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A Critical Review of US Military
Approaches to Complex Situations

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> *To use a simple analogy, what happens is that in our empirical investigations to become aware of the fact that we are observing the world from a moving staircase, from a dynamic platform, and, therefore, the image of the world changes with the changing frames of reference which various cultures create. On the other hand, [traditional] epistemology still only knows a static platform where one doesn't become aware of the possibility of various perspectives and, from this angle, it tries to deny the existence and the right of such dynamic thinking. . . . Instead of perspectivism, the out of date epistemology must set up a veto against the emerging new insights, according to which man can only see the world in perspective, and there is no view which is absolute in the sense that it represents the thing in itself beyond perspective.*
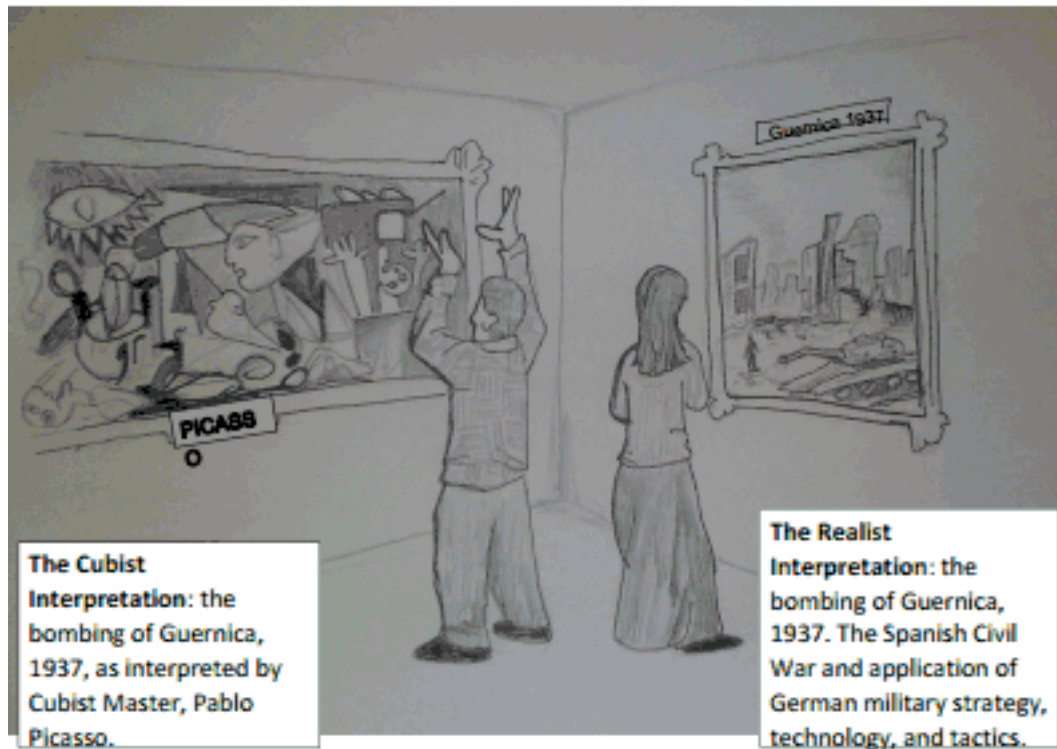> -- Karl Mannheim, *Ideology and Utopia*

Introduction

Our epigraph from Karl Mannheim illustrates the concept of *perspectivism*. That is, to interpret the world from a single perspective on human social phenomena carries the risk of missed meaning when we settle on our habitual, static frames of reference. As humans we tend to become comfortable in viewing the world through a particular perspective and tend to vigorously defend it against any hostile intrusion of alternative views. Mannheim indeed provides us with an insightful metaphor to help us recognize and challenge our institutionalized frames.

Just as art tends to imitate life, famed 20th Century postmodern artist David Hockney said of the advent guard Cubism movement in the early 20th Century: "Cubism was an attack on the perspective that had been known and used for 500 years. It was the first big, big change. It confused people: they said, 'Things don't look like that!'" (Gayford, 2012, para. 22). Both Mannheim and Hockney are addressing issues of institutionalized frames – "clusters of rules which help to regulate and activities, defining them as activities of a certain sort and as subject to a given range of sanctions" (Giddens, 1994, p. 87). For many, breaking from the comfortable, preferred frame is just as shocking for military professionals dealing with military campaigns as it is with society experiencing the first cubist painting compositions…we know "things don't look like that." We act like early 20th Century art-goers, rejecting abstract paintings because the *objet de curiosité* does not illustrate the world in a manner we expect and understand. Instead of exploring new, sometimes radical perspectives, as creatures of habit, we tend to return to the ways we make sense of the world we have been socialized to believe is an objective reality. In

Figure 1, we offer a museum viewing of Picasso's masterpiece on the bombing of Guernica, if it were to be placed next to a post-bombing photo of the Spanish Civil War destruction for viewers to contemplate side-by-side.

Figure 1. Which Image Makes More Sense to the Preferred Military Frame, and *why?*

The Cubist Interpretation: the bombing of Guernica, 1937, as interpreted by Cubist Master, Pablo Picasso.

The Realist Interpretation: the bombing of Guernica, 1937. The Spanish Civil War and application of German military strategy, technology, and tactics.

In his classic book, *The General*, C.S. Forester portrays general officers, during the First World War (1914-1918) bloody battles of the Somme campaign, as stuck in institutionalized framing that featured prominently an attrition-based strategy and the use of artillery:

> *[Lieutenant General] Wayland-Leigh sat in his chair and writhed his bulk about, grinning like an ogre as the suggestions assumed more and more concrete form, while [Brigadier General, Chief of Staff] Norton beside him took industrious notes to form the skeleton of the long reports he would have to send to Army Headquarters and to G.H.Q. [General Headquarters]. In some ways it was like the debate of a group of savages as to how to extract a screw from a piece of wood. Accustomed only to nails, they had made one effort to pull out the screw by main force, and now that it had failed they were devising methods of applying more force still, of obtaining more efficient pincers, of using levers and fulcrum so that more men could bring their strength to bear. They could hardly be blamed for not guessing that by rotating the screw it would come out after the exertion of far less effort; it would be so different that they would laugh at the man who suggested it.* (Forester, 1936, p. 195)

Like the hammer and screw metaphor explicit in Forester's story, today's military officers are often surprised and confused while oblivious to their own single-frame thinking where a complex situation presents novel, uncertain, and ambiguous conditions. Forester's

metaphor reminds the military mind the dangers of relying upon indoctrinated methods – in this case more and more artillery barrages applied over-and-over again, resulting in the accumulation of hundreds of thousands of casualties. A more recent example is during a phase (1964-1970) in the Vietnam War, where our generals used a singularly–focused attrition strategy framed by that military generation as "search and destroy." They also re-applied this repeatedly, while suffering more than 58,000 US soldiers killed in action, only to subsequently withdraw forces and concede victory to North Vietnam. We witnessed similar issues in 2003-2005 when our generals, particularly in Iraq, did not frame the aftermath of major combat as something other than a conventional military operation, ignoring the insurgency frame (Ricks, 2006).

Indeed, history shows us that when the military becomes trapped in single-frame thinking, it begins framing problems expecting them to be like previous ones. This institutional limitation is hardly unique to the profession of arms. Indeed, today military professionals face many of the same framing challenges that the public sector and business organizations confront with respect to framing complex situations. These situations often are webs of many interrelated things and actors, defying analytic, linear cause-and-effect frames to deal with them (Bertalanffy, 1968, p. 19). Our thesis is that *effective design requires that we must critically challenge how and why we approach situations the way we normally do and open ourselves up to multiple frames to include those generated outside our institutions*. We use the military context to describe how institutions may interfere with that openness. Further, as part of the profession of arms we have a solemn obligation to expose this interference in light of the past failures and the institutional habits, also known as mindless "bandwagons" (Fiol & O'Conner, 2003).

We argue in this article that design thinking requires a more critical view of institutional blindness. Our principal theory is that of *frame reflection* which involves an earnest attempt to temporarily suspend one's mindset away from institutionalized ways of making sense of complex situations (Schön & Rein, 1994, p. xi). In order to do this, institutions must first become *reflexive* (Holland, 1999) about indoctrinations that comprise how to perceive the world, assign symbols and concepts to phenomena (Hatch and Cunliffe, 2006, p. 210-211), and apply narrow methodologies to interpret how the world operates (Ritzer, 1975). We have to simultaneously be psychologically introspective and institutionally extrospective. We must critically explore our own psychological biases and collective mindset. Yet our military institution is surprisingly rigid about embracing nontraditional ways of perceiving, relying instead upon decades of indoctrination, overly-centralized decision-making, and ritualization of self-referent and insular ways of seeing the world (Naveh, Schneider & Challans, 2009).

Recognizing the institution's prevalent thinking style while immersed in ever-changing contexts requires critical reflection on our otherwise "preferred manner of using mental abilities to govern daily activities, including understanding and solving problems and challenges" (Vance, Groves, Paik, & Kindler, 2007, p. 168). This is difficult to do, as a normative function of any institution, including the military, is to "view problems in a similar fashion, [and] see the same policies, procedures and structures" (DiMaggio & Powell, 1983, p. 153; Allison & Zelikow, 1999), mindless of the rigid patterns of the professional practice (Gondo & Amis, 2013, p. 232). We are "cognitively prevented, by the very convenience of institutional interiority…because the 'shackles' of ritual hold [us] in place" (Naveh, Schneider & Challans, 2009, p. 72). One might say that we wear goggles that produce our favorite single frame, and grow quite fond of them.

We also recognize that when designers with competing value perspectives express counter-narratives with the purpose of "game-changing" the institutional mindset, they play a socially-risky, potentially career-ending "language game" (Lyotard, 1984). Often, those that

critically question the institution are marginalized, admonished, or ostracized by the larger profession (Gondo & Amis, 2013, p. 233, Foucault, 1983, p.4). This is also true in any business, nonprofit, governmental, or academic context. Our intent here is to help that trans-valuation designer navigate through those highly institutionalized mindsets, using concepts associated with frame reflection.

In that regard, we advocate that exploring *frame awareness* as a key method of design thinking. The process of "framing the situation" includes being mindful of choosing frames and not getting stuck on one. We use three parts to outline our arguments in this article. First, in **Part I, A Theory of Frame Reflection**, we will explain our central concept borrowed from the work of Professors Donald A. Schön and Martin Rein (1994). We will describe in **Part II, A Practical Guide to Multi-Framing**, ideas associated with metaphoric reasoning (Lakoff & Johnson, 1980) and some conceptual tools such as semiotic squares (Corea, 2005) that offer ways to illuminate other viable perceptions of the world. These actions potentially reshape the way institutions *should* think about thinking.

Finally, in **Part III, Critique of Dominant Military Frames**, we offer the illustrative anecdotes of how institutionalized frames alone are inadequate in appreciating complex conflicts and other confusing situations in a military context. Over a decade of persistent conflict has ushered in a generation of military professionals that are aware of the limitations of institutionalized frames of mind and are increasingly open to challenging deeply cherished values, tenets, and concepts traditionally vaunted (Paparone, 2013). Our intent is to illustrate how designers may assume the role of the institutional heretic or creative deviant, often at great social risk despite an underlying motivation to improve wicked situations. While we wish we could portray stories of game-changing designs that resulted from finding alternative ways of framing when faced with wicked situations, we could only find examples of how military institutional pressures prevented such reframing efforts to reach fruition.

We trust that the military context we present can serve as potential sources of analogical reasoning (e.g., Lakoff & Johnson, 1980; Tsoukas & Hatch, 2001) for those who face complex situations operating in other walks such as business and public sectors. The world no longer accepts neat categorizations where certain situations are framed as exclusively as those of a business variety, with others in the national security realm only. We believe the multi-frame approach we offer would support applications across a multi-disciplinary spectrum where the door is open to large groups of practitioners from a diversity of occupations, organizations, and groups. Our approach is buttressed by a well-developed Theory of Frame Reflection, the subject of our next part.

Part I. A Theory of Frame Reflection

Donald A. Schön and Martin Rein (1994) define frames as the "underlying structures of belief, perception, and appreciation" (p. 23). Variants on the concept of frame reflection include *paradigm shifts* (Kuhn, 1996), *schemas* (Bingham & Kahl, 1013), *generative metaphors* (Lakoff & Johnson, 1980), as well as interpretative methods such as *simulacra* (Baudrillard, 2001) and those reflexive concepts associated with postmodern positions of *interiority* and *exteriority* (Deleuze & Guattari, 1987). Reflecting critically on the choice of frames involves becoming mindful of one's position inside the institution and how one should strive to remove the institutional "... film of obviousness that covers our way of looking at the world" (Schön, 1963, p. 45). Instead, frame reflection demands an openness to viewing the world through alternative

lenses that are foreign to the institution. We will cover three aspects of frame reflection in the sections that follow: pitfalls, design team mindfulness, and the advantages of multi-framing.

Pitfalls of Framing. The Theory of Frame Reflection suggests that the processes of constructing frames in the face of intractable situations, one should be aware of at least five pitfalls that may serve as the basis of critical reflection on those choices (Schön & Rein, 1994, pp. 33-34). First, these observers warn of how the less mindful institution may apply a frame to communicate meaning that is unrelated or *incongruent* to another frame that the institution is using to communicate other purposeful action.

A military example includes where a civil affairs team prints the Arabic words for Islamic religious verses upon soccer balls and distributes them in an Afghan village in an effort to "win hearts and minds" and by associating two elements of culture without realizing their single frame error. Meanwhile, another element of Special Operations commandos conduct a high-intensity raid into the same village the next evening to hit a specific enemy target, creating unfortunate collateral damage yet accomplishing their immediate tactical mission within their single frame.

Finally, another military unit with available funds decides to build a school for the village, despite the village elders not wanting a school for girls at this time due to ideological pressure from neighboring enemy elements and a culturally opposed perspective on female education. The unit, competing with sister units also building schools in their areas of operation, is under pressure to "execute" and from their single frame, consider building a school anywhere better than not building one. Each potentially acts as a counter to the others, with all of these events reported to the same headquarters and subject to ambiguous interpretations by a commander who, while truly confused by the single frame that governs everything in the military world, cannot under any circumstances admit that confusion. Thus, unilateral tactical successes as perceived by each of these individual reporting units equate into a greater, more holistic campaign failure.

The second pitfall is related to the first. The theory reveals a potential unawareness of frame-source *ambiguity* in which members do not understand alternate, potentially valid frames to develop novel courses of action; hence, myopic designers rely on the institutionally-preferred frame(s). Metaphorically, an organization struggles to yank screws out of wood because they do not appreciate anything but a "hammer and nail" perspective. This issue could be related to over-specialized education or training, narrow experiential learning opportunities, and overly restrictive exposure to the liberal arts and the humanities by over-emphasizing engineering, mathematics, and hard-science disciplines. For example, dealing with irregular warfare (fighting insurgent networks, killing radical extremists, supporting friendly guerillas) requires irregular ways of framing beyond those offered in highly standardized military units and doctrine. Yet our educational preferences and entire system for professionalizing our forces almost exclusively embraces a scientific single-frame founded upon a Western scientific view (Paparone & Reed, 2008, p. 70).

Third, the theory contemplates the inability of a highly-institutionalized professional to appreciate *shifting* conditions over time as well as the difference in framing dependent upon where one operates among the levels of organizational hierarchy. Thus, some frames are relevant only at particular moments and only from certain perspectives. In other words, "our reality changes as our ability to detect phenomena changes" (Dent, 1999, p. 16). In a dramatic example, Professor and former soldier Scott Snook (2000) tells the story of how this

organizational phenomenon, he calls "practical drift," resulted in the shoot-down of two US Army Blackhawk helicopters by US Air Force friendly fire. Snook concludes:

> *...when the rules do not match the situation, pragmatic individuals adjust their behavior accordingly; they act in ways that better align with their perceptions of current demands. In short, they break the rules.... [As time passes,]...the seductive persistence of pragmatic practice [at lower levels] loosens the grip of even the most rational and well-designed procedures (p. 193).*

Fourth, critically related to the first pitfall, is the notion of frame *paradox*. Paradox is present when complex features of a situation compel needs for action that appear conflicted or contradictory across competing frames where an institutional actor may view the same thing with two or more simultaneously opposing values. For example, an AP reporter Peter Arnett quoted an unnamed U.S. officer during the Vietnam War state that "it became necessary to destroy the town to save it" when referring to the bombing operation in *BénTre* City (Arnett, 1968). This paradoxical statement indicates the military was pursuing two contradictory objectives at the same time, through which more than one incongruent description of what was happening depended on the timeframe used and at which level of military headquarters did the framing (Tsoukas and Hatch, 2001, p. 986-987; Bacharach, Bamberger, and Sonnenstuhl, 1996).

Lastly, the theory identifies a fifth pitfall that occurs when the institutional members are unable to distinguish when frames should *adjust*; as a situation transforms there may be opportunities for numerous opportunities to reframe ignored at various intervals, scales, and overlaps that increase the likelihood of disastrous framing. Consider how military tactics and strategy in the First World War remained essentially trapped in the outdated frames of nineteenth century warfare despite the technological advances in machine guns, chemical warfare, aviation, and the internal combustion engine. Almost an entire generation of European males was wiped out largely to a devoted adherence to an outdated frame concerning battlefield tactics. A single-frame military strategy resulted in millions buried in graves well before their natural time.

Frame reflection is part of what Schön and Rein call "design rationality" (pp. 166-187) – what the more mindful design teams acknowledge to avoid these aforementioned pitfalls. Frame reflection is an intimate "conversation with the situation" with which the design team does not see the situation as conveying meaning independent of the design team, but is aware that humans, socialized through many institutions, place meaning on them. Hence, situations are subject to multiple interpretations or framings (Geertz, 1973, p. 85), and must be intimate because they include the designers within the situations as a heterogeneous part of the system (Shultz & Hatch, 1996, p. 167).

