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Rethinking Counter Terrorism:

The Need for Systemic Strategic Planning and a Strategic Campaign to Address Violent Islamist Extremism that Manifests Itself in Terrorist Acts

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As an observer of the Joint Staff strategic planning process, I noted that long term, nonlinear and non-conventional strategic thinking was consistently deferred by senior decision makers. Understanding how those involved in strategic planning in the Department of Defense view concepts of system thinking provides valuable insight for broad applications among interdepartmental and private sector strategic planners who seek to develop strategic plans in a global and interconnected strategic environment. While there are many intergovernmental strategic documents intended to guide senior decision makers in strategic planning, such as the National Military Strategy, the Quadrennial Defense Review, the National Security Strategy, the Department of Defense Strategic Guidance, and the Quadrennial Diplomacy and Development Review, my reading of these documents indicates little recognition of the systemic nature of today's strategic environment. National framing of the strategic environment has essentially remained unchanged since our governmental institutions and planning processes were reconfigured sixty years ago to contain the spread of global communism. In fact, it has been argued that President Eisenhower's Project Solarium was the last successful attempt to systemically address a long range national security strategy (Brimley, Flournoy, 2006). Recognition of the complex and systemic nature of today's strategic environment may be lacking in U.S. Government strategic planning, and the current strategic Joint planning process appears to provide little room for outside collaboration with those currently employing system methodologies.

There is a body of research related to the strategic application of systems thinking, complexity theory, and complex and adaptive systems theory to strategic planning in business and a variety of organizational constructs. This research includes analyses of the strategic planning process (Mintzberg 1994, Armstrong 1982), complexity in strategic change (Stacey 1995), oil firms' strategic planning for unpredictable change (Grant 2003), open systems and strategic planning (Jackson and Keys 1984), backcasting for strategic planning of sustainable development (Holmberg and Robert 2003), cognitive

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biases on strategic planning (Barnes 1983), Complex and Adaptive System of Systems engineering and modeling (Glass, Brown, et al 2011), and, strategic planning in small firms (Robinson and Pearce 1984). Further research is needed, though, in analyzing the potential benefit of employing methods of system thinking and complexity in the deliberate planning of regional and global strategies. Critically, this applies to our current counter terrorism strategy and the phenomenon of ideologically based violent extremism. While this paper focuses primarily on radical Islamist extremism, the concepts discussed apply equally to any ideologically-based extremist network seeking to employ terrorism.

The benefit of understanding the complex nature of the environment would seem to be fundamental for strategic planners whose organizations are systemically part of this environment. Research in the areas of complexity and systems thinking covers a spectrum of concepts that frame regional and global environments, ranging from linear and deterministic approaches to predictability, to probabilistic constructs of complexity, chaos, bounded instability, and emerging systems. Common in much of this analysis is a focus on determining system boundaries, endogenous and exogenous impacts, identification and implementation of feedback loops, and an appreciation of the delays and time frames required to provide a sufficient understanding of relationships within and between systems. A primary objective of strategic planning is to inform decision makers of the complexity of the environment in which they, and their competitors, operate and to broaden the horizon of their strategic thinking. An efficacious strategic planning process must be focused on enhancing the ability of decision makers to make sense of an uncertain and complex environment. One tool that could prove useful in this process is system dynamics modeling, created by Jay Forrester at MIT. The concepts of system dynamics provide for the setting of boundaries and the analysis of endogenous systems in terms of the stock (quantities of material), flow (the rates at which these systems change), positive (self-reinforcing) and negative (self-correcting) feedback loops inherent in goal-seeking systems, and the delays associated with these interactions (Sterman 2000). By understanding the structure of these feedback loops, it may be possible to maintain the desired dynamic equilibrium of system behavior required to achieve or sustain stability amidst uncertainty. The Intelligence Advanced Research Projects Activity (IARPA), the Massachusetts Institute of Technology Sloan School, and others have already done work in this area (Choucri, Madnick, Siegel, et al 2007).

