimentation that is common in the physical and biological sciences. There is no way to quickly measure changes that take effect over a generation – researchers just don't live that long.

Nevertheless, the collaboration is necessary as our military focus moves from a weapon-centric to a society-centric battlefield. The most viable bridge too the future capability is through the data management and sharing capability developed in the C4ISR community.

## 8. References


[1] J. Kipp, L. Grau, K. Prinslow, D. Smith, "The Human Terrain System: a CORDS for the 21st Century", *US Army Professional Writing Collection*, Available online at http://usacac.leavenworth,.army.mil/CAC/milreview/English/sepoct06/kipp.pdf, Oct.

[2] *Quadrennial Defense Review Report*, Office of the Secretary of Defense, available online at http://www.defenselink.mil/qdr/, Feb. 2006

[3] Association of American Geographers, found online http://www.aag.org/careers/Cultural_Human_Geography.html

[4] "Defense Science Board 2004 Summer Study on Transition to and from Hostilities", Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, Washington, D.C. 20301-3140, December 2004.

[5] *ibid*, p. 113

[6] "Deterrence in the 21st Century: An Effects-based Approach in an Interconnected World (U), prepared for US Strategic Command/Global Innovation and Strategy Center, Volume II, Appendix G: Typologies, October 2007 (Unclassified, For Official Use Only), available by request.

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# *Human Terrain: A Tactical Issue or a Strategic C4I Problem?*

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## *Outline*

- **Why Human Terrain**
- **Backlash Caused by Lack of Specificity**
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- **Stemming Chaos: Taxonomy**
- **C4ISR as Nexus**
- **Cultural Understanding Begins at Home**

## Our Wargame Has Changed

**The time-honored battlefield is no more – in the face of peace-keeping, nation building, counter-insurgency and counter terrorism**

**The face of warfare is not integral to our training systems or C4ISR platforms**

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## Critical Gaps in Our Capability

***Conducting military operations in a low-intensity conflict without ethnographic and cultural intelligence is like building a house without using your thumbs:***
***it is a wasteful, clumsy, and unnecessarily slow process at best, with a high probability for frustration and failure.***
***But while waste on a building site means merely loss of time and materials, waste on the battlefield means loss of life, both civilian and military, with high potential for failure having grave geopolitical consequences to the loser.***

***HTS***

**I asked my brigade commanders what was the number one thing you would have liked to have had more of, and they all said cultural knowledge.**

**MG Chiarelli**

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## What Is Human Terrain?

- **This is a difficult question to answer because the term was coined by the military and does not arise from any one or group of recognized academic disciplines**
- **Army used the analogy to physical terrain – a fundamental part of situation awareness**
  - Terrain is important militarily
  - Knowing the high ground is antecedent to gaining it
  - Detailed knowledge of terrain enables maneuver warfare
  - You can build it into a map and it remains usable
  - To within bounds, you can modify and control it
  - Terrain is many things: typography; geology and soil type; it's natural coverage (forests); it's roadways, rail lines, bridges; it's what humans build onto ground
- **As physical terrain is a composite, so is human terrain – but can we define the pieces?**


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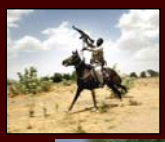
## Definition Is in the Eyes of the Beholder

- **When the Regional Combatant Commanders were asked about their skill base for handling this human terrain, the indicated gaps in the following areas:**
  - Societal/cultural/tribal knowledge,
  - Knowledge of economy,
  - Knowledge of infrastructure,
  - Knowledge about evolving threats, and
  - Language capabilities.



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## Issues with Academics

- **Culture: The system of shared beliefs, values, customs, behaviors, and artifacts that the members of society use to cope with their world and with one another, and that are transmitted from generation to generation through learning Culture**
  - This is one definition of culture, but there is no single, blessed definition within the communities that deal with it.
  - The military has not defined what specific information is sought, but most especially for ***what purpose***
- **Result**
  - Anthropologists have the image of "gun toting" field researchers who are doing military stuff and not research and in the process are poisoning the environment for real field researcher.
  - Strangely, anthropology was born out of military need (British Empire) and well-known anthropologists have worked with the military
- **Our failure to articulate needs**
  - Prevents us from understanding STRATEGIC as well as tactical needs
  - Alienates those who could help us most
  - Keeps us from appreciating the full scope of needs and requirements and existing programs that have capability to assist – ***C4ISR community***