This intimate conversation is an inventive process with interaction and an appreciation that second order complexity occurs when the situational awareness expands to include others, beyond the institution, that apply different frames and descriptions of what is going on (Tsoukas & Hatch, 2001, p. 988). Additionally, the importance of intimacy between the designer and multiple frames requires what some theorists term 'interplay' (Schultz & Hatch, 1996, p. 530). Interplay goes beyond merely acknowledging paradoxes and attempting to solve them; rather, the designer recognizes interdependence as well as their own intimate inclusion, that helps drive game-changing adaptation through a more subtle yet sophisticated appreciation of the tensions. Socially interactive designing that features intimacy and interplay creates a form of critical inquiry that appreciates three meta-characteristics which most chosen frames appear to share.

The first characteristic is that diverse participants attempt to convey and understand each other through *communication*. The US military, for example, strives to create a doctrinal knowledge structure to standardize communication; however, complex conflict or disaster relief situations require inter-organizational efforts where other interested parties do not share those meanings (Zweibelson, 2013b). When diverse organizations come together, even if only English-speaking ones, to influence foreign locals they must find ways to understand not only each other's language, but colloquially those they wish to influence. Key to a diverse design team is finding ways to communicate varied meanings across organizational and ethnic cultures.

Second, there is an ideological structure that the participants unilaterally support that is *political* in nature. Schön and Rein (1994) assert that:

> *Designing is a social process in two ways. First the designer now becomes a 'designing system,' a coalition of actors, individual or institutional.... Second, the designing system sends its object out into the larger environment...where other actors see, interpret, and respond to it. The social design process now becomes a drama enacted in an arena--an image that captures...design as well as the collective design of frames (p. 168).*

Working together, in the midst of novelty, requires institutional diversity and, at the same time, some sort of political cooperation among the design team players. This never seemed to happen in the late 1960s when the US Agency for International Development was put in charge of all US government operations in South Vietnam (to include the military). Here, the US military and Central Intelligence Agency acted as would opposition political parties in a domestic policy squabble (FitzGerald, 1972). The result was a fragmented approach to the insurgency in South Vietnam and an exposed vulnerability leveraged by the North Vietnamese government.

A third characteristic is that mindful designers see situations as transforming over time, thus any frame is *context specific* where meanings and relationships change and the process of making sense remains unstable. Bombing civilian populations in war featured entirely different meanings at the outset of our invasion of Afghanistan in 2001 with respect to the use of recent air strikes in Afghanistan in 2013. Bombing in earlier conflicts as well as by different societies and militaries are equally distinct. Consider how the German Luftwaffe never adapted Kamikaze suicidal bombing tactics despite facing similar dire military conditions by late 1944. Even in the same war with similar technology, German and Japanese culture could find alliance in common, but not suicidal combat techniques.

Military history records wars as having a beginning and an end; yet, with 12 month rotations of forces as seen in Iraq, Afghanistan, and Vietnam with American military forces, one could argue that the context changes with every relief-in-place as new units and their members have to learn the war in their own particular contextual frames. A proverb developed during the Vietnam War puts it this way: "We don't have twelve years' experience in Vietnam. We have one year's experience twelve times over." This sentiment has also been used in modern Afghanistan with similar meaning (Zweibelson, 2013a, p.84). The context of a conflict might be significantly different one year from the next, yet the dominance of a far-reaching campaign plan might channel an incoming unit's perspective into an outdated frame to drive irrelevant actions.

Advantages of Multi-Framing. To judge whether a framing, reframing or a multiple-framing approach is of value, Schön and Rein (1994) provide the five criteria of *truth*, *beauty*,

justice, *coherence*, and *utility* (p. 44-45). While these theorists offer these criteria in an ideal sense, each institution subjectively interprets the meaning of each principle through their own social constructions (Berger & Luckmann, 1966). For example, while a business might interpret beauty in the eloquence in which a particular frame enhances its reality – to successfully generate profit – the military reality may associate beauty as possessing self-relevant traditions, symbols, and cherished rationalistic decision-making routines.

The fabled promises of McNamara's 'Whiz Kids' to transform the Department of Defense in the 1960s into a futuristic, super-efficient organization through the single-minded frame of quantitative analysis illustrates failure in adhering to these principled criteria. Indeed, the US military's perpetual quest for the ideal unitary frame is unyielding even today (Paparone, 2013). Thus, reflecting on such a framing approach has to acknowledge that military operations today are still socially constructed around the rationality frame -- using quantifiable measures of progress, assumptions of clear political guidance, certainty of decisive combat action, and a well-understood adversary that fights by recognizable rules. This rational frame would be 'beautiful' to a McNamarian-style military despite the lack of cooperation of wily, irregular foes.

On the other hand, multi-frame approaches adhering to the Schön and Rein criteria are arguably more adaptive to making sense of the situation at hand. Hence, a more mindful design team accepts flaws in framing, recognizing that no single frame or combination of frames will reach these ideal criteria (see Rittel & Webber, 1973, p. 167). The practical remedy to unitary framing is in finding multiple frames of reference, the subject of our next part.

Part II. A Practical Guide to Multi-Framing

In this part we explore methods of finding alternate framings, particularly those foreign to the typical single-minded institutional setting based on our collective military experiences. First, we investigate the importance of frame-generating *metaphors* (e.g., Barrett & Cooperrider, 1990; Schön, 1993; and Morgan, 1996) in the frame-search process and describe their use below. Next we develop the technique of constructing our adaptations of *semiotic squares* (Corea, 2005), involving framing around the opposites. Both frame-generating metaphors and semiotic squares are two ways of infinite design possibilities we offer upon which design teams might create and explore novel approaches, hopefully freeing them from any rigidness of institutionalized doctrine or procedure that promotes uniformity and repetition over innovation and adaptation.

Frame-Generating Metaphors. Where do or should our sources of framing come from? One prominent theory offered by cognitive linguists George Lakoff and Mark Johnson (1980) is that frames are derived from metaphors; or, through an analogous reasoning process: Metaphor is one of our most important tools for trying to comprehend partially what cannot be comprehended totally: our feelings, aesthetic experiences, moral practices, and spiritual awareness. These endeavors of the imagination are not devoid of rationality; since they use metaphor, they employ *imaginative rationality*.... metaphor is not just a matter of language… it is a matter of conceptual construction (emphasis added, p. 193).

When faced with seemingly intractable situations, humans have no recourse but to draw upon the partial meanings of prior knowledge to make sense of them (also known as the study of *mimetics*) (see Coker, 2008). At the onset of nearly every military conflict, both generals and policymakers cannot avoid a chorus of historic comparisons where "this conflict is just like Vietnam" or "the nature of this war echoes the static trench warfare of the First World War" (for a more comprehensive explanation of this sort of analogous reasoning on war, see Khong, 1992).

We launch into the "lessons" of previous counterinsurgency operations such as the Philippines in 1899 or Malaya in the 1950s and attempt to employ them as frames to explain how they relate to our current wars where novel conflict situations emerged and frame searches began. We even have a sense of pride and tradition in referencing back to old training manuals to not only apply to modern conflicts, but to validate how our own organization "got it right back then too."

As we err-in-action we discover that analogies from the past do not work well in explaining the way current conflicts appear to us now, we reinterpret those meanings into something new and tentative (Peirce, 1898). Military language, concepts, metrics, and methodologies from previous doctrine or counterinsurgency environments fail to produce success when applied in the current situation, regardless of how closely we delve into lessons learned of similar wars and consult with institutionally approved experts.

As time goes on, less mindful designers can elaborate on this temporary use of borrowed meanings, and eventually adopt those that seem to meet the single criterion of utility into more permanently accepted institutional language. They believe this reflects the way things are and will be. Single-frame minded designers tend to lose touch with old meanings as they are displaced and the recontextualizations (Deleuze & Guattari, 1987) become part of their "normal" language; hence, the originating ideas become dead metaphors. As we lose track of where the original metaphor came from, we lose the potential for frame reflection (Bingham, 2013, p. 27).

Consider the term *horsepower* and how a combustion engine was originally explained by how much pulling power it generated. With modern car engines generating well over 300 hp, members of a modern, 21st century society no longer imagines 300 horses furiously pulling a carriage along. Or, consider that military courtesy dictates that the superior officer walks on the right, with subordinates always to the left. This comes from the days where the sword hand and space to one's right was valued in speedily defending oneself; only a trusted "right-hand man" could ever stand to one's right. Our military profession follows this tradition, yet very few professionals are aware of the origins. The sword is physically gone, but the dead metaphor remains influential in our language, rituals, and behaviors; we accept many such metaphors without even noticing or questioning them (Gagliardi, 2005, p. 309-315).   The more mindful design teams seek to become deeply aware of how this morphology works and how it invariably drives certain behaviors in one's organization.

Metaphoric reasoning extending from a single frame is less effective than employing multiple frames (Weick, 2004, p. 47). Sarah Kaplan (2008) also makes this point: "Framing practices, when skillfully deployed, can reshape frames such that new frames or logics triumph over old" (p. 746). Gareth Morgan (2006) puts multiple-framing strategies as at the height of frame reflexivity: "When we recognize that competing theories are competing metaphors, we can....set grounds for a much more reflective approach...where people rather than theories are in the driving seat" (p. 364). One might ask the question of whether members of the horse-carriage company viewed the arrival of the internal combustion engine powered vehicles from a single frame in the final decades of the 19th century, or if they could engage in multiple frames despite the enduring dominance of horse-centric transportation up to that moment. This becomes critical when discussing *adaptation* and *emergence*, two key components of complexity.