Making sense of any phenomenon often begins with an ontology or epistemology of understanding – a framework from which to form judgment. The Age of Enlightenment placed heavy emphasis on observable phenomena that could be described or "explained" by laws of nature. Causal explanation of observed phenomena was largely based on the assumption of order in the physical universe and was eventually expanded to include systems of human behavior. Since the birth of enlightenment science, the distinction between order and chaos has had a profound influence on conceptual and practical thinking (Snowden and Kurtz 2003). Our understanding of the physical universe has advanced significantly since the early Age of the Enlightenment (illuminated by Copernicus, Kepler, Galileo, Newton, and Huygens) and the Industrial Age (enabled by scientists such as Bernoulli, Kelvin, Faraday, and Maxwell). The paradigms of certainty and the reductionist approach to understanding cause and effect that characterized these periods were eventually eroded in the 19th and 20th Centuries by revolutionary thinkers such as Poincare, Einstein, Bohr, De Broglie, Schrodinger, Heisenberg, Feynman,

Lorenz and others. By the first quarter of the 20th Century, the paradigm of "certainty" had been discarded through a revolution of thought and observation, and a more complex and non-deterministic universe was revealed.

Most people can accept that the purpose of science is to describe the structure and constituent characteristics of observable phenomena, perhaps even going so far as to *predict* behavior (through some inductive process of generalization). In other words, describing *what* something does or consists of and *how* it behaves. This is a migration from descriptive explanation to causal explanation and involves providing evidence that satisfies the conditionality of causal relationships: that *cause* temporally precedes *effect*; that cause covaries with effect; and, that no alternative explanations are plausible (Shadish, Cook, and Campbell 2002). A logical (though not, I would submit, necessarily practical) outcome of this is an expectation of *predictability* and *testability*. The value of theory, many would contend, lies in its explanation of observed phenomena and that, "By its very nature, a theory predicts." (Kerlinger, Lee, 2000).

But the predictability and testability of theory in a complex and non-linear environment that is characterized by uncertainty and chaotic behavior – behavior that is the result of non-linear dynamics in human activities creating deterministic, though non-repeating and largely non-predictive behavior – seems secondary to the importance of increasing our understanding of causal relationships that may be far removed in time and space. System dynamics practitioner, John Sterman, stated that, "The heuristics we use to judge causal relations lead systematically to cognitive maps that ignore feedbacks, multiple interconnections, time delays, and the other elements of dynamic complexity." He went on to assert that, "…people use various cues to causality including temporal and spatial proximity of cause and effect, temporal presence of causes, covariation, and similarity of cause and effect…These heuristics lead to difficulty in complex systems…" (Sterman)

In an increasingly interconnected social environment, international organizations, US agencies, regional and multi-national companies will continue to benefit from strategic planning. Research in the areas of complexity and systems thinking has covered a spectrum of concepts that frame various strategic environments. What seems to be lacking in this research is a merger of social network and physical network theories focused on integrating hubs, nodes and connectors, system boundaries, endogenous and exogenous impacts, identification and implementation of feedback loops, and an appreciation of the delays and time frames required to provide a sufficient understanding of relationships within and between non-linear human systems. The benefit of understanding the structure and feedback mechanisms of interconnected (and often self-organizing) systems within any bounded environment would seem to be fundamental for strategic planners who hope to achieve desired outcomes while overcoming policy resistance.

Much of the literature that relates complexity, uncertainty, and system thinking to strategic planning focuses on three major areas of study: making sense of a turbulent environment for decision makers; the application of system dynamics and theories of complexity, chaos and emergence to the global environment; and, the evolution of the strategic planning process for large companies and organizations. A primary objective of strategic planning is to inform decision makers of the complexity

of the environment in which they, and their competitors, operate and to broaden the horizon of their strategic thinking. The concepts of system dynamics provide for the setting of boundaries and the analysis of endogenous systems in terms of the stock (quantities of material), flow (the rates at which these systems change), positive (self-reinforcing) and negative (self-correcting) feedback loops inherent in goal-seeking systems, and the delays associated with these flows (Sterman 2000). By understanding the mechanisms of these feedback loops, it is possible to sustain the desired dynamic equilibrium of the system required to achieve or maintain stability.

