

Title of Paper:

Preparing Capable Decision Makers for an Uncertain Future
Within
Underdeveloped, Degraded and Denied Operational Environments

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**Preparing Capable Decision Makers for an Uncertain Future
Within
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ABSTRACT/OVERVIEW

There are several ongoing themed discussions related to the 'uncertain future', the need for 'more adaptive' leadership and fighting forces, and delivery of collective results via employment of 'smart power'. These highlight and parallel the national discussion of 'national tools of power/all of government' approach for complex international environments. Yet the author finds little or limited integrated discussion of these themes, beyond some generalizations. Wheeler (2012) points out that "Boyd explained . . . material elements come in a poor third in deciding which side wins conflict – after moral and mental factors." Likewise, he notes that Napoleon said, "the moral is to the physical as three to one." This paper will explore several aspects of personnel developmental factors including the moral and mental factors which may likely assist with the long term preparation of capable decision makers able to act for the common good during an uncertain future in degraded, underdeveloped and denied operational environments – the real world and environment.

INTRODUCTION AND OUTLINE DISCUSSION

There are several ongoing discussions related to the 'uncertain future', that leadership must help the fighting forces become 'more adaptive', and that there is a call to employ 'smart power' to attain collective results. These themes parallel and highlight the US discussion of national power; an all of government approach.

While this author acknowledges there are papers and publications associated with some aspects of these themes, this author draws on some of those sources, along with several others to offer a differing attempt at and approach to an integrated discussion of some connections between the components of the themes mentioned above.

Wheeler (2012) points out that "Boyd explained . . . material elements come in a poor third in deciding which side wins in conflict – after moral and mental factors." Likewise, he notes that Napoleon said "the moral is to the physical as three to one."

This paper will explore several aspects of the moral, mental, and developmental factors which may likely assist with the long term development of action taking individuals within all organizations and groups to support actions and operations for the common good during an uncertain future in underdeveloped, degraded and denied environments – the real world. That exploration may ultimately lead to the recommendation that moral and mental preparation should not be only a 'later in life' (post primary education) development effort, but also one which should – nea must – be initiated quite early. This might actually be similar to the individual Asimov's short story *The Profession* (1959, 1957), where the focal character is identified as an individual who discovered learning from books, as an alternative to the story's current technology of 'induction/injection subliminal learning during certain formative life periods' so that an individual could gain a professional position for income. Instead, the story's primary character is identified as the individual with a capability to provide new learning techniques or ways to views learning, because the character was not limited by the currently bounded thoughts

on learning. In the theme of this symposium, this alternate approach of Asimov's primary character embodies the implicit challenge placed before this community for finding alternate solutions for C2 in different operational environments. That is the challenge posed when considering operations in underdeveloped, degraded and denied operating environments – to find solutions for action not bounded by the initial, traditional processes; to get to the adaptive and flexible levels of thinking and acting, to find alternate paths to results to overcome challenges and problems of the current and future operating environments.

What is an Uncertain Future?

There has been and there will continue to be much discussion of an 'uncertain future'; whether within government, business, financial, or family organizations. Yet, unless one is a successful prognosticator or truly clairvoyant, the future will in all likelihood continue to be uncertain. In fact, Merriam-Webster (M-W, a) provides this definition of uncertain:

1: indefinite, indeterminate; 2: not certain to occur; 3: not reliable; 4 *a*: not known beyond doubt, *b*: not having certain knowledge, *c*: not clearly identified or defined; and, 5: not constant: variable, fitful.

What is usually meant is that there are a wide range of options and factors which make

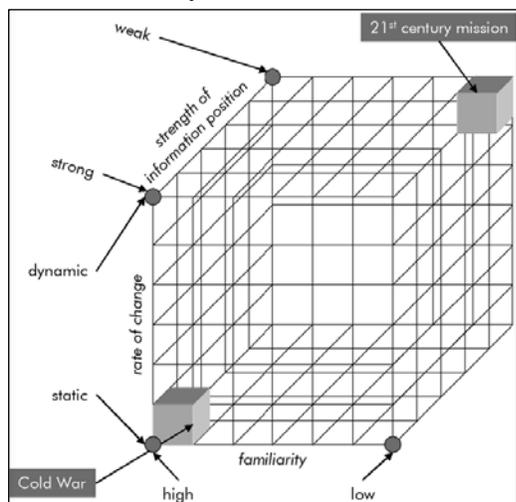


Figure 1 – Decision Approach Space

prediction and planning particularly challenging – being in a sense a 'wicked' problem of modeling the many dimensions and parameters related to how events will unfold with any certainty. With this aspect acknowledged, there usually is a bounding of the parameters and future possibilities, which tends to make planning for the future less indeterminate. Hopefully, the result is a more fruitful planning process within the actual real world of the constrained resources and means environment of a decision approach space. An approximate view of that constrained parameter environment is provided in Figure 1, take from *Understanding Command and Control* (CCRP, 2006).

As identified with a limited spectrum of environments – Cold War to 21st century mission – within Figure 1, there is a spectrum of style of organizations which must deal with some degree of uncertainty, the reader is reminded that within the Command and Control Research Program (CCRP) community much research has taken place and continues, related to organizations and their response styles, their command structure, and the organizing principles. This author appreciates that research along with its continuing discourse, and calls the reader's attention to that ongoing research presented during this and prior symposia for its work in development of the dimensions for analysis of organizational characteristics and principles. This body of work supports the discussion of how decisions, the results of those employed decision styles, along with the context of the events can be used to help move along the cognitive hierarchy to the knowledge and understanding stage for individuals and their associated organizations. The results of that CCRP work is displayed in Figure 2 – Positions of Decision/Leadership Styles,

which is a renamed Figure 16 of *NATO NEC C2 Maturity Model* (CCRP, 2010). (While the author has retitled the figure to establish a styles of decision/leadership display a description for use within the context of this paper, the original figure title is 'C2 Approaches and the C2 Approach Space'.)

To approach this 'uncertain future' point differently, one might consider whether that 'uncertain future' may be like the duality of Newtonian and quantum approaches to physics and the universe, as these are parallel organizing principles which are linked and related, each working in certain frameworks. This can be seen in the parallels of Newtonian mechanics alongside the quantum mechanics ambiguity

related to the quantum mechanics location of an electron – when they are combined: the probability arises that a single slit in a partition will also produce maxima and minima as when there are two slits present in the partition. The uncertain future of the personal choice of actions and styles that an individual exercises within the decision approach space at encountered decision points has the parallel within chaos theory's bifurcation points of a system's response: going with the flow – no change; too much information – unable to change or react; and, dynamic, turbulent region – representing change and adaptation.