From the perspective of any major horse-carriage manufacturer at the dawn of the automobile, does the single frame perspective of "I see things as a horse-centric transportation business" blind that professional to a multiple-frame perspective where collectively, one sees things "as a transportation business" instead (Zweibelson, 2011). The difference might determine whether an institution adapts or dies during periods of significant change. In these

unclear times, complexity appears to mask whether "the character of the mechanical carriage of the future" in 1895 ends up a game-changer or just "a novel and fashionable toy" never to replace the formidable horse-drawn transportation industry (British Medical Journal, 1895). To continue with this carriage metaphor, we next offer that the military continues to envision a future filled with far too many horse carriages through the preferred single-frame approach; therefore, is missing the emergence of game-changers like automobiles until too late. Only when rivals and enemies drag us into the 'automobile age' of the next warfare transformation will the military ever agree to give up cherished behaviors and concepts (Weick, 1998, p. 551).

More critical to how the institutions tend to rely on single-frame approaches, Schön and Rein (1994) describe *frame conflict* as mutually incompatible mindsets on seeing a situation, where "their problem formulations are preferred solutions are grounded in different problem-setting stories rooted in different frames" (p. 29). The average military staff officer is equipped with a conceptual toolbox that typically reflects an institutional preference for simplification and reductionism (Jason, 2001, p. 337; Naveh, Schneider, Challans, 2009), with an assortment of rational-analytic models (Allison & Zellikow, 1969) for problem-solving.

Modern military institutions cling to these analytic styles of making sense of war (Mintzberg, 1994, p. 108), and attack those that threaten institutional self-relevance and prosperity- even at the expense of the nation that a service is obligated to defend (Builder, 1989). In order to address this bias for analytical framing, we argue that game-changing design thinking requires reaching for new frames beyond the norm in order to broaden our perspectives towards a complex or messy situation. Each conflict environment will be unique, distinct, and demand a novel combination of multiple frames- often a combination not used previously or in the same way by the military practitioner. "Using the same frame because it worked this way before; therefore…" is a common example of a single-frame approach to problem solving that inhibits other perspectives, ideas, and innovation from entering the decision making process (Dent, 1999, p. 5-7).

As a quick case study, in the US Armed Forces, officers are trained in the infancy of professional education to employ the scientific, four-step method of problem solving, metaphorically sourced from the scientific method of the hard sciences (Ahl & Allen, 1996, p.1). First, they define the problem. Next, they develop courses of action. Then, pick the best one, and finally execute "violently" while adjusting as needed (see Naveh, 2004, p. 220; Jullien, 1996, p. 11; and Shy, 1986, p. 164). Western military doctrine permeates with this classical systems-approach which assumes that any problem can be reduced into phases, plotted in a linear manner, and once "solved" then re-applied to future similar problems mechanically (Rittel & Webber, 1973, p. 162). In critical frame reflection, we note that warfare is a complex social phenomenon where "problems" are not isolatable (Capra, 1996); rather, are part of an interactive network of problems better known as "messes" (Ackoff, 1999) or "wicked problems" (Rittel & Webber, 1973).

In war, dealing with what is believed to be an isolatable problem, such as supporting Syrian insurgents, often generates linear and isolated conclusions, such as expecting Syrian aid to help bring to an end a regime that abuse its people. Yet these military actions likely have unintended consequences that do not integrate with linear style causal frames. Help the Syrian rebels, and you may empower radical Sunnis and tip the power balance in the region, leading to more problems, less stability, and all kinds of second and third order effects that move the emergent system away from overarching foreign policy goals.

So while we may operate within our comfort zone with the scientific methodology, we can reflect on it and criticize its use as a frame of reference. Thus, our *frame awareness* leads to *frame reflection* where we bound our own preferred frames and assume a trans-disciplinary approach where multiple frames interact. Some are paradoxical; others share very few values and concepts that our preferred one operates within, yet a multi-framed mindset allows us to "reframe the complex situation" towards a better appreciation of how and why the situation is transforming. To recognize game-changing events, we need to gain awareness of what the 'game' might be and how we all fit within it.

To return to this article's earlier reference to Cubism, one must contemplate why one's own society rejects a new art movement. We must critically ask why we prefer to enjoy one style of painting over another, other than simply exclaiming that things "don't look like that" and maintaining one perspective. To structure some of these additional frames, we offer the use of a four-square, "opposing frame" methodology, adapted from the idea of the semiotic square that functions using paradoxical frames interpreted in a trans-evaluative process.

While military planners are oriented on *security* as a dominant value frame for what their institution was designed to upkeep, frame reflection would require them to "step out" of that institutional perspective to consider other ways of "conversing" with the messy situation at hand. For example, one opposing frame to *security* is *liberty*. The more security the military provides, say in a foreign province, the more the people may feel their locale is occupied (i.e. they are not at liberty to do as they please). The military occupying force, now pleased that the locale has greater *security*, may then reframe its emphasis toward *equity*. Of course, that new emphasis assumes the central government is legitimately providing services common to all the population (e.g., helping to build public schools and digging water wells in the commons). The more *equity* that the occupiers provide, the less there is a chance for a market economy to develop that is arguably more sustainable because of its comparative *efficiency*.

While there are many creative ways to depict these paradoxes graphically, we offer variations upon a semiotic square. The square offers one way to organize concepts incorporating the paradoxical and emergent elements observed in complex situations. Although one designer might fashion semiotic structures from any number of available sources, other designers may creatively choose to invent new ones. There are no limits, nor are there any rigid rules, aside perhaps from the implicit requirement to provide increased utility with any creative innovation (Corea, 2005, p. 339-364). Figure 2 provides an example of how a semiotic square functions, although there are many variations and no limitations. For simplicity of providing an example, we offer the YES/NO perspective on what constitutes a valued work of art.

Example input:
YES: painting (art) requires accurate depiction, proper perspective.
NO: painting (art) does not require accuracy with respect to reality or adherence to perspective.
Neither YES/NO: painting (art) does not need to adhere to any composition or contextual rules at all.
Both YES/NO: painting paradoxically must provide a sense of abstraction while maintaining a societal accepted perspective.
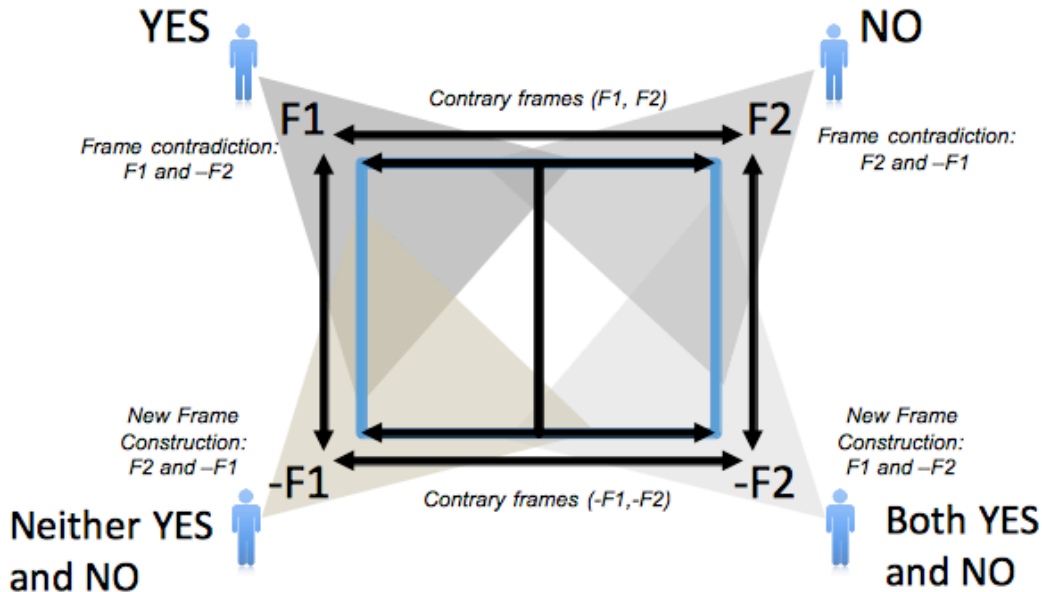
Figure 2. Example Methodology for a Semiotic Square Approach to Multiple Frames

Figure 2 provides a conceptual framework upon which designers might insert a variety of observed frames. Taking contrary frames together (YES or NO) helps illustrate paradoxes and tensions, whereas working with dissimilar frames (YES and NEITHER YES or NO) generates novel frame construction…different perspectives on a complex situation.   We build upon this concept in Figure 2 using the very messy counterinsurgency dilemma that modern military organizations continue to struggle with. We cannot simply hold to a "security-centric" frame in military sense-making for complex, adaptive situations without losing an appreciation of other valid value frames.