Complicating this effort are the dynamics inherent in complex systems and chaotic behavior that create instability, particularly in boundary areas between systems. Emergent patterns develop in what is commonly referred to as the edge of stability or the edge of chaos, and complexity can enable useful emerging patterns (Kurtz, Snowden 2003). Strategic planning has evolved over the past several decades in response to what is recognized as an increasingly uncertain and turbulent global environment. As will be discussed, less emphasis is now being placed on developing specific plans of actions for corporate control. Rather, the focus of strategic planning has shifted to enabling adaptability through increased environmental awareness and strategic thinking. This has resulted in less formal processes of strategic planning, with greater appreciation for creativity and innovation in the development of alternative future scenarios to enable flexibility in the face of uncertainty.

In the last decade of the 20th Century, the world experienced an epochal shift as profound in its effect as the age of enlightenment or the advent of the industrial age. But perhaps because it is difficult to assess a system recursively from within, the sweeping, paradigmatic and cultural changes of the Information Age have never been fully recognized despite the fact they have fundamentally changed our strategic environment. This is most evident in the rising phenomenon of terrorism and global efforts to counter this threat. The global connectivity and instantaneous communication enabled by the internet and social networking have rendered our previous strategies of "control" obsolete and, trapped within this 20th Century mind set, it has robbed us of our ability to correctly identify the opportunities and challenges confronting us every day. What ties seemingly unrelated but tectonic global events together is literally the complexity and systemic nature of today's strategic environment. We must accept this complexity – and the uncertainty that accompanies it - and learn to adapt.

The world in which we live has changed, and our inability to recognize that change and to adapt could eventually lead to the extinction of our values and way of life, as surely as any species who fails to successfully evolve over generations. History is filled with well-intentioned failures. It is not for lack of effort, but for lack of vision and willingness to accept risk, that aspirations often fall short. Perhaps it is also the inability to simply let go of comfortable but obsolete wisdoms and to force ourselves to seek solutions that do not plot within the range of normal, or even identifiable, distributions. Innovation and imagination are the stuff of great scientific, sociological, and economic breakthroughs. I would submit this is also true for governments and militaries. And yet, as a nation we seem to be calcified by our own perceived invulnerability, so hyper-focused on the tactical that we have devalued the strategic.

An apparent shift to a focus on the *gestalt* of a system has evolved from the cyberneticists (Wiener, Von Neumann, et al), the organismic biologists (e.g. von Bertallanfy), and the system dynamics pioneers (led

by Jay Forrester), through design theorists like Herb Simon, and chaos theorist Ed Lorenz, to the network and system theorists Strogatz and Watts, Milgram, Barabasi, Capra, and eventually to the complexity scientists Maury Gell-Man, Yaneer Bar-Yam and others. Throughout this process, an isomorphic mapping has taken place that applies the core concepts of thermodynamics and evolution to emergent behavior in open systems. The isomorphic merging of system science in biology and the understanding of dynamic equilibrium and entropy from thermodynamics formed the basis of new theories of complexity and chaos that introduced the non-linearity of relational behavior in organic and inorganic systems. This approach to understanding complex systems and networks, explored by Granovetter (1973, 1985), Strogatz and Watts (1998), Barabasi (2003), Capra (1996), and many others, was at least partially the result of the next revolution in science, the Information Age. This is particularly significant in the study of complex, non-linear, relationships in human systems.