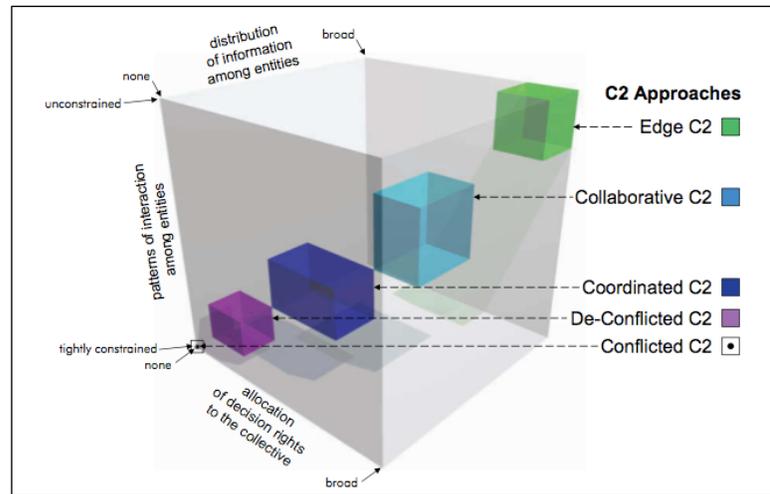


Figure 2 – Positions of Decision/Leadership Styles

Recall that prior to the United States involvement in World War II (WWII), the Naval War College conducted a series of war games during the inter-war years related to moving across the Pacific and island hopping. These were known as the Rainbow Games as they were named different colors. Following WWII, the reflections of some leaders of the Pacific campaign indicated there had been few interactions within the Pacific theater which had not been worked through during those Rainbow Games. The one interaction which had not been anticipated was the Japanese employment of the 'divine wind' – kamikaze pilots. This is an example of an emergent style response from a group, demonstrating an unexpected organizational response in an environment of interactions and engagements between some organizations. Thus, once again, the uncertain and unexpected caused some planners to be unsuccessful due to the environment's unexpected and wicked nature. Maybe the approach should more correctly be along the line of the Star Trek character, Mr. Spock, 'that when all the logical possibilities have been ruled out, it is time to examine the illogical possibilities . . .'; that when confronted by circumstances and information which cannot be refuted, that data must then be taken into account with adaptation and changes to the original hypothesis, and possibly changes to the framework within which to select solutions and paths forward.

Thus, the future is and will be uncertain. Since even in the information age, the future is uncertain, it is proposed to prepare individuals (the decision makers and leaders) of all organizations to cope with this uncertainty by becoming generalists in their knowledge and

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through their experiences, rather than being specialists in very narrow areas and topics. Mr. Andrew Marshall, profiled in a *Defense News* (2012) staff report, as number 10 of the 100 most 'Influential Individuals', has repeatedly made his mark on future options and their impacts, through the careful analysis of information and its implications. He has many times been quite correct with these assessments which he and his researchers have managed to tease out of the mined and refined information, then further analyzed and used in the quest for knowledge and understanding, being open to alternative ways of viewing the information. Thus, using that information objectively to produce the results and realized knowledge of that research. As demonstrated by Mr. Marshall and the Evidence Based Research group's detailed analyses, through looking deeply at the data and its implications, the opportunity arises to draw possible conclusions for options and capabilities among all the Team members of all the organizations and their decision makers for improved decisions.

The consideration of an uncertain future aligns with 'C2 in underdeveloped, degraded and denied operational environments', to define a range of operating options for consideration, especially when considering the granularity behind them. As mentioned with respect to the WWII Rainbow Games, the opportunity for the decision makers of the future (whether they be diplomats, business personnel, aid personnel, medical personnel, or military personnel) to be successful will be related to their ability and capability to respond to the unexpected, to be adaptive and adaptable. A goal of leadership, decision makers, and the workforce, is to ensure that the collective team members of the organizations work together as a Team as well as individually.

In some respects the Team must work as a well-integrated and -tuned organization, with a range of capabilities, with qualified and capable team members who can act individually and in concert with the extended Team. Thus the team members are in a sense, complete, whole individuals, i.e., generalists, not narrow specialists. A complete, whole individual may be considered one who can choose the best tool available, the style and method of leadership and decision making to utilize, along with the appropriate time and point of action for application, for the established objective. Tools which may be physical as well as non-physical.

On Being More Adaptive

The Army, the Department of Defense, and even the Department of State, have voiced their organizational visions and intent, that leadership will assist their workforces and internal organization sections become more adaptive. In fact, the United States Defense Department superseded National Security Personnel System (NSPS), was intended to partly aid in this objective by rewarding individuals who could move and adapt to the work environment, and also producing results through their interactions and continued execution within the circumstances and environment of an organization and its tasks.

The Merriam-Webster (M-W, b) definition of adaptable is: capable of being or becoming adapted – adapt·abil·i·ty; and its synonyms are: versatile, all-around (*also* all-round), protean, universal. (Note the synonyms are rather utilitarian, while 'protean', could be considered as changeable, based on its mythology source, Proteus, Greek god of the sea, who could change his

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form at will, and thus demonstrating change and adaptation.) While the specific word – adaptable – is not listed within the *Department of Defense Dictionary of Military and Associated Terms* (DoD JP 02-1, 2010, amended 2012), an interesting system and explanation is listed: Adaptive Planning and Execution system:

A Department of Defense system of joint policies, processes, procedures, and reporting structures, supported by communications and information technology, that is used by the joint planning and execution community to monitor, plan, and execute mobilization, deployment, employment, sustainment, redeployment, and demobilization activities associated with joint operations. Also called APEX system. (JP 5-0).

It is interesting to note that this Adaptive Planning and Execution system seems to echo many of the efforts of the CCRP community through its years as a community of discussion, interaction, and opportunities for action solutions. The CCRP community topics related to this JP 02-1 definition have been researched and presented by many of the prior symposia papers, and other content is imbedded within the observations and discussions of many CCRP publications. It is hoped that, like the increasing slope curve within the CCRP logo denoting the increasing rate of change and adaptation, the effort for change and adaptation capability will continue unabated through the many CCRP supported research efforts, continuing symposia, and publications.

Reflecting change and adaptation, the Department of State *Quadrennial Diplomacy and Development Review – Leading Through Civilian Power* (Dos QDDR, 2010) provided the aspect of working together and adaptability through:

Partnerships “Person-to-person diplomacy in today’s world is as important as what we do in official meetings in national capitals across the globe. It can’t be achieved, though, just by our government asserting it. It can only be achieved by the kind of public-private partnerships that the United States is uniquely known for...people and groups working across sectors, industries; working together with persistence and creativity to fulfill that promise of a new beginning and translate it into positive benefits.” – *Secretary Clinton, September 2010* [Italics in original](Ibid, p. 68)

This identifies a rather extensive group of organizations which are intended to act collectively on an international scale. While some will say that this is almost revolutionary; that the many organizations would, could, and in some circumstances should work together producing outcomes and results, this is actually not particularly new. The CCRP community has a history of looking at just these styles and types of interactions; providing analyses of how the various groups successfully, or with difficulty, managed to respond to various humanitarian assistance and disaster response events. The following three CCRP publications on interagency coordination from the 1990’s, along with a paper from last year’s symposium, reflect this analysis of collective actions:

- *Command and Control in Peace Operations – Workshop Number 3 – Western Hemisphere*; (CCRP, 1995);
- *Humanitarian and Peace Operations: NGOs and the Military in the Interagency Process – Workshop Report* (ACTIS, 1996);
- *Humanitarian Assistance and Disaster Relief in the Next Century – Workshop Report October 28-30, 1997* (CCRP & U, 1997);
- *Megatrends Reshaping C2 and their Implications for Science and Technology Priorities* (Varisoulli & Alberts, 2012).