Figure 3 does not work within the same organizing logic of the example in Figure 2 because the very nature of complex situations such as socio-political processes of societies does not neatly break down into a YES/NO and NEITHER YES/NO or BOTH YES/NO construct. Figure 3 offers instead one way of demonstrating a patterned framework where a single frame of *security* is inadequate in any military decision-making if applied in exclusion. If our military applies a single-frame approach, we will miss appreciating the larger, trans-valuation process where *security* interacts with *liberty* in a paradoxical relationship along with the paradoxes of *equity* and *efficiency.* The security-liberty and equity-efficiency example here is one of many ways to frame paradoxical phenomenon observable in a complex situation.
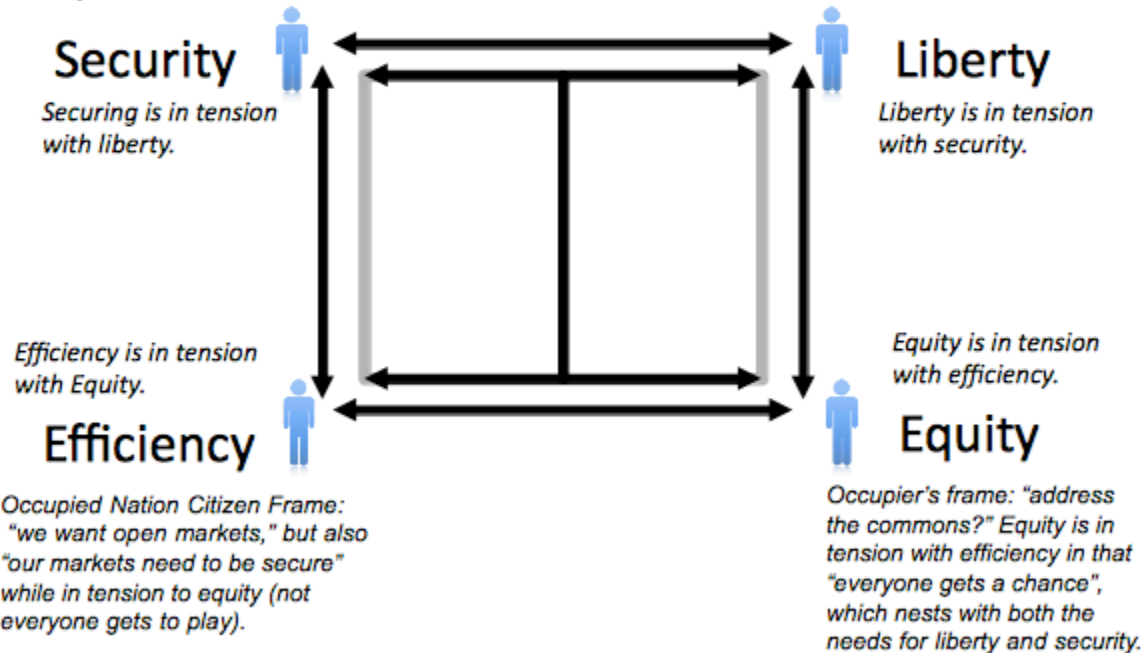
Figure 3. Frame Reflection by an Occupying Force employing Four, Simultaneous Views

Multiple frames may offer a trans-disciplinary approach to seeking meta-themes, or social phenomena that appear to operate across multiple frames and thus have deeper, interconnected meanings. This notion of meta-themes interrelates with the previously discussed 'interplay' concept of bridging paradoxes between multiple frames in tension. Returning to our counterinsurgency semiotic square, we could overlay additional perspectives upon Figure 3 as designers explore and discover a conflict situation as it evolves. While the original tensions of *security/liberty* and *equity/efficiency* started the process, designers might infuse *western/non-western* and *legal/illicit* upon the square, forming Figure 4 below.
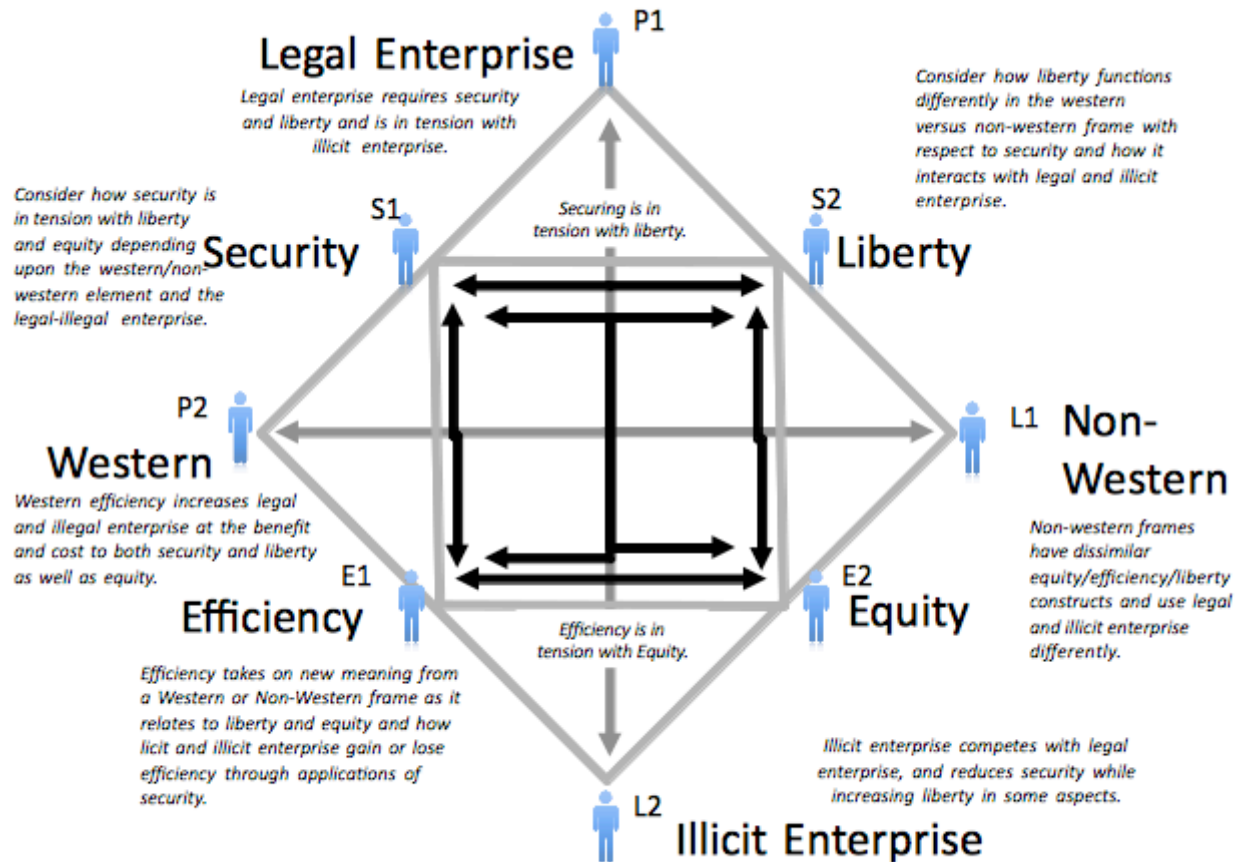
Figure 4. Increasing Frame Interaction through Additional Square Applications

Seeing the bigger picture, especially with complex, messy situations that often adapt faster than our organizations can interpret, is essential for military, governmental, and business applications. Figure 4 provides one of many ways where designers might take a difficult concept such as "counterinsurgency in modern Afghanistan" or "drug crisis in Central America" and gradually break free of the traditional, indoctrinated, and pervasive single-frame approaches. Figure 3 features *security* which is often the cornerstone of most military decision-making and planning…yet placing that single-frame in interaction with three others in Figure 3 generates trans-disciplinary contemplation. In Figure 4, *security* becomes one of many diverse and interrelated frames that comprise a dynamic, systemic whole. This becomes the essence of frame reflection – seeking to deeply understand through critical reflection and creative exploration of other frames. Figure 5 helps summarize our framing assertions as explained in Part I and II.

Single Frame

F1
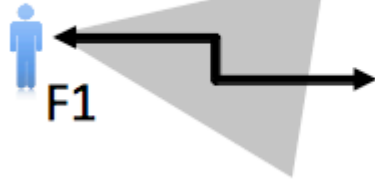
Single Frame Pitfalls:
- Unrecognized Incongruent Frames in same institution
- Frame-Source Ambiguity
- Failure to Account for Shifting Conditions
- Unacceptable of Paradox
- Failure to Re-Frame (except symbolically in rituals)
- Not intimate; removes observer and organization from equation
- Universal approaches; never context specific

Frame Reflection

F1   F2

-F1   -F2
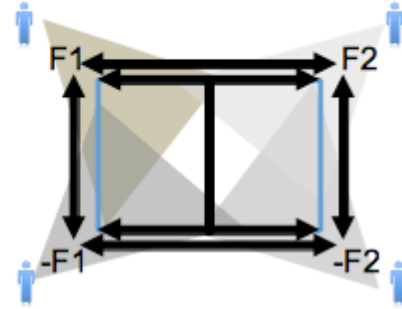
Socially Interactive Conversation with Situation
- Communication
- Political in Nature
- Context Specific

Multi-Framing is Desirable for Triangulating on:
- Truth
- Beauty
- Justice
- Coherence
- Utility

Practical Guidelines:
- Practice with Generative Metaphors
- Embrace Frame Paradox
- Use Semiotic Squares

Figure 5. Summary of Frame Reflection Theory

In Part III we attempt to demonstrate how effective frame reflection applications were not used in the field. We first tell the stories of what happened and then critique them using the Schön and Rein Theory of Frame Reflection. While all of our stories share in common an overall rejection of multiple frame approaches, we offer after each vignette our recommendations on how reflective practitioners might adjust those situations through a variety of game-changing options. Note that we do not use a checklist and avoid using the same approach twice in how we suggest improvements. The nature of frame reflection and critical review shuns "cookie-cutter" solutions and ritualization of practices; instead the designer must seek uniquely tailored approaches every time. Lightning rarely strikes the same place twice, nor does a messy military situation play the same game as the last one did.