## Needs at All Levels – Not Just Tactical

- **Strategic Needs (data and models)**
  - Support effective use of COCOM resources in Theater Security Cooperation Plans
  - Understand how to collect and manage socio-cultural data from nations in AOR
  - Get ahead of the game through the ability to do global hot spotting using state stability, rise of insurgency, global data sets and polling
    - Set priorities for ISR and other resources
    - Gain collaboration with other Agencies based on good information

Targeted Training

Support Tools

- **Operational Needs**
  - Develop well-informed plans of full range of actions
  - Understand how to quell problems early by understand populations
  - Build situation awareness meaningfully

Targeted Training

Support Tools

- **Tactical Needs**
  - Have more options for carrying out Commander's Intent
  - Understand when and how roles can be shared with indigenous groups
  - Be safer and less lethal

Targeted Training

Support Tools

## Interaction of Strategic and Tactical

**Multi-disciplinary Multi-year Focused R&D Program**

Inter-Agency Coordinated Security Plans

Hot-Spotting Prioritization

*Adaptive Informed Operational Plans*

*Improved SA Informed ISR*

**Effective Safer Less Lethal Tactical Operations**

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## Order Out of Chaos

**Typology for Human Terrain**

- Adaptable to nation, group, individual
- Focus on decision-making
- Tailored to needs of military
- Suitable from tactical to strategic


**Current Situation**

- Multiplicity of individual groups, cylinders of excellence (stovepipes)
- Databases abound but do not cover full scope of needed information
- Tactical databases being developed by every unit – no operational or strategic unifying guidance
- Tactical data unavailable broadly to inform operation plans of strategy

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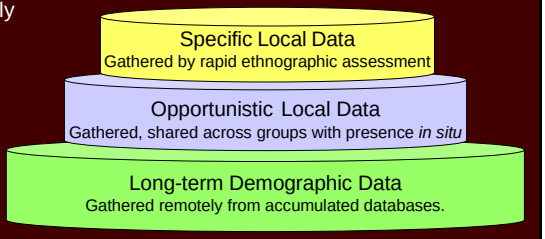
## Data Layering / Prioritization

**Understanding Human Terrain Data**

- Some elements don't change rapidly
  - Language
  - Tribal locations
  - Religions
  - History of conflict
- Some change gradually
  - Economic status
  - Infrastructure
  - Local leadership
- Some can change rapidly
  - Immediate needs and wants

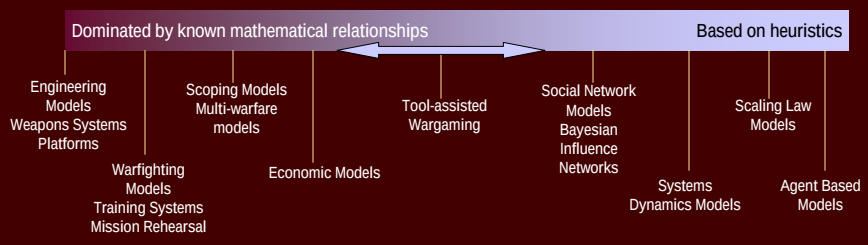



**Who can / should collect data?**

- Professionals who understand their field and the business of data collection
  - Economists, political scientists, sociologists, anthropologists, statisticians, pollsters
- Should the soldier be collecting field data – probably not
  - Soldier has a different job, but needs to be able to interpret local situations
  - This implies that training be augmented to provide soldiers with this capability
- How to collect specific local data if not using soldiers
  - Rapid ethnographic assessment done by professional field researchers
  - Backed by area knowledge, language capability and guiding questions
- Maintain long-term data collection, share opportunistic data, collect specific local data only in priority situations and when local interaction is imminent



## An Issue of Tools




- **Critical need for tools at every level**
  - No connective tissue to indicate how different dimensions interconnect
  - Most relevant models are hardest to interpret and validate
  - Lack of models to inform planning tools
- **Data for most models is extremely difficulty to acquire**
  - Until we have an informed data acquisition strategy and a structure by which to share data, building and testing models will remain very difficult

## *Why C4I?*

- **C4I Community Understands**
  - Data structures
  - Problems of information interchange
  - Issues of data security
  - Cueing, prioritization and data integration
  - Supporting planning with data and models
- **Collaboration and communication**
  - Service Oriented Architectures
  - Network centric data structure
  - Provider push and user pull
- **Enables the interaction of strategic, operational, tactical**
  - Serves all the communities
  - Can integrate information to provide situation awareness which is what is required at all levels

But nobody asked you?
Cross-cultural understanding begins at home!