Likewise, there have been many results reported through the use of the CCRP developed and supported ELICIT interaction study software, which are tantalizing for their implications. These results may partly be viewed as providing details of leadership and organizational interactions between personnel when executing tasks, revealing some of the characteristics which help and in other cases hinder the successful accomplishment of a task. The results have also assisted in the positioning of styles of task, event execution style, within the decision space (C2 Approach space) of the above introduced Figure 2.

Likewise, as mentioned within the prior section, there may be an opportunity for a different style of approach, sort of a more complete, whole approach, when considering the future and the multidimensional aspects of the under developed, degraded and denied operational world environments. An interesting example of the spectrum of knowledge comes not from a recent source; it arrives from a contemporary of many individuals of early American history, though not specifically linked to the recent history of the United States and its Allies. That source is the insightful writer and thinker, Thomas Hobbes. (Interestingly, Hobbes apparently was the source

for the tiger's name within the comic strip 'Calvin and Hobbes'; while John Calvin, the theologian was the source for the little boy, thus setting up the give and take between the characters, through their approaches and views regarding their circumstances and events.) Thomas Hobbes wrote directly and indirectly about the English internal struggles within and between the monarchy, church, and populus; however, he also presented a spectrum

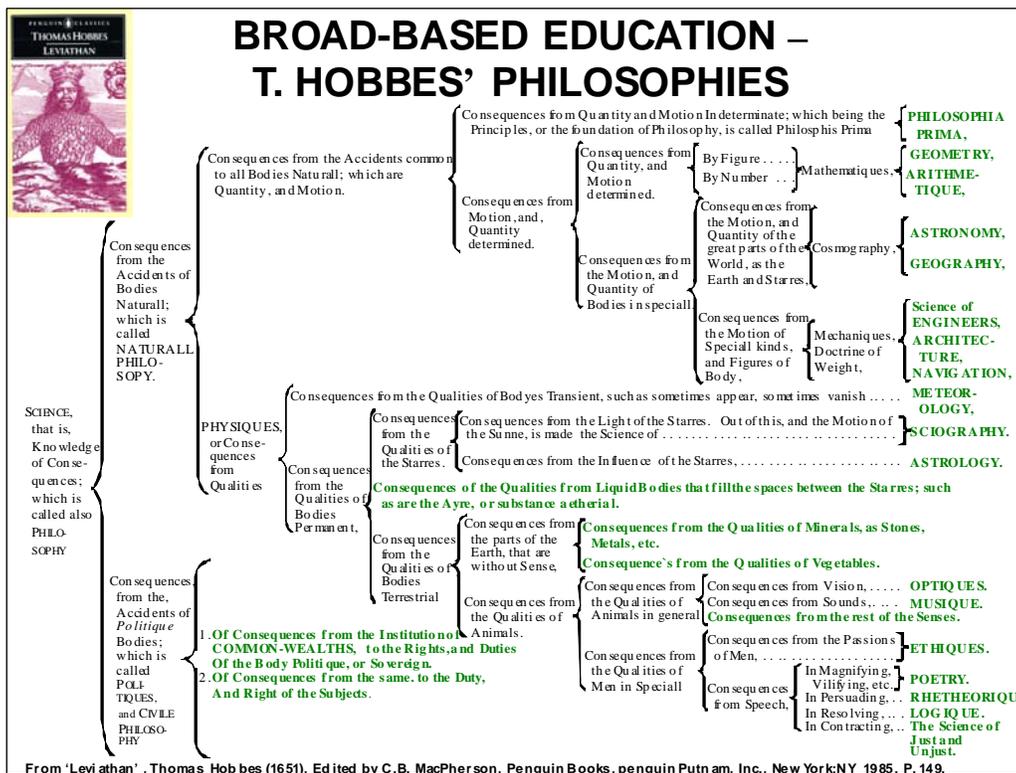


Figure 3 – A Spectrum of Education and Knowledge

of knowledge with his work *Leviathan* (Hobbes, 1651, 1985), where his discourse regarding those internal struggles were detailed. As a portion of that discourse, Hobbes broke the spectrum of knowledge down into some twenty-four areas, which were for his time period considered very all encompassing. That breakdown and the areas are presented in Figure 3 of this paper (the areas are high-lighted green), and are from *Leviathan* – Part I, Chapter IX; yes, from 1651.

To pull these points together, only the complete, whole Team and the team members fully capable of adapting and working together as a coordinated whole are likely to be the truly

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successful decision makers and leaders of the future. That capacity and capability is the skills and determination represented by the continuum of Paul Formain, Donal Graeme (Wiki, a), and Hal Mayne; who were introduced, with other characters, by Gordon Dickson's uncompleted series of books – the Childe Cycle series (Wiki, b). This character and skills continuum represents the merging of courage, philosophy, and faith/fanaticism (creating a complete, whole, individual) as another view of the factors, the spectrum of knowledge areas and characteristic dimensions, needed by the decision makers and leaders of the future. (Characteristics which they may need to possess as a result of their education and development.) The challenge will be determining when the transition into positions of influence and decision making actually take place, along with understanding the point at which decision making becomes critical for both near and long term outcomes. In the fictional series introduced by *Ender's Game* (Card, 1977, 1994)(Wiki, c), the transition point is illustrated by the age of the 'military and fighting engagement leaders humanity's fight against the family of the Hive Queen', along with its later intermediate time period books of his larger Ender Series. Here the warrior leaders were the chosen, special individuals from the population, approximately six through eight year olds, who attended the Battle School, and ultimately, with Ender's older siblings, unify the world governments by understanding all the levels of implications of their plans and actions. By this, the implication is that leadership development and training may well, and possibly should be within the family, during the so called 'formative years', as currently it does to varying degrees.

Thus, from the perspective of the synonym for adaptable, all-round: that an individual or team is capable in many areas, is all-round; and the concept of a more complete, whole organization (the Team) and the team members, as introduced above through the knowledge framework of Hobbes; the leaders of the future may well need to have Teams of decision makers, and those individual decision makers within the Teams, comfortable and capable of making productive decisions in uncertain times, while operating in denied, degraded and underdeveloped operating conditions. This is not a single decision style, it is the capacity and capability to employ the spectrum of knowledge to adapt and continue to make decisions.

Why Smart Power?

While the prior two sections have dealt with an 'uncertain future' and being 'more adaptable', the first sets a characteristics flavor of the decision approach space environment, the second provides the starting point for the development of the capabilities and knowledge spectrum of the actors and decision makers within the environment. This third section will explore aspects of what tools are available (or needed) within the context of the decision/C2 approach space environment starting from the 'smart power' framework and relatively recent discussions of a subset of it.

The term 'smart power' is used in the international arena when invoking the implication, hope, and actuality that there will be a mixture of military and non-military force and tools drawn upon, along with a variety of partnership arrangements, involved when nations and organizations interact on the world stage. A relatively recent example would be the coalition of nations which President George H. W. Bush and his advisors assembled for Desert Shield/Desert Storm. Even more recently, there has been the international discussion of the 'coalition of the willing', as well

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as, several international humanitarian assistance and disaster relief actions, placing and providing different flavors and styles within the spectrum of partnering and coordination.

In slightly different terms of:

“international relations, the term ‘smart power’ refers to the combination of hard power and soft power strategies. It is defined by the Center for Strategic and International Studies as “an approach that underscores the necessity of a strong military, but also invests heavily in alliances, partnerships, and institutions of all levels to expand American influence and establish legitimacy of American action.” ”
(Wiki, d) (CSIS within the Wiki citation).