We must ask ourselves, "If we aren't willing to honestly accept our myopia, what hope is there to correct our vision?" Nonlinear thinking - the strategic connecting of dots – is consistently deferred by the urgency of more tactical concerns. And yet, what could be of more pressing urgency? It's as if we are willing to explore every data point on or near a trend line, without ever questioning the applicability of the x and y axes or the linearity of the plot. We must stop simply *reacting* to the now: struggling to restore the past, rather than embracing the future. There will always be another crisis. There will always be the urgency of now, and the temptation to seek *deterministic* (predictable) outcomes when the environment is *complex* and *systemic* in nature. But to miss opportunities by seeing *only* risk and threat, or by narrowly addressing only the most obvious and familiar aspects of complex problems, is worse than doing nothing. Examples of this complexity and our need to seek opportunities within it abound.

The Middle East and North Africa are experiencing a cultural and social upheaval unlike anything seen there in sixty years. Whether this is part of a long maturation process from post-colonial authoritarianism and repression to democratic self-determination, a period of Islamic enlightenment following a sort of post-Ottoman dark ages, or a reawakening of tribal and religious sectarianism remains to be seen. But whatever the basis, this movement is regional in nature and is sweeping like a cultural tsunami across North Africa and the Middle East, leaving the detritus of authoritarian regimes and Cold War relationships in its wake. In the meantime - though not necessarily directly related in a causal sense - an adaptive and complex network of violent Islamist anarchists and anti-modernists, as well as other ideologically-based extremist groups, continue their disjointed campaigns against the west and secular regimes in South Asia, the Caucuses, Iraq, Yemen, the Levant, Somalia, Algeria, Mali, Nigeria, the Philippines, Malaysia, and Indonesia. Localized and transnational terrorism is their medium of expression – they seek to destroy and then to control. Their offer of a "better life" is not in this world. The objectives of these inimical networks are antithetical to our own, and it is inevitable that their activities will increasingly (albeit sporadically) manifest themselves on American soil. Running in the background of these monumental shocks to the global system, are the continued effects of economic crises, food shortages wrought by earlier natural disasters, rising fuel prices, transnational crime and narcotics trafficking, and the increasingly apparent effects of climatological variations, deforestation, and rising atmospheric carbon dioxide levels.

While NASA engineers, professional and amateur scientists, and generations of Americans who are products of the so-called Space Age are lamenting the end of US space shuttle missions, and wondering what's next, many others believe this could represent the beginning of a challenging and equally exciting new era for American scientists and citizens alike. We are now emerging from the technological advancements of the Space Age and still witnessing the epochal and liberating impacts of the Information Age. Now is the opportunity to recognize the systemic and complex nature of the twenty first century – its shocks and resilient paths to a more sustainable future. Americans should embrace this challenge and rededicate our technological innovation and economic leadership for national and global benefit. The demonstration of American commitment to a new model of sustainable prosperity and security must begin at home.

In 2011, IBM announced the development of their first neurosynaptic computing chips that integrate hardware and software to replicate the brain's functions. The revolutionary new chip was noted as being a critical shift away from the traditional von Neumann computer architecture that separates CPU from memory. IBM Research's "Systems of Neuromorphic Adaptive Plastic Scalable Electronics" (Synapse) is a cooperative project begun by Defense Advanced Research Program Agency (DARPA) in 2008, and DARPA has now pledged an additional $21M for the next phase of research. The concept of Synapse is to create a multi-sensory system with size and power consumption to rival those of the human brain – using silicon in place of the neurons, synapses, and axons that transmit information – capable of dynamically "rewiring" itself as needed (IBM Press Release, 18 Aug 2011). Work such as this is driving computer science beyond computation and algorithms that mathematically map processes, toward non-linear cognitive adaptation and biomimicry at the speed of imagination. The potential for revolutionary / evolutionary progress such as this, makes discussions about strategies centered on control seem sophomoric. We must now ensure we can apply the *reason* to balance such progressive artificial *intelligence*.

The tools of influence in today's strategic environment are credibility and strength. These are very different from force and power, and they are derived from values – the values enumerated in our Bill of Rights, Constitution, and Declaration of Independence. In the Information Age, the "say-do" gap – proselytizing values that our actions do not seem to reflect - is impossible and undesirable to maintain. If Wikileaks provided any lesson, it was that "controlling" the message is no longer possible in today's hyper-connected world. We must consistently apply our values or abandon hope of establishing credible influence and the moral strength necessary to effectively employ the tools of National power.

The bottom line is that coherency of purpose must be anchored in the values that characterize us as Americans and provide hope and opportunity to the rest of the world. Credible influence is earned through respect and strength, and this can only be demonstrated over time through consistency of action. In the Information Age, we must talk straight to partners and adversaries alike. Liberty, equality, and freedom of expression are values we cherish. Oppression, prejudice, and repression are inconsistent with our values. In confronting extremism and transnational crime, we can accept uncertainty by mastering complexity. The application of military force is a last resort: to be used with consistency when the security of the nation, or that of our partners, is at risk; or, perhaps when required to do so as a leader in the international community of nations to maintain global order and to protect

gross violations of human rights. But other tools of influence – diplomacy, economic influence, education, technological innovation – are far more powerful in today's strategic environment when employed systemically, and reinforced through our free markets.

Beyond the threat and risk inherent in today's global environment, there are opportunities for sustaining our prosperity and security at home and abroad. We must accept the interdependence of globalization, and seek converging interests. Urbanization, crime, joblessness, and health care aren't challenges we, alone, face in America. It is time to pursue solutions the rest of the world might emulate, and embrace the challenge of global competition. While it is clear that Islamist extremism (or any ideologically-based form of violent extremism) is not a monolithic movement, its core principles provide connective tissue that loosely couple violent movements world-wide and domestically. Radical Islamism exists as a complex and adaptive network. Whether we are speaking in terms of economics, biologics, social sciences, or physics, complex dynamic networks spontaneously propagate without direction from a central intelligence. Complex networks are referred to as 'adaptive' or 'dynamic,' because they are self-organizing, constantly changing their interrelationships based upon the needs of individual agents and environmental impacts. While these networks emerge from common need preferences, a complex dynamic system is always greater than the sum of its parts. We need to interrupt that process by mounting a Strategic Campaign worldwide with Muslim partners to discredit and diminish the threat from radical Islamist extremists.

This Strategic Campaign might be structured along three *equally important* lines of persuasion. These three lines of persuasion represent three sectors of global society: the public/government sector; the private/commercial sector; and, the myriad International and Non-Governmental Organizations (lOs/NGOs) who share common interests and principles. Perhaps the most important single aspect among these lines of persuasion is consistency. Our efforts in all three must remain aligned and on-message. But they must be backed up by our actions. In this endeavor, actions mean far more than words. As a nation, we must work together with our global partners, especially those representing mainstream, Islamic/Muslim ideals, if we are to ultimately discredit and diminish the threat posed by radical and violent Islamist extremists worldwide. To be effective, all three lines of persuasion must be carefully synchronized and aggressively monitored by global polling, behavioral surveys, and tools of social science.

The first line of persuasion, the public/Government sector, must span the interagency, with Department of State in the lead. Each department- State, Defense, Justice, Commerce, Treasury, Agriculture, et al- has a unique role to play, but the message must remain coherent throughout: Radical and Violent Islamism is a deliberate corruption of Islamic teaching, and we support our own Muslim citizens and partners worldwide who are slandered and outraged by those who adhere to this hateful and destructive minority; further, we will work to undermine the illegal activities of radical Islamists worldwide, while at the same time, strongly supporting Muslim nations *I* governments, organizations, and people who are being exploited by the extremists, and whose principles are aligned with our own. This approach will include the incentivization of Islamist polity, education and literacy, science and technology, agriculture, and commercial pursuits. Our public *I* Government statements,

engagements, operations, and actions must consistently demonstrate our principles and honest good intentions for Muslims worldwide.