Our stories come from extensive military careers totaling more than 70 years collectively and spanning multiple conflict zones and major operations including Afghanistan, Iraq, South America, as well as the modern military education system in practice. As we provide experiences from within the military institution, we hope readers from across academic and business disciplines may find that a significant number of points relate to behaviors, actions, and concepts within their own organizations. As postulated in our Introduction, we see military complex situations as interrelated and often overlapping in various governmental, business related, and non-governmental or academic situations.

Part III. Critique of Dominant Military Frames

In an example of this from combat operations in Afghanistan 2012, Ben offers the following dominant framing that occurred during military planning for how to transition bases and infrastructure over from coalition forces to the Afghan security forces by 2014.

> **"You can Have Any Color as Long as it is Black"**
> As our planning team examined tensions within our military organization and considered Western versus non-Western values and concepts, we recognized that a significant obstacle to transitioning bases to the Afghans lie in how our military is fundamentally structured. Our hierarchical decision-making relied on powerful linear and compartmentalized procedures where one directorate only evaluated Afghan logistics, while another might only consider Afghan Police functions. Another separate directorate handled Afghan Army issues and development, but did not address the Afghan Army Air Force, which yet another directorate handled. The larger organization's staff could hardly assemble an integrated understanding of the entire Afghan Security Force because our own organization was engaged in 'stove-piped' framing to where viewpoints and ultimately many executive decisions were made irrespective of the majority of the Afghan whole (Zweibelson, 2012). Thus our planners employed a non-military hierarchical structure for the planning team that instead capitalized on decentralization and equality. As the planning moved from conceptual to final deliverables, the team expanded and shifted from decentralized/equal to the classical centralized/hierarchical as the social forces in play were so overwhelming that there was no choice in the matter.

> **Options for Frame Reflection and Critical Review on the Above Vignette**:

- Using Schön and Rein's five criteria for this approach, what can we reflect upon with respect to *truth*, *beauty*, *justice*, *coherence*, and *utility* (1994, p. 44-45)?
- How does *truth* relate to tensions between the Coalition perceptions on violence and security in Afghanistan, and how the Afghan security forces perceived it?
- Could the elimination of cherished structures, processes, and systems that the Coalition associated with *beauty* become a beautiful action in itself? Was the organization able to see beauty within destruction of cherished ideals and symbols?
- Is there greater *utility* in breaking the established military hierarchy in favor of a different form for gaining greater appreciation of the interplay between Coalition and Afghan tensions in parallel organizational structures?

In a related example, Grant highlights the paradox that soldiers undergoing Special Forces training tend to encounter that illustrates a contradiction between institutionalized uniformity across all course graduates and the need to create individuals that creatively approach problems in unique and customized ways.

> **"Budding Snake Eaters Consumed by the Organizational Snake"**
> In the U.S. Army Special Forces Qualification Course, the Special Warfare Center and School is constantly faced with paradoxical situations where students confront unique conditions requiring critical and creative thinking. Yet the institution wishes to ensure a uniformity of experience for control purposes where the allure of risk management

and formal constraints really dominate the culture. Paradoxically for bureaucratic reasons, the institution maintains a distrust of subordinates and rigidly promotes set standards found within conventional training doctrine. From an outsider's perspective, these juxtaposing objectives seem to result in bizarre outcomes such as when and where a certain conventional uniform must be worn during field exercises within an unconventional warfare scenario. Students are tested on their ability to build rapport with a guerrilla chief, adapting to the situation and the feedback the guerrilla chief displays, while at the same time being forced to unthinkingly wear a certain type of clothing or uniform that functions symbolically for completely opposing goals (United States dominance or occupation).

This seemingly trivial example, however, illustrates cultural framing even when it comes to involvement in unconventional warfare, which has a very specific definition within Special Forces. Better known by the military acronym UW, it is defined as assisting resistance forces in the overthrow or disruption of a government or authority. In the course, students are expected to apply critical and creative thinking to adapt in a highly complex, UW scenario. Paradoxically, they are also given a very restrictive and standardized procedure for approaching and thinking about any UW mission built upon the doctrine, analytical decision-making, and similar educational modules upheld within the Special Forces schoolhouse. This means, of course, that although the Special Forces desires critical and creative deviance from the conventional demanded by unique situations and the necessary decentralized execution of missions it does the opposite in its frameworks for training. It seems as though the institutional habits, standardized processes, and bureaucratic controls that are spawned by the US Army conventional forces have led to spoiling what is "special" about US Army Special Forces. Luckily for the larger special operations community, the culture of Special Forces Non-Commissioned Officers has resisted over-centralization, standardization, and micromanagement. It remains to be seen, however, if Special Forces can continue to rely on the Non-commissioned Officers' tradition toward remaining unconventional as it seems to grow ever closer to the larger conventional U.S. Army's dominant frames of reference.

Options for Frame Reflection and Critical Review on the Above Vignette:
- Using the semiotic square concept, if YES equals "universal practices and doctrine for unconventional warfare" and NO equals "customized, unique, and stand-alone innovation for unconventional warfare," what could the qualification course consider for frame adjustment?
- Could there exist a "neither YES or NO" environment for the qualification course? Could there exist a "both YES and NO" environment as well? How would the interplay between the tensions be applied so that the graduates were more capable at applying unconventional warfare in both expected and unexpected environments?

While Grant illustrated the movement toward a single-frame approach to individual training, Chris has yet another example of this from his experiences in the professional military education arena. Chris offers this example of how students are often trapped in a single-frame perspective and unable to break out of rigid doctrine, procedures, and institutional rituals.

"Teaching Doctrine: Same Ol' Frames"

Military staff and War College students are routinely taught to "analyze problems," that is, break down situations into manageable chunks and divide them up among individual and unit specialties to solve each one, expecting that in solving each, you solve the whole. In fact, military doctrine refers to this approach as "mission analysis." Practitioners are required to use mnemonics such as "DIME," "PMESII-PT," and "METT-TC" to contemplate the situation. The analytic model as a frame typically leads the students to focus on these factors that drive faulty assumptions and are presumed to adversely affect the mission outcome if not analyzed "correctly." "Correctly" is retrospectively determined (after operations commence), and the institution attempts to capture "lessons learned" which serve as feedback to the analytic paradigm – "we should have known that before we began through better analysis." So the analytic paradigm is never what is under critical scrutiny; rather, the quality of the preemptive analysis within the paradigm is questioned. What is missing in the approach to education is a deeper understanding that would come from what Schön and Rein (1994) call a "conversation with the situation" which requires immersion, a plethora of "politically" opposing views from multiple disciplines, and participation from others outside the military institutional mindset.
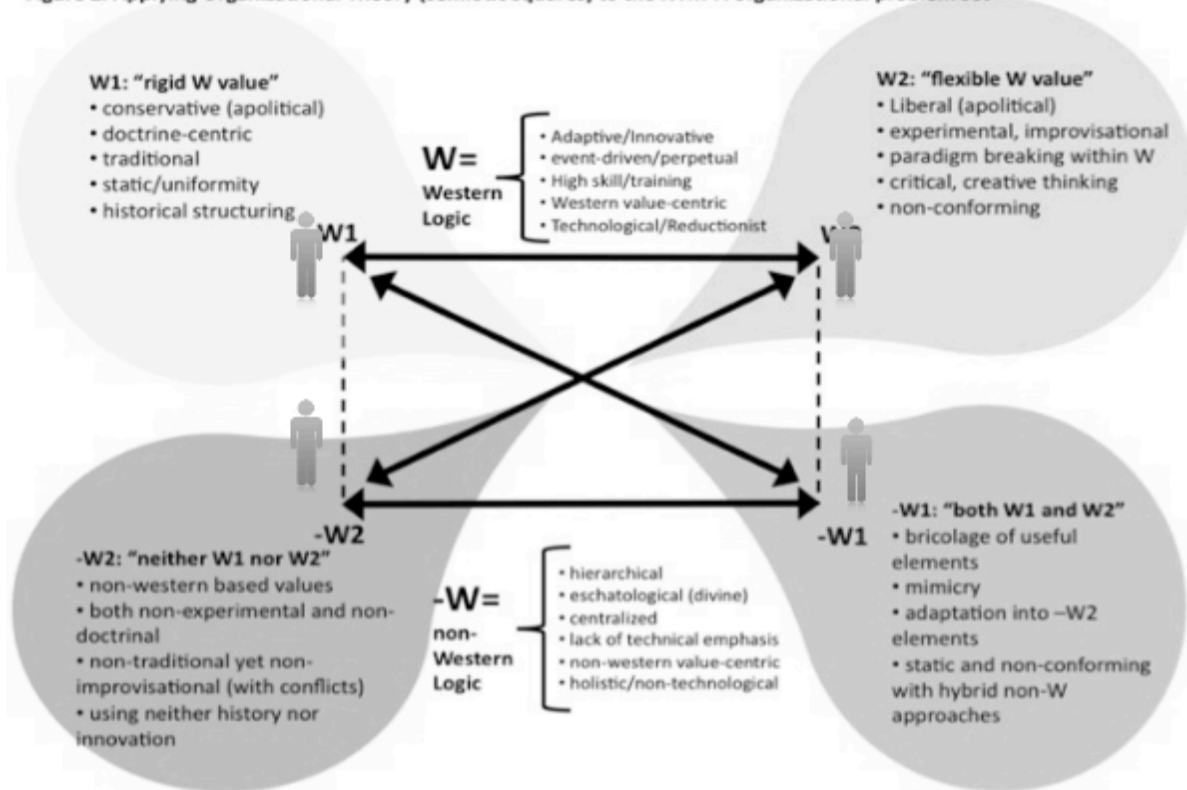
Options for Frame Reflection and Critical Review on the Above Vignette:

- Applying the post-modern holistic concept of the 'assemblage' (Deleuze & Guattari, 1987, p. 358-365) requires an organization to resist breaking complexity down into categories and groups, how could the students approach messy situations in warfare?
- The retrospective assessment in the vignette illustrates two tensions: an avoidance of critical inquiry beyond the practitioner, and a feedback loop where the organization repeats the process of capturing 'lessons learned' that reinforce the very institutionalisms that likely encouraged a single-frame perspective.
- Does the single-frame preference and cycle of blaming practitioners while ignoring the institution create what post-modern philosopher Baudrillard calls *simulacra*, or a false reality filled with symbols and signs (2006)?

Returning to Ben's example of paradoxical framing with base transition in Afghanistan, his planning group also employed a version of the semiotic square technique using the trans-valuation process (Zweibelson, 2012). Figure 6 illustrates how Ben's team framed *western logic* (W1/W2) and the paradoxical relationship with what they appreciated as *non-western* (-W1/-W2). Thus, the team explored the two-fold paradoxes within both the western military institution (W1 versus W2 frames), those within non-western ones (-W1 versus –W2 frames), and then various interactions between aspects of both (-W1 with W2; W1 with –W2, etc.). This aided in generating explanatory sessions for greater appreciation of the messy situation. Instead of trapping the military organization along with a perceived 'enemy' with the same frame, this semiotic process appreciates simultaneous multiple frames for each actor and organization. Paradoxical frames may become explanatory instead of inhibiting a quest for a more holistic meaning. Questions lead not to answers, but deeper questions.

Figure 6: Applications of The Semiotic Square in Afghanistan Planning Efforts

Figure 2: Applying Organizational Theory (semiotic squares) to the NTM-A organizational problem set

W1: "rigid W value"
• conservative (apolitical)
• doctrine-centric
• traditional
• static/uniformity
• historical structuring

W =
Western
Logic
• Adaptive/Innovative
• event-driven/perpetual
• High skill/training
• Western value-centric
• Technological/Reductionist

W2: "flexible W value"
• Liberal (apolitical)
• experimental, improvisational
• paradigm breaking within W
• critical, creative thinking
• non-conforming

-W2: "neither W1 nor W2"
• non-western based values
• both non-experimental and non-doctrinal
• non-traditional yet non-improvisational (with conflicts)
• using neither history nor innovation

-W =
non-Western
Logic
• hierarchical
• eschatological (divine)
• centralized
• lack of technical emphasis
• non-western value-centric
• holistic/non-technological

-W1: "both W1 and W2"
• bricolage of useful elements
• mimicry
• adaptation into –W2 elements
• static and non-conforming with hybrid non-W approaches

Figures 1-3 in Part II and Figure 6 depicted here provide critical reflection tools to frame the social context at hand. There are many ways to conceptually and graphically explore multiple institutional frames and discover greater explanation on a messy situation as it transforms. Unlike military doctrine where the scientific methodology of linear analytic sequences (Weinberg, 1982, p. 22), step-by-step procedures, and quantifiable, repeatable outcomes govern decision-making, game-changing design avoids shackling the professional to a single framed approach (Jullien, 2004, p. 19). Instead, there are many novel and creative ways to explore messy situations with multiple frames by applying *frame awareness* and *frame reflection.* Yet as an institution, our military is often not very supportive of these non-doctrinal approaches, and design thinkers tend to be silenced or marginalized when they offer approaches that contradict or discredit the preferred single-frame positivist decision-making process (Alvesson & Sandberg, 2011, p. 255). Below, Grant provides a story on the dominance of the military single-frame despite a small planning team's efforts toward game-changing design.

"The Dinner Party was Lovely, Until the Cops Arrived"
      A great example of an attempt to break away from single frame dominance was our informal dinner group's effort to tackle the "police problem" in Afghanistan. Our group composed of British, American, and Dutch military officers, State Department personnel, and occasionally an Afghan police officer, non-governmental agency

member, or European police training officers, would meet for dinners at our base in Kabul. Our headquarters defined *the problem* as "we think the police are contributing to the insurgency; how can we change that?" However, we had to first come to an agreement on what we thought were the most important political objectives that were affecting our efforts.

Instead of relying on the official pronouncements of our respective political leaders and military commanders, we looked at our actions and attempt some deductive analysis. We sought the real objectives with respect to Afghanistan and then attempted to craft a solution that took into account the deeper political pressures we were facing. This was made all the more urgent after an analysis of the Afghan police program identified a lack of synchronization between the Afghan police training and deployment plans and the rest of the Afghan judicial system. Essentially, training and deploying tens of thousands of police would do little good if there were no prosecutors, jails, or judges in the areas in which they were going to be sent. The salient point being that the headquarters was not concerned with the effectiveness of the judicial system, only the raw numbers of police being trained and deployed- we needed to know why before we crafted a solution.

We ultimately crafted a narrative that described the political objective for each relevant party that had an effect on the Afghan police training program. These included the U.S. Central Command, The International Security Assistance Force (ISAF), our own HQ (NATO Training Mission- Afghanistan (NTM-A), the U.S. embassy, the U.S. Senate and House armed services committees, the German embassy, the European Union Police Mission- Afghanistan (EUPOL), The Afghan Ministry of Interior, the Italian embassy, ISAF Joint Command (IJC), the Afghan Ministry of Defense, President Karzai, President Obama, and many others. Each of these entities we discovered had different frames toward both the Afghan police as well as the strategic priorities in the regional effort; thus, had different narratives.

After reviewing these opposing narratives, we rose above them and came up with a consensus-base concept that accented the benefits of slowing down police growth, focusing on quality, and attempting to harmonize the rest of the judicial system. More importantly, perhaps, we also anticipated why these benefits would be discounted by many political players and why the opposite (and current) course of action would be accelerated. This prediction was based on a very pragmatic (and perhaps cynical) analysis of the various narratives we had developed. Ultimately, the single frame that drove the decision to accelerate police growth resulted from the dominant U.S. military frame. That frame was tied to the US military's institutional perception of how to reach U.S. political objectives in the region. It also revealed an overreliance by other "less powerful" players on the U.S. politically-driven, short-term analytic models that included measures of performance such as numbers of Afghan police trained and ratios of ethnic group representation in various law enforcement positions. In the end, NTM-A was unable to break away from the single US-dominated frame that distorted what could have been a shared understanding of the situation in Afghanistan.

Options for Frame Reflection and Critical Review on the Above Vignette:
- Applying Schön & Rein's five 'framing pitfalls' (1994, pp. 33-34), how might the NTM-A planning team better shape their dinner party sessions?

- Did US political goals, coupled with short-suspense time considerations create *incongruent* frame considerations that trumped other perspectives?
- How was NTM-A guilty of *frame ambiguity*? How did the raw number of trained Police get misapplied in the framing of improving the Afghan judicial system in a "yanking screws with a hammer" single-frame mentality?
- Could NTM-A appreciate *shifting frame conditions* as the conflict progressed and the Afghan Ministry of Interior shifted from growing a quantity of law enforcement to developing the quality of judicial execution?
- Were the *paradoxes* of 'Afghan versus American Justice' and 'US domestic political cycles versus counterinsurgency timelines in 3rd world nations' explored? What about the nature of 'one year deployment versus cumulative war effort' for units and individuals seeking advancement and promotion?
- Finally, did *frame adjustment* allow the dinner group to move from 'the Police are helping the situation' to 'the Police are hurting the situation' and adapt a game-changing design to implement?

Like Grant illustrates above, Ben contributes with an example from Afghanistan where institutional single-frame dominance again marginalized an alternate mindset.