At the NATO Summit of 2012, and numerous times since, NATO Secretary General Rasmussen among others, have invoked and discussed ‘smart defense’, a subset of smart power, as a way to coordinate the NATO organization’s mixture of capabilities, capacities, and skills at the collective and member country levels (Wiki, e). This discussion led to points of needs and potential resources for recognized shortfalls associated with ways and means within NATO.

This sets the foundation of this section of the paper. Consider a more expansive ‘smart power’ interpretation, where the influences of the hard physical strengths and the more mental, and nuanced soft influences are brought to bear by all the parties, interacting organizations, action individuals, and decision makers involved in the circumstances and events of the world environment. Several years ago, the combination of former Chairman Mullen and former Secretary Clinton, through routine discussions and briefings presented and discussed the point that the ‘military personnel and the diplomats must be working more closely together’ – invoking and encouraging a ‘smart power’ approach on the world stage. This coordinated approach is partly reflected in the previously mentioned Department of State Quadrennial Diplomacy and Development Review (DoS QDDR, 2010), which former Secretary Clinton had State Department develop based on the Congressional directed periodic Department of Defense Quadrennial Defense Review (most recent: DoD QDR, 2010). The implied partnering of these two departments, as inferred by the Wiki-CSIS information above, can be seen through discussions of the some of the ways the evolving concept of employing ‘all the tools of national power’. The result of which might be the well coordinated efforts from not only the governmental organizations, but also, the volunteer organizations, the private organizations, the volunteer organizations, the international organizations, the commercial/business organizations, the organizations which have normative power like churches, etc.; all the organizations, communities of the world environment.

This style has recently been evoked by Charles S. Clark in an article related to averting future disasters through information fusion and situational awareness across a wide spectrum of groups.

Specifically, while discussing New Jersey coordination and changes since 2001, Clark noted: The New Jersey state police and emergency management professionals now coordinate with Federal agencies including the FBI, Coast Guard, Federal Air Marshal Service, U.S. Immigration and Customs Enforcement, National Guard, and the Bureau of Alcohol, Tobacco, Firearms and Explosives. “If only more agencies looked for ways to use resources for multiple purposes,” (Thomas) O’Reilly says.” (Clark, 2013)

This demonstrates a scope of coordination (though limited) evoked by the prior DoS QDDR quote.

The reader is reminded that with the international relief efforts in Haiti, some of the more successful interactions for documentation and assistance (while partly facilitated through military assistance) were actually accomplished by the rapidly adjusting on scene relief organizations. This is not to say that the other organizations involved could not adapt to the circumstances; that is not the case. As another example of adapting, the reader might review the anticipatory response and adjustments the U.S. Pacific Fleet executed within hours of the notification alert regarding the Christmas Boxing Day 2004 earthquake (formally known as the 'Sumatra-Andaman earthquake') and the tsunami which hit Indonesia and Aceh, where units were in route prior to the actual issuance of assistance orders. (NWC NP No. 28, 2007)

Thus it is proposed that the application of smart power could be represented, characterized as the employment of all interactions methods and capabilities available within a multi axis (n-dimension) interaction space which accounts for all the capabilities and capacities of the organizations and individuals of those organizations. When considering organizational interactions styles as sampled and displayed in Figure 2 previously, the organizational entity

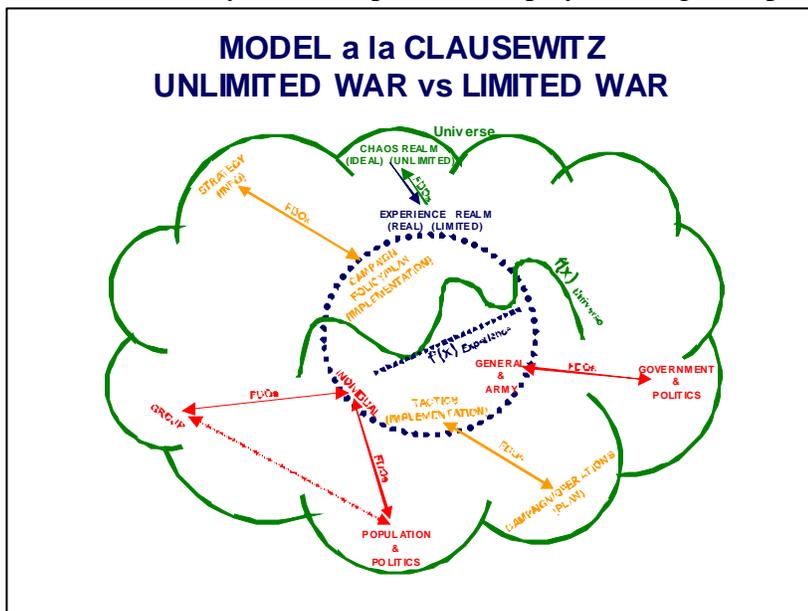


Figure 4 – Model of Policy/War a la Clausewitz

could be viewed as an adaptive organization (a complex adaptive system), which can operate in any needed style within the complete, whole decision/C2 approach space depending on the local and larger environment and circumstances. That the entity have the capabilities and ability to change styles on the fly (referred to as C2 Agility in *NATO NEC C2 Maturity Model* (CCRP, 2010), Alberts, Huber, and Moffet); yet going further to include the capacity and ability to operate in different regions within the decision/C2 approach space at the same time, due to the styles, capabilities, and capacities of the 'outside'

interaction points. This action point aspect invokes the fact that without some sort of receiver of the action, there is no complete interaction, akin to Newton's 1st and 3rd Laws: Bodies respond to forces applied and for every action there is a reaction. This action point also invokes the Newton – Quantum duality introduced previously.

The reader is directed to Figure 4, to see an attempt to represent some limited aspects of this multidimensional environment. It is derived from reading Clausewitz, who famously noted that policy by other means is represented as war. This figure attempts to show that real, limited combat ($f'(x)_{\text{experience}}$) might be represented as a linear approximation of a more complex ideal,

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unlimited war ($f(x)_{\text{universe}}$) which is not linear. That there may be a much larger set of interactions and styles beyond the subset of interactions styles and groups within the real, limited section of war and combat, which are included within the much larger groupings of the ideal, unlimited universe. The transition paths and linkages between the universe and the real are proposed as flexible deterrence options (FDO's). An incomplete set of components which provide that transition between the real and the ideal can be seen in Figure 5, which is drawn from Naval War College – National Security – *Case Studies in Policy Making & Implementation* – Volume 1, 1994, *The International Political System*, p. 46, Donovan, Freney, Gibson, and Duncan. (NWC NS, 1994) Displayed are examples of benign and coercive action options, types of associations, some types of war engagements, some commerce related actions, as just a few of the spectrum of tools of national power available for employment.