The private/commercial sector line of persuasion is focused on promoting an accurate portrayal of American tolerance and individual opportunities for Muslims through free market economies. This will involve encouraging US industry and media to increase their outreach within the domestic Muslim population as well as to the international marketplace and wider Islamic audience (e.g. working with the National Advertising Review Council to encourage more advertisements that feature Muslim-American youth enjoying popular products such as jeans, cell phones / iPods, perfumes). It is critical that we avoid the perception that we are "selling" a different (western) lifestyle, or that we do not respect traditional values. Rather, we seek to increase the job market and international trade that might offset the negative conditions that lead to urbanization at the expense of rural communities, migration from destitute homelands that lack sufficient opportunities for burgeoning youth populations, abject poverty and illiteracy. By incentivizing commerce and academic institutions to seek partnerships in the wider Islamic community, we can exploit the vulnerability of a warped ideology that eschews modernism, freedom of expression, tolerance, justice, human dignity, and prosperity, and offers reward only after death.

In the third line of persuasion, we must engage with International Organizations and Non-Governmental Organizations to improve the lives of Muslims worldwide, and to stem negative global stressors that create an environment in which radical Islamism can thrive. Whether in direct response to critical humanitarian crises, or in support of long term efforts to counter anthropogenic effects on our environment (atmosphere, soil, sea, water sources), illiteracy, urbanization, organized crime, human migration, pandemic disease, abject poverty, injustice, and exploitation we must strive to partner with all those who share our principles and the will to address negative trends. When possible, we should partner with Islamic organizations, nations, and NGOs who seek to redress the ills that feed radical Islamism globally. Whether supporting Islamic nations, the African Union, or the Red Crescent, putting Muslims in position to counter the poisonous propaganda and perversion of religion is critical in countering violent jihad and the hateful ideology espoused by Islamist extremists.

The results of all three lines of persuasion must be closely monitored through the aggressive use of global polling, behavioral surveys, and related tools of the social sciences. This may call for a new approach to information gathering and analysis. Partnering with recognized pollsters internationally could improve our knowledge of, and sensitivity to, the effects our lines of persuasion achieve across the Muslim world, allowing us to dynamically re-allocate or redirect resources where necessary. Whether applying this Strategic Campaign to Afghanistan and Pakistan, or to Africa, Asia, the Broader Middle East or Europe, cyberspace or in the American homeland the message and approach should be consistent and the results readily measured / studied.

Across all lines of persuasion, our Strategic Campaign must leverage the Muslim community world-wide, beginning with that in the United States. Only Muslims can expose the virulent corruption of their religion and cultural ideologies. Non-Muslims in America and worldwide can support this effort by demonstrating even-handed religious and cultural tolerance, addressing those negative stressors that

most effect the third world and contribute to an environment in which extremist networks might successfully couple with sympathetic movements / individuals. Critical to this effort are education, health services, agricultural and energy innovation, and commercial stimuli for job creation and trade. Teaming with Gulf nations in the scientific quest for alternative energy, or teaming with academics and agricultural scientists in African nations to explore avenues for limited-water cultivation would provide jobs, incentive, and positive partnerships between "western" and Islamic cultures that undermine the recruiting and propaganda of violent extremists.

This Strategic Campaign should be as much about synchronization of efforts and alignment of message, as it is about the message itself. Our message must be derived from a clearly defined strategy and applied consistently, globally by all levers of National influence and through all appropriate partnerships. Only by supporting Muslim partners willing to challenge the ideology of radical Islamists, and by helping Muslim cultures worldwide counter the negative trends that fuel extremism - while quietly continuing to pursue military action as needed - will we ultimately discredit and diminish the threat violent Islamist extremism poses to the United States and the peaceful development of the global community of nations.

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