> **"Resistance is Futile"**
> During another major planning session, I led a planning team charged with exploring future threat environments several years into the future for the Afghan Security Forces (Army and Police) and subsequently tasked to model various force configurations to consider reductions in personnel, equipment, and costs. We inherited the Coalition's campaign plan that applied the cherished military concepts of *centers of gravity* or 'COG's as originally espoused by nineteenth-century strategic theorists Antoine-Henri Jomini and Carl Von Clausewitz. This physics-associated analogy forced us into a mechanized frame of reference. Through such machinations of military analytic decision making lead to a detailed plan that, once published, becomes deeply entrenched within all subsequent planning products and orders (Naveh, Schneider, & Challans, 2009, p. 88). When our planning team attempted to exercise design principles, diverging from analytic planning doctrine, employing scenario frames, semiotic square concepts, and other approaches that rejected the overly-analyzed 'COG's' derived from our higher headquarters campaign plan, we were scolded. The higher element planners, upon realizing that we had not incorporated their COG frame into our work demanded that we include the original COG framing in our design effort. They demanded this despite the fact that we arrived at our conclusions because we had contemplated and rejected the COGs as faulty and over-analytical. Eventually, they stopped the debate and simply deleted all references we made to non-COG-framed considerations so that the final plan appeared to integrate and accept the COGs as they were directed. What was important to that higher-level element was not a critical or creative, more holistic solution set based in multiple frames, but the continued appearance of uniformity and solidarity across the entire ISAF organization, particularly when the final product was destined to be briefed to a senior politician or high ranked decision maker. Thus, we had designed a game-changing solution set but

could not overcome the dominance of the single-frame approach. The single-frame, COG-driven framework diminished all others.

Options for Frame Reflection and Critical Review on the Above Vignette:
- Returning to Schultz and Hatch's (1996) concept of *interplay* between various paradigms and appreciating the interconnected tensions, could the planners adjust the organization's attachment to physical metaphors nested within a single-frame?
- How did the design deliverable become an orphaned concept due to the decoupling of non-sanctioned frame applications that avoided the approved COG concept?
- How does the military hierarchy inhibit *interplay* between designers working at superior and subordinate levels on complex planning concepts? How does it work well for superior staffs to demand subordinate compliance, yet fail to work for subordinate staffs to introduce novel concepts and adaptive frames to a superior staff?

Modern military institutions appear to suffer a two-fold problem with frame conflict here because of the centralized decision-making structures and employing the overarching analytic frame for all aspects of military design. Modern militaries indoctrinate their officers through education, training, and regulations, habitualizing the preferred frames provided by approved military theorists such as Clausewitz and Jomini (Shy, 1986, p. 164-165). These concepts, theories, and methodologies rest upon largely mechanistic metaphors and linear causality (Weinberg, 1982, p. 121).

In this part, we have intended that our short vignettes convey a common theme. The frame dominance we have experienced in our military institution appears to silence design attempts at generating critical reflection and trans-valuation approaches afforded by multiple frames. Metaphorically the institution continues to remove screws with hammers, and silence any heretics that would suggest otherwise.

Conclusion

Our hope is that the insights gained from institutional barriers in the modern military may provide insights for designers in other walks – with ideas on framing messy situations. We have advocated that frame reflection is essential to design practice in a military context, yet institutional pressures to conform typically prevent game-changing perspectives from being employed. We have argued that frame reflection serves a designer's deeper understanding of complex situations. The military has encountered complexity and all of the associated ambiguity, chaos, and confusion in modern conflict. Facing irregular situations with regular frames of reference seems a common problem with institutions in general (this is why social scientists have defined institutionalization as an "iron cage" or "psychic prison"– see DiMaggio & Powell, 1983 and Morgan, 2006).

Game-changing designers will encounter institutionalized mindsets, whether manifested in corporate boardrooms or draped in sharp uniforms and fancy headgear. Game-changers should be well-practiced in frame reflection – discovering and appreciating their own preferred frames as well as those of the institution, and understand *why* and *how* the own organization might prevent them from using other frames. There are social dangers in challenging one's institution, particularly when a preferred perspectives are nested within cherished principles or symbols that provide ritualistic powers, relevance, and identity. The trans-valuation frame

approach embraces the conventional and conforming mindset but acknowledges its short-sightedness with respect to other ways to see.

Whether on the battlefields of our work lives or on an actual battlefield, those that seek to be game-changers must operate ahead of the curve by deeply appreciating a complex situation without ignoring the many frames available. Those who do not practice frame reflection will tend to make familiar conclusions that relate to historical patterns, reinforce accepted methodologies and doctrine, support cherished symbols and institutionalisms, and are readily accepted by the group majority. Returning to the words of the abstract artist David Hockney, "When you stop doing something it doesn't mean you are rejecting the previous work…That's the mistake; it's not rejecting it, [it is] saying, I have exploited it enough now and I wish to take a look at another corner" (Gayford, 2012, para. 8). The multi-frame approach, while unsettling to defensive mechanisms of an institution's habituated knowledge, naturally generates criticism on how and why we come to certain conclusions, why we tend to prefer certain conclusions over others, and how to un-learn some of our favorite conclusion-generating processes. Paradoxically, designers should simultaneously seek conclusions, un-conclusions, as well as non-conclusions. In conclusion, this is the beginning. Frame reflection is the essence of game-changing design.

ANNEX
Onomasiological Views on Key Concepts: *Frame* and *Perspectivism*

In our study of framing, and in concert with our thesis that multiple perspectives are better than single ones, in Part 1 of this Annex, we list variations on the same concept (what linguists call an onomasiological approach) on the concept of *frame* that may be useful for the reader. In the same light, in Part 2 we selected variations on the theme of *perspectivism* and the value of multiple perspectives. In both cases, we selected quotes or interpretations which we intuited were the best among many.

Part 1. The Concept of *Frame*

Culture – Believing...that man is an animal suspended in webs of significance he himself has spun, I take culture to be those webs, and the analysis of it to be therefore not an experiential science in search of law but an interpretive one in search of meaning (Geertz, 1973, p. 5).

Frame –

…underlying structures of belief, perception, and appreciation (Schön and Rein, 1994, p. 23).

…schemata of interpretation… (Goffman, 1974, p. 21).

…clusters of rules which help to regulate and activities, defining them as activities of a certain sort and as subject to a given range of sanctions. Whenever individuals come together in a specific context they confront…the question of "what is going on here?" …Framing as constitutive of, and constricted by, encounters "make sense" of the activities in which participants engage, both for themselves and for others. …Framing may be regarded as providing the order of activities and meanings where by ontological security is sustained in the enactment of daily routines (Giddens, 1994, p. 87).

…a boundary that cuts off parts of something from our vision…. The process of focusing attention on a particular slice of an extended causal chain is called *issue framing* (emphasis in original, Stone, 1994, p. 248)

Institution –structures that consist of degrees of habituated rules (routines, policies, classifications, conventions, organization charts, roles, strategies, organizational forms, and technologies) and inculcated values (beliefs, scripts, paradigms, codes, norms, mores, and assimilative knowledge) that, through social interactive processes, *frame* individual and collective action (paraphrasing March & Olsen 1989, p. 22).

Normative isomorphism – [stemming] primarily from professionalization…the collective struggle for members of an occupation to define the conditions and methods of their work, to control "the production of producers"...and to establish a cognitive base as legitimation for their occupational autonomy (DiMaggio & Powell, 1983, p. 152).

Paradigm –

...universally scientific achievements that for a time provide model problems and solutions to a community of practitioners (Kuhn, 1996, p. 5) [also, Kuhn develops the related concept of "normal science"].

...a fundamental image of the subject matter within a science [i.e. body of knowledge within an identifiable community]. It deserves to define what should be studied, what questions should be asked, how they should be asked, and what rules should be followed in interpreting the answers obtained. The paradigm is the broadest unit of consensus within a science and serves to differentiate one scientific community (or *subcommunity*) from another. It subsumes, defines, and interrelates the exemplars, theories, and methods and instruments that exist within it (emphasis in original, Ritzer, 1975, p. 7).

Reification – implies that man is capable of forgetting his own authorship of the human world, and further, that the dialectic between man, the producer, and his products is lost to consciousness (Berger & Luckmann, 1966, p. 89).

Schema – knowledge structures that contain categories of information and relationships among them. They help give meaning to environmental changes and so help stimulate and shape action. Traditionally, scholars have examined schemas for their impact and for their change or structural attributes, such as size, complexity, or focus (Bingham & Kahl, 2013, p. 14)

Simulacra – The assertion that all reality and meaning with symbols and signs, and that human experience is of a simulation of reality (Baudrillard, 2001).

Weltanschauung – represents a point of view on the world, a perspective on things, a way of looking at the cosmos from a particular vantage point which cannot transcend its own historicity (Wolters, 1989, p. 5)

Part 2. The Concept of *Perspectivism*

Interplay – building upon the simultaneous awareness and appreciation for paradoxes in tension between two or more paradigms. Recognizing the interdependence and intimately exploring how multiple paradigms interact provides the researcher the ability to "maintain their tensions and thereby reach a more subtle and complex appreciation of organizational culture" (Schultz & Hatch, 1996, p. 552).

Janusian thinking – conceiving two or more opposite or antithetical ideas, images or concepts simultaneously (Rothenberg, 1979, p. 55).

Metatriangulation – a strategy of applying paradigmatic diversity to foster greater insight and creativity (Lewis & Grimes, 1999, p. 672, paraphrasing Gioia & Pitre, 1990).

Orientalism – draws strength from ambivalence, in its ability to sustain contradictory ideas and images (Porter, 2009, p. 12). [similar to the *Yin and Yang* in Confucianism]

Relationalism – ... a thought system in which concepts and entities enjoy no final definition, but are constantly redefined by their context. In such a system, paradox is not an irrational state; that is, a paradox need not be rendered rational through the cancellation of one or the other of opposing entities of which it is composed. Instead...entities simply exist with respect to and within the context of another (Chen & Miller, 2007, p. 7).

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