Drawing from the prior earlier discussion of ‘being adaptable’, the author suggests for this initial model of the world environment (Figure 4), offers the view that while the current discussion, push, and goal of improving adaptability is important, it is not the only objective involved. That having, maintaining, and expanding the ability and capacity to adapt is possibly a normal and ongoing aspect of successful organizations, whether military, commercial, financial, social, or any other grouping, as implied by the partnership framework (DoS QDDR, 2010) or the New Jersey (Clark, 2013)

examples. Collins and Porras (1997), also pointed this out through their analysis of a selection of successful and less successful companies. The author draws from their work that the more successful companies were those which held quite stable long term objectives and visions, with adapting and changing short term means to reach and contribute to those long term objective and visions. A question to readers may be: How may the organizations involved

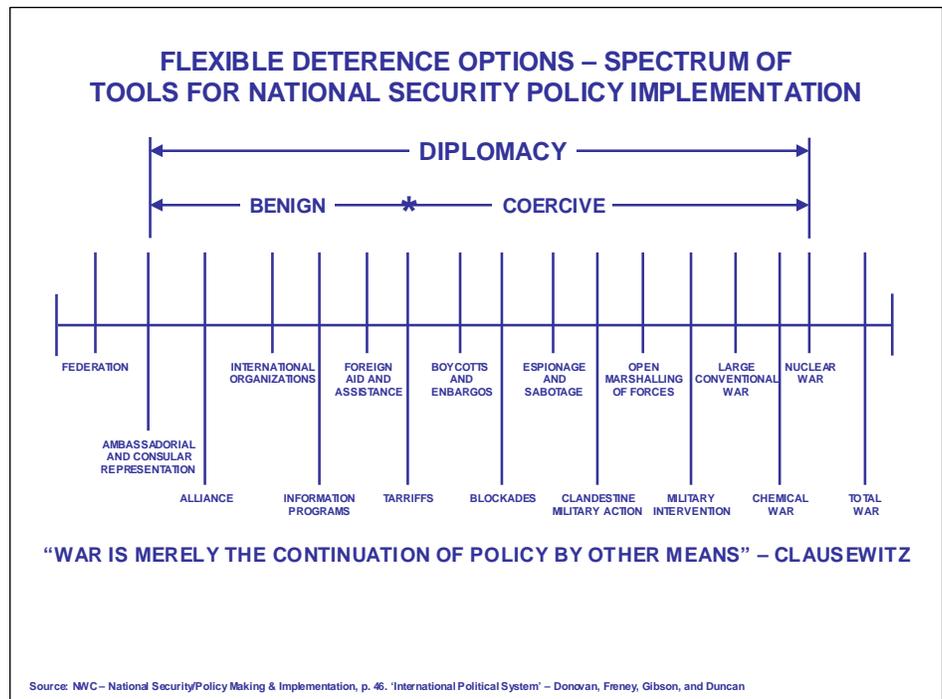


Figure 5 – Sample of Flexible Deterrence Options

with the real and ideal universe sections of Figure 4 move around the environment of the world terrain, interacting in the circumstances of day-to-day events, using the spectrum of FDOs, with the range of organizational decision making styles of the Figure 2 decision/C2 approach space? One possible approach and answer will be discussed in the ‘options and approaches’ section below, followed by the morals and mental preparation, and summary/ conclusion sections.

For some review prior to the next section, consider the these points: With Figure 4 the reader was offered an opportunity to explore a possible real and ideal engagement universe partly derived from von Clausewitz's 'war is policy by other means', depicting a linear approximation for a non-linear relationship between parameters of the engagement universe, to assist visualizing the relationships of characteristics. Figure 5, With that cloud image, Figure 5 provides a starting selection of transformation functions, the tool kit to organizations and individuals, to assist in

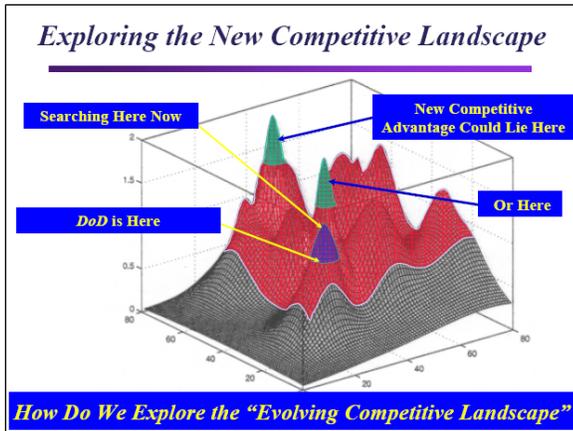


Figure 6 – Visualized New Competitive Terrain

expanding the concept of smart power of the limited, linear real experience subset within the decision/C2 approach space toward the n-dimensions of the ideal world environment (the ideal universe). When the DoS QDDR (2010) partnership parameters, with the context of the transformation functions for real to ideal transitions (and possibly the reverse) are considered, Figure 6 offers a style of topological visualization of the parameters' relationships within the universe and the decision/C2 approach space cube. Thus, if the surface has functional equations, adjustments of the parameters to change results can support movement around the surface representation of those parameters in the universe through the

organizations and individuals' employment of approaches within the decision approach space employing the tool which the transformation functions represent. Stated differently, a future objective should be for the Team (with its members) to be able to demonstrate the capability to operate in two areas of the decision/C2 approach space at the same time (quantum uncertainty); along with the capability and capacity to move between areas as the environment and circumstances demand (linear approach). Where moving along a surface is considered the linear aspect of interactions, and the opportunity for cutting through the surfaces is considered a quantum interaction, to tunnel through the data as a transistor operates by tunneling through its threshold barrier, to attain results and outcomes.

Some Other Options and Approaches

To state part of the prior summary differently, the transformation, transfer functions of FDO's can support the changes of styles/types and associated interactions representing movement within the universe and decision/C2 approach space. To go further, there must be sense of the tempo of interactions and engagements. A representation of that tempo is provided in Figure 7 – A Horizontal Competition Scenario (drawn from Thomas P. M. Barnett's discussion of horizontal thinking and globalization), which was addressed through the Network Centric Warfare discussion by John Garska in his plenary presentation to demonstrate information's impact on the military contribution to the increased engagement tempo of world events at the 2003 ICCRTS held at Washington's National Defense University. He presented the point that when



Figure 7 – A Horizontal Competition Scenario

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cultures and events of the world interact and collide, the engagement rules diverge, they need to adapt. In Figure 7 the continuum of interactions types and amount of activity interaction varies, as international interactions do not have truly defined beginnings or endings. Some of the interaction parameters are constant, while others vary. Figure 7 shows some of those parameters: implying there is a continuum with no real start or end; that like Disraeli's description of allies, teammates will change; strategy can not be static; the opposition and problem will tend to change and be debated; and, even with the interactions and challenges the world still turns.

These points express for the reader the breadth and depth of the many factors (n-dimensions) which interact within the chaotic, changing circumstances, and flow of events and conditions on the world stage, not only within a national group or organization, but also as presented and discussed within *The Pentagon's New Map* by Thomas P. M. Barnett (2004) [The uppermost section of Figure 8]. Like Huntington's world of civilizations from *Clash of Civilizations and the Making of World Order* (1997)[bottom section of Figure 8], Barnett points out a selection of the many factors and pieces of information which provide context and relevant foundation to the horizontal scenario concept of Figure 7. An indirect representation of Barnett's scenario was employed during Garska's plenary discussion to represent the important of information on and engagement execution with respect to confrontation, and conflict which is present between the Core and the 'disconnected grouping of world regions and countries' presented in the central section of Figure 8, (top: derived from the fontis piece of Barnett's book; middle: world view from Garska's plenary presentation; and, bottom: Huntington's (1997) 'world of civilizations').

These images provide several ways of presenting data subsets of the large n-dimension set of information, parameters, and data which lends context for action and understanding. By being able to see the information in context, and indeed, in different contexts, alternate paths for interactions and options may become visible and result in improved results due to the possible discovery of correlations and interaction pairings which could provide surfaces for movement (like Figure 6) that were not initially known. This demonstrates the importance of the CCRP community's frequently discussed topics of influence nets, colored petri nets, and small world networks for

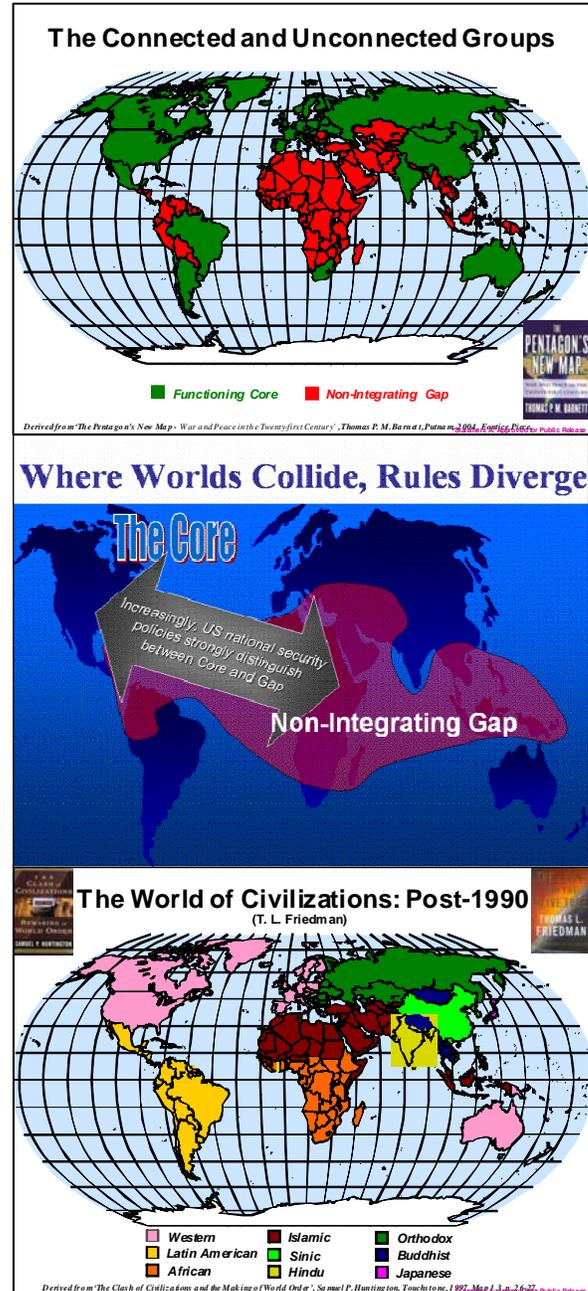


Figure 8 – Functioning, Non-Integrated, and Potential Conflict Areas

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analysis of paths and action chains to move along the surfaces and change decision/ C2 approaches in the linear space of Figure 2 in the real world subset, and in the future the n-dimensions of the unlimited ideal, world. The CCRP community of discussion topics offer a family of models and terms of reference which can limit blind spots and offer the chance for an 'a ha' moment.

Returning to the prior decision/C2 approach spaces of Figures 1 and 2, the author proposes that the actors and decision makers of the future may have to be able and capable of moving around within the complete decision approach/C2 approach space, and not be limited to operating in any one of the currently depicted characteristic style regions presented in Figure 2 in the 'uncertain future' section of this paper. That the successful decision maker would be able and capable of operating through out the space (movement being the linear approach), and even have to operate in multiple sections of the space at the same time (the quantum approach). This is significant when considering allies and partners with different cultures, backgrounds, and mixed objectives, along with the potential characteristics of the recipients of those decisions and action. Some of those many individuals and groups may be in alignment, and some may be at odds (even engaged in internal group conflicts); thus, leading to real challenges for all the decision makers and their organizations involved – a very rapidly evolving 'wicked' problem set (in the n-dimension space). This can generate an even more wicked challenge when the organizations, to which the decision makers are members, have differing decision styles from their individual members, emphasizing the opportunity, need, and importance for additional education, development, and understanding – all related to moral and mental factors.

Moral and Mental Preparation – Napoleon's Multiplier

As the four prior sections discussed aspects of: the 'uncertain future'; more adaptive leadership and forces; utilization of 'smart power'; and, 'options and approaches'; this section will expand on the balance between the physical and the non-physical (i.e., moral and mental) factors and components quoted by Wheeler (2012) previously.

Army General D. Rodriguez (Plenary speaker at the 17th ICCRTS, confirmed by the Senate 05 March 2013 (Parrish, 2013) to allow assumption of U.S. Africa Command, which he assumed on 05 April 2013 (Roulo, 2013)) is recognized for his ability to hold opposing views in his mind and seeking out dissent. Interviewed by Newsweek in 2011, he was quoted as saying, "I tell everybody, 'If we used our two ears and one mouth in the same ratio we had them, we would be better off.' " (Lake, 2013) While not Napoleon's ratio, his point is the same, that when attempting to understand and use the different views for balancing those perspectives, he is pointing out that listening is more important than speaking, for through listening one can gain the context of the circumstances and events; and, then continue the journey to understanding (with more listening), to hopefully gain not only a better understanding of context and the immediate circumstances, but also the larger social, cultural, and historical context of that environment. This would be along the lines of Ender Wiggin's transformation to 'speaker for the dead' (Card, *Speaker for the Dead* (1986, 1991)), following his leadership experience in battle (Ibid, *Ender's Game* (1997, 1991)). Card demonstrated through his Ender character a capability to take in another individual's, family's, or race's social character, understand it, and then act and speak in

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both malevolent and benevolent manners. Ender could, through seeing and listening, understand the culture and circumstances (the social, human terrain) in detail, as well as a much larger context. Thus, showing that cultural and human terrain aspects are important for understanding when, where, and how, to execute decisions and take actions. The implication is that success may well be predicated on the development of the whole individual, at both the individual actor, and the organizational level as a whole team (singular action group), along the lines of Allison's 'rational actor' mode.

The cultural and other factors aspect is exemplified by Hoffman (2012):

"The challenge is adapting to new demands, new threats and an evolving character of conflict. We must discard what is no longer relevant and reinforce everything that is immutable or enduring. The following is offered for consideration by the joint warfighting community: a new principle for the listm and indeed one to be placed atop the rest: Understanding: Craft strategy and operations upon a detailed understanding of the nature of military conflict and the specific context (Cultural, social, political and geographic) in which military force is to be introduced and applied."

Note, this is another aspect of the previously introduced 'partnership' (DoS QDDR, 2010) and the fusion approaches and descriptions (Clark, 2013) of this paper; along with leveraging "other institutions and capabilities – such as local governments, the US military, other countries' missions, international agencies and nongovernmental organizations – to ensure that a mission is as effective as possible and has adequate resources." (Jeffrey, 2013) Demonstrating that history, culture, tribes, demographics, organizations, decision styles, etc., are all factors having impacts and influence on interactions and decision making. That social and cultural knowledge, which nuance the employment of FDO's and the components of smart power, have a basis in power of diversity and was called out by Hobbes with the 'spectrum of knowledge'.

Returning to Collins and Porras (1997) business organization analysis, their discussion and results provide a profile of characteristics of the companies/businesses/organizations which have been successful, that have been less so, and also present some areas which can be pit falls in certain circumstances. They establish a set of common factors which help, along with some to avoid, when an organization is considering and executing not only short, but long term, goals, tactics, plans, and objectives. The discussed smart power/defense framework of approach goes across all the government and non-government organizations and groups for solutions to problems and challenges within uncertain, underdeveloped, degraded and denied environments, where many and multiple leadership and decision making styles are likely to be needed and employed. This suggests that the style of analysis for companies performed by Collins and Porras (1997), can also be applied across the analyses already completed for case studies within the decision/C2 approach space, and thus a set of characteristics, capabilities, and capacities of the decision makers/leaders, along with the members of those organizations and groups, can be identified, along with the paths and means to measure and attain them in the future. These are capabilities and capacities which can support teams and members operating throughout the decision/C2 approach space according to the circumstances and interactions with the environment when the decisions are being made. This is to include, as Chairman Joint Chiefs of Staff (JCS), General Dempsey comments to subordinates " . . . 'beware the Black Swan' – that is, to expect the unexpected." (Kitfield, 2012) Further, this premise is exemplified by the through the JCS study *Decade of War: Enduring Lessons From the Past Decade of War*, where

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“the first takeaway goes directly to the military’s Black Swan moment. “In operations in Iraq and Afghanistan, a failure to recognize, acknowledge, and accurately define the operational environment led to a mismatch between forces, capabilities, missions, and goals.” Lesson No. 2 is equally unsparing. “Conventional warfare approaches often were ineffective when applied to operations other than major combat.”” (Ibid.)

There must be balance and methods of alignment within an organization if it is to successfully apply the tools and means of action, at the best point and time within its environment, and also adapt during execution because of the expected and unexpected – the uncertain future.

Extending and combining the whole of government theme mentioned earlier, with the whole individual framework characteristics discussed previously, along with Allison’s ‘rational actor’ concept of treating an organization, there evolves a duality of the individual and the organization as an ‘individual’, that while composed of individuals, may be considered a single entity. The prospective amplifies and provides a context to the capabilities mix of Dickson’s ‘whole individual (with, for example, strengths of military, faith, and knowledge)’, coupled with a wider spectrum of knowledge from Hobbes, must apply to not only to the individuals, who are part of the organizations, but also to the groups and organizations of which they are members. That the individuals and their organizations can draw upon their individual and organizational social, small world network, and the melding of individual and collective knowledge, skills, and capabilities available for use and employment individually and collectively.

This is not to leave the impression that the other components of the government, its associated organizations, and all the varieties of volunteer groups will always be aligned for goals, objectives, styles of action, let alone means, or capabilities. That is definitely not the case, they all will vary from each other in these factors and many others. The point to remember regarding this diversity is to use these difference to counter-balance weaknesses with strengths across the action ‘individuals’, and thus hopefully not show any weaknesses to the opposition. The reader is reminded that while there was a military surge in the recent years, there was also a civilian surge, and there was no lack of volunteer groups and individuals either. For the United States, that civilian surge highlighted the individuals and office organizations of the State Department. Though when considering the staffing of the complete Embassy team, the extended team includes membership from all of the governmental executive branches representing their parent organizations, with remote reach back accessibility to further resources in the United States. By example, an individual service member of the Department of Defense at the Embassy is expected to represent all the services and their capabilities along with their parent service, when responding to the Ambassador, and be capable of drawing upon remote backup when required. This again invokes a limited aspect of the whole, complete individual, and demonstrates the ability to draw upon the extended (and hopefully self-organizing) military and government network to improve response choices and opportunities for actions, solutions, and further context, when making decisions whether with deliberation, or under crisis pressures; and, with individual and collective knowledge, understanding, and knowledge. This networking aspect parallels the prior partnership framework (DoS QDDR, 2010), and the leveraging of resources summarized by Jeffrey (2013) previously.

The discussion of context and the ability to reach back for supporting data opens the opportunity to visualization that information through plotting and mapping the influence connections within the data and information to see surfaces, shapes, and emerging patterns upon which actions can be taken. Returning to another version of Garska's terrain model (Figure 9 – Potential Maneuver Solution Paths, following), this style of presentation could represent those relationships as surfaces, with known parameters and functional relationships upon which organizations and individuals can act and maneuver, to reach favorable outcomes, remove risks, and even reveal alternate paths for success. (Like the direct, 'linear' approach of a complex relationship from Figure 4.) This approach of moving on the model surface is actually not new, it is ultimately the method employed through using lots of information and analysis, to find the best solution, as

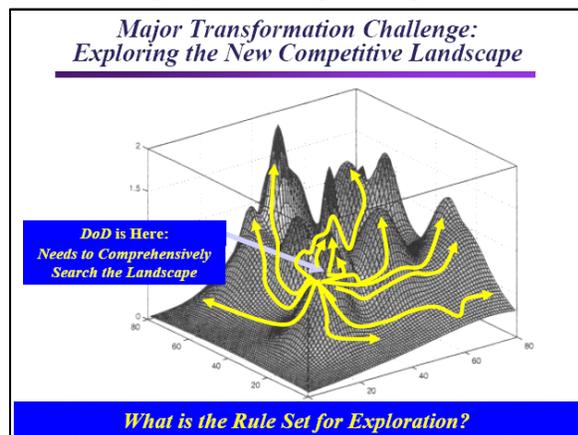


Figure 9 – Potential Maneuver Solution Paths

demonstrated by the containment, defeat, and mitigation of the Mule's affects on the human race – the Foundation in allegory to protect the human race – within Asimov's *Foundation and Empire* (1952) and *Second Foundation* (1953). Some will say that time is an enemy of any exploration process, however, there are the recognized deliberate and crisis planning methods. Methods which draw upon the individual's and team members' experience, histories, tools, and ideas both individually and collectively through supporting networks – the n-dimensions of resources for ideal decision/C2 approach and actions space.

To summarize these points by way of examples, when considering army training with respect to preparation for deployment, they're training in the physical terrain to be encountered, "but not necessarily the human terrain – the cultures they'll be dealing with", for the wrong, inadvertent actions can cause problems instead of solutions (Cohan, 2013). Building on this point, Hoffman (2012) pointed out that cultural training, knowledge and understanding is critically important. Thus it is that mental and moral over the physical component factor. Considering the human terrain

"This makes warfare a lot more complex. So we have to be much more expeditionary. We have to be more intelligence-minded, more people-minded. We have to understand the populations that we're operating in and among," said Nick Dowling, a former National Security Council director who runs the cultural-training company, IDS International." (Cohan, 2013)

And finally, General Dempsey, CJCS, has stated:

"Although those first battles of past wars have been proven too costly, in each case American military leaders and forces adapted and ultimately prevailed. When I finish in the job, my personal measure of success will be whether or not I and the service chiefs developed leaders that are adaptable. That's the attribute we value more than ever before, because the next time we predict the future wrong in terms of where, when, and who we are going to fight—and we will get it wrong—we will need to adapt to prevail." (Kitfield, 2012a)

Thus, it is the development and employment of understanding, the mental realization of the overarching principles, and not blindly relying upon the specialized rules, which allows the mental to be the multiplier of the physical, and the supporter of the decision makers in complex and challenging circumstances. This is suggested by the business executives' exposures and experiences through immersion in emotional scenarios at the Quantico Marine Corps Base training command as part of an ethical leadership curriculum for military and civilian leaders. The scenarios challenge knowledge, morals, and ethics assumptions, along with cultural understanding based on varying knowledge levels, balanced with responsibility and accountability (Michaels, 2013). This stresses and trains the business participants and military student – current and future leaders and decision makers, hopefully allowing them to be more adaptable.

Summary and Conclusion

To review the prominent points discussed in this paper the author starts with Hoffman's (2012) article (introduced in the Moral and Mental Preparation section). Hoffman, through his article's sub-title 'understanding atop the pantheon' is pointing to the fact that within the cognitive hierarchy, understanding is the last, the top rung, of the progression through knowledge from data and information. His article also turns the reader's attention to Huntington's (1997) lines of conflict between and across civilization groupings (alluded to in the bottom image of three of Figure 8), along with Barnett's (2004) grouping along the commerce and interaction data line depicted as integrated and non-integrated world group status. Another view of Huntington's conflict across civilizations analysis is depicted in Figure 10 following. This diagram provides an alternate view of data, interactions for possible avenues and points for interactions within the world environment to use adaptability, to overcome uncertainty, and apply C2 approaches, decision style to act, to reduce conflict. It is organized along 'region' and religious factors, but could also be done with other parameters. The long term objective of action within the n-dimension world environment is not only to reduce conflict, but maybe also to reduce the reasons for conflict (a type of pre-emption), and thus improve the welfare of the populus through individual and Team understanding of context and history (the Hobbes spectrum of knowledge).

The objective includes the point that individual and Team understanding does not arise without some effort. That is the aspect of analysis, learning, and education is not only of and by the individual and the Team organizations, but also through those small world network groups in which the individuals claim membership. The spectrum of knowledge from Hobbes (1651) in Figure 3 demonstrates the depth and breadth (the increase toward data n-dimensions) which supports Hoffman's pantheon position of understanding. Hobbes' spectrum also supports the importance of the human terrain aspects of good old geography, history, and demographic characteristics, which contribute to the granularity of understanding and context. Without the spectrum of understanding, and the concept of Dickson's

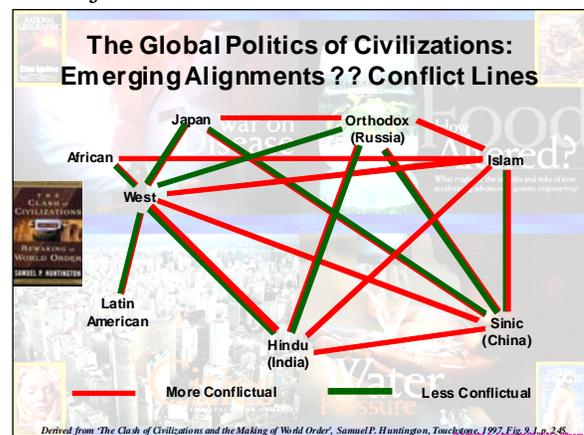


Figure 10 – Another View of Cultural Gap – Conflict Challenges

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'whole individual' (introduced in the On Being More Adaptive section), there is no bridge to the duality concept that an individual with a spectrum of understanding, is at the same time an important contributing member of the Team group also provides the grounding for individual and collective actions through understanding and mining the individual and group knowledge to support that understanding. This depth and mining of the knowledge and education spectrum is seen in the examples from Clark (2013): citing analysts from 26 local, state, federal, military and private sector, interacting all year long, not just during a crisis; and, the DoS QDDR (2010) partnership emphasis. This coordination duality could be viewed as the extension of groups of small world networks into a larger network.

This level of partnership, data mining, and understanding can be supported by the visualization and mapping of the information interactions and dependencies, to hopefully reveal paths, mitigations steps, or solution sets of actions between individuals and groups. This type of analysis is along the style of Mr. Marshall within the world environment and the human terrain. The analysis style is a demonstration of the truth of Napoleon's ration and Boyd's ordinal numbering of moral and mental with relation to physical from Wheeler's article (2012). That without a deep, spectrum of knowledge and understanding to support a spectrum of physical and non-physical skills and tools of individual and Teams actions and C2 approaches, decision styles will not necessarily lead to success at a reasonable return on investment. To better align action groups with the human terrain and cultures, there has been the recent emergence of regional assignments of brigades. This demonstrates an acknowledgement of the worth of long term development, knowledge, and context so the individuals and the organizational structure as a whole, can better interact with their opposite groups within assigned regions.

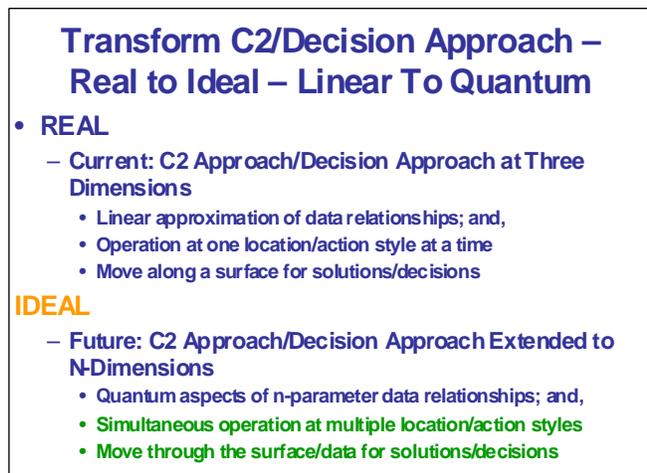


Figure 11 – Transformation C2/Decision Approach

There is the potential that through successful work within the civilization conflict history context of Huntington and the disconnected regions of Barnett, can facilitate and accelerate the realization of common ground approaches and solutions based on collective groups, organizations, and individuals to overcome uncertainty through adaptability, and greater understanding. That the leaders and decision makers of the groups and organizations involved should not be characterized as operating in only one region of the C2 approach, decision space cube, but should have the ability and capability of operating throughout the cube in concert with

the context and environment of the decisions being made, and the groups and organizations involved. That learning and development starts early, has breadth and depth, and must be continued, demonstrating adaptability, for interaction in the underdeveloped, degraded and denied environments of the uncertain future. That the current C2 approach, decision space be considered a real, 3-dimension linear space which allows for the transition to an ideal, n-dimension, quantum space, where operations and decisions are made simultaneously in different styles. (See Figure 11)

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Stated differently, that the current and future leaders and decision makers, with their teammates and organizations, must transition toward representing a whole individual capability (both as individuals and groups) when acting individually and collectively across the complete decision/C2 approach space, in the work and world environment. The journey to attain the possession of that capability is only beginning, and has a long way to go, if it is ever to be attained.

'Disclaimer' – The opinions, conclusions, and recommendations, expressed or implied are those of the author. They do not reflect the views of the Command and Control Research Program, DoD, U.S. Navy, Naval Sea Systems Command, or Program Executive Office for Integrated Warfare Systems. The author likewise assumes responsibility for any errors in this work.

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