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ABSTRACT KITAE I: Edge Organization in a Complex Battlespace

This paper is the first in a series of 3 papers developed as part of Project Kitae, a real-time data collection project based on a 6 month tour as a Battle Group intelligence officer in Upper Gereshk Valley (UGV), Helmand, Afghanistan. This paper uses participant observation to identify the command and control (C2) challenges at the organizational edge of the military in a complex battlespace. The objective is to highlight and analyze key C2 issues relative to optimality within an effects based approach to operations (EBAO) framework. Theoretically it draws on material/efficiency approaches and conventional constructivism to manage the empirical evidence based on the targeting for effect process. The paper will analyze and illustrate how the hierarchal organization at the edge of the military organization reacts in the face of technology driven network development. The results give clear indications that while we have 21st century information technologies, we have a 19th century military organization with its own culture that frustrates the timely delivery of complete information to the authority with assets to take synchronized actions. In short, the traditional hierarchal military organization undermines the optimal exploitation of 21st century technology and significantly reduces agility in a complex battlespace.

In memory of those who died

shaping the battlespace during the period referred to in this study.

Sapper Mark Antony Smith 26-07-2010
Lance Sergent Dale Alanzo McCallum 01-08-2010
Marine Adam Brown 01-08-2010
Lance Corparal Erik Berre Rolandsen 07-08-2010
Corporal Jimmi Bøgebjerg Peteresen 07-08-2010
Lieutenant John Charles Sanderson 11-08-2010
Rifleman Remand Kulung 12-08-2010
Sapper Darren Foster 13-08-2010
Sapper Ishwor Gurung 13-08-2010
Lance Corporal Jordan Dean Bancroft 21-08-2010
Lance Corporal Joseph McFarlane Pool 05-09- 2010
Captain Andrew Griffiths 05-09-2010
Kingsman Darren Deady 10-09-2010
Trooper Andrew Martin Haworth 18-09-2010
Sergeant Andrew James Jones 18-09-2010
Private Simon Mundt Jørgensen 22-09-2010
Corporal Matthew Thomas 25-09-2010
Rifleman Suraj Gurung 02-10-2010
Sergeant Peter Anthony Rayner 08-10-2010
Corporal David Barnsdale 19-10-2010
Private Mikkel Jørgensen 23-10-2010
Sapper William Bernard Blanchard 30-10-2010
Senior Aircraftman Scott Hughes 07-11-2010
Ranger Aaron McCormick 14-11-2010
Lance Corporal Jørgen Randrup 14-11-2010
Guardsman Christopher Davies 17-11-2010
Private John Howard 05-12-2010
Corporal Steven Thomas Dunn 21-12-2010
Warrant Officer Henry Wood 28-12-2010
Private Joseva Saqansgonedau Vatubua 01-01-2011
Private Samuel Enig 09-01-2011

… and the more than 50 Afghan partners killed as well as the many CF/ANSF multiple amputees

List of Acronyms	
AFG	Afghanistan
ANSF	Afghan National Security Forces
AO	Area of Operations
BG	Battle Group
CIED	Counter Improvised Explosive Device
COIN	Counter Insurgency
CF	Coalition Forces
COI	Compound of Interest
C2	Command & Control
DABG	Danish Battle Group
EBAO	Effects Based Approach to Operations
EBO	Effects Based Operations
FoM	Freedom of Movement
GIRoA	Government of the Islamic Republic of Afghanistan
GSM	Global System for Mobile Communication
HTM	Human Terrain Mapping
IED	Improvised explosive Device
INS	Insurgents
ISTAR	Intelligence, Surveillance, Target Acquisition, Reconnaissance
LN	Local Nationals
MoE	Measurements of Effectiveness
POI	Person of Interest
QEQ	Quantity Effects Quotient
RCT	Rational Choice Theory
SAQ	Structural Agility Quotient
SF	Special Forces
SME	Subject Matter Expert
SOF	Special Operations Forces
TiGR	Tactical Ground Reporting Tool
TFH	Task Force Helmand
UGV	Upper Gereshk Valley

Asymmetric warfare is a confrontation between political, cultural, social and organizational systems, obedient to different logics, and far away from the single question of its weapons.[1]

Introduction

By now there should be no doubt left that the battlespaces where Western militaries find themselves have become more complex. Not just in terms of the nature of warfare that must be conducted, but just as complex are the variety of technical and doctrinal approaches we have employed to manage it. This paper focuses on the challenges to current military C2 organization in a complex battlespace in terms of maximizing organizational agility to fight optimally. There are two key environments that affect the edge organization's ability to fight in a COIN environment effectively; the degree of complexity in which the actionable assets at the edge find themselves; and the environment created by the organizational functions, structures, and processes of the organization itself. Optimality depends on how these two environments interact to produce effect in the battlespace. Furthermore, though the comparative analysis of this paper contrasts a network vs. hierarchal organization, the discussion presented here should by no means be interpreted as a 'zero-sum' conflict between the two.

EBAO Context

The methodological context of the military's approach to planning in Upper Gereshk Valley (UGV), takes place within an Effects Based Approach to Operations (EBAO)[2] planning environment where knowledge is developed to generate desired effects and the appropriate actions to achieve them. In terms of the practical implications at the battlegroup (BG) level, this was represented in a formal process particularly where it concerned deliberate operations that stretched out over 4 weeks. Or in a more informal process generated by framework operations, or just reacting to developments in the battlespace. As a fundamental aspect of this study, the EBAO process constitutes one of the major pillars of gauging optimal decision-making, and is key to understanding the need for C2 agility. It has become the central guiding framework for military planning in a battlespace. No matter the level of formality surrounding the process it requires a great deal of knowledge about the reality in which the actions will take place. The most important aspect for the application of this knowledge in relation to the EBAO process is to ensure a "logical" relationship between end-state, objectives, effects, and actions.[3]

Agility

Agility as it is used in Project Kitae is intimately related to the effectiveness of the military organization in moving developed knowledge to decision points where actions are taken to cause the desired effects in the battlespace environment. Specifically, agility as it is used here is defined by the organizational structures ability to facilitate the transfer of developed knowledge from the complex battlespace in a timely matter to the decision point for action

[1] Henrotin, Joseph & Tanguy Struye de Swielande. (2004) "Ontological –Cultural Assymetry and the Relevance of Grand Strategies," Journal of Military & Strategic Studies, Winter 2004, Vol. 7, Issue 2:23

[2] Also commonly known as effects based thinking . EBAO should not be confused with the independent US military Effects Based Operations (EBO) that is much more targeting driven. See Mattis (2008); For philosophical foundation see Smith (2005, 2006); Nicholson (2006); Mitchell (2004, 2008, 2010); and a doctrinal interpretation , see NATO (2007).

[3] Bi-Strategic Command Pre-Doctrinal Handbook (2007): 5-8 to 5-9; Smith (2006); Mitchell (2008, 2010)

to promote effects. The structural role of the organization in the promotion of agility is to insure that decision-making authority for action and knowledge development are as directly linked as possible to insure maximum speed while maintaining the quality of knowledge being converted into action. These challenges associated with pursuing optimality are what open the door to the discussion of meta-theoretical issues, with regards to the definition and measures of optimality used in this paper.

Complex Battlespace & COIN Environment

A complex battlespace is understood in this paper being asymmetric with both a cognitive and physical dimensions. It is represented in reality by the counter insurgency (COIN) environment consisting of the physical and human terrain referred to throughout the paper. In a COIN environment it is more important to control the people, rather than the terrain, as they directly affect the FoM of both the insurgents and friendly forces. The observations for this study are taken from daily warfighting activities in one of the most violent areas of Afghanistan (AFG), the UGV in Helmand province within the area of responsibility belonging to Task Force Helmand (TFH) and the Danish Battle Group (DABG). The UGV is one of the most complex battlespaces[4] in AFG due to the concentration of narcotics and the various competing forms of governance, known to TFH as the *official* (GIRoA[5]), the *traditional* (tribal), the *shadow* (Quetta based Taliban insurgence), and the *dark* (narcotics cartels). So for studies of agility in complex battlespaces, it provides extreme conditions for testing our organizational C2 capacities in regards to their abilities to promote agility in a complex battlespace.

SECTION 1- Meta Theory

As practical as a discussion on agility in a complex battlespace may sound, it cannot escape the meta-theoretical issues that surround it. The meta-theoretical issues to be discussed here are drawn from the C2 studies on agility and sense-making,[6] this research thread represents a very simple objective when it comes to military forces in a battlespace; we want our decision-making to be optimal with regards to war fighting environment we are in. So optimality is the objective, both in terms of process and produced effects. The main ontological assumption of this paper is that all decision-making is assumed to be subjectively rational.[7] This is not to suggest that it is the most rationally optimal decision from an objective perspective. However this ontological stance reflects the relativism necessary for managing the physical and cognitive domains of a complex battlespace, it is a necessary ontological stance that will allow a rational choice (RCT) approach to decision-making that includes both utilitarian and normative considerations, when it comes to the calculation of optimality.

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[4] For methodological foundation see Johnson & Levis (1988, 1989); Alberts & Czerwinski (1997); S. Metz (2001) For battlespace definitions see Smith(2006); Mitchell (2008, 2009; 2010)

[5] Government of the Islamic Republic of Afghanistan

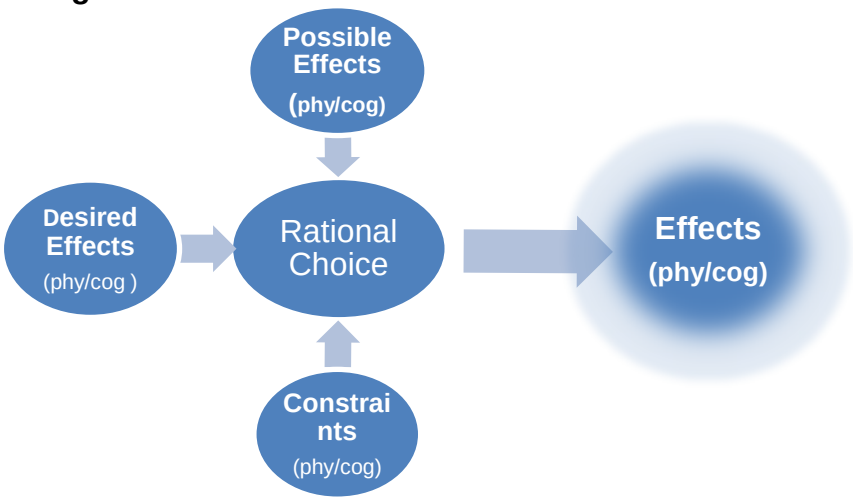
[6] Mitchell, William. Agile Sense-Making in an Intersubjective Environment. *International C2 Journal* (IC2J). Spring 2010. http://www.dodccrp.org/html4/journal_v4n1.html; Mitchell, William. *Ch.3 The Comprehensive Approach Dilemma: No Unity of Command -No Unity of Effort.* Comprehensive Approach. Edited by Flemming Splidsboel Hansen. *Spring 2010*

[7] Mitchell, William. *Instrumental Friend or Foe? Constructivist Activism in Security Policy Means Analysis.* Aarhus, Denmark: Politica, 2004. http://www.politica.dk/showarticle.asp?articleID=194

Optimality

Historically the RCT assumption of optimality has been greatly influenced by the utilitarian material/efficiency interpretation of 'optimal gains' that has left the impression that the drawing on the physical domain is the only measure of optimal effects. However it should be obvious that RCT models of optimal preference selection are as affected by problems of relativity as any other social theory. (What one may believe is the optimal choice, may not be judged as having been the optimal choice by others.) Therefore if we subject the core conventional constructivist concepts of norms and identity to Colemans'[8] conditions for managing optimal effects assessments, one can quickly identify their methodological relevance for managing cognitive inputs and outputs within the knowledge development stage of EBAO. Therefore where it concerns the assessment of the C2 processes supporting decision-making, both the physical and cognitive domains will be accounted for through different types of variables that have their ontological origins in an RCT approach that incorporates both utilitarian and normative concerns in 'live' instrumental evaluations.[9]

Fig. 1.0 Rational Choice and EBAO



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SECTION 2 – Analytical Framework & Method

The study uses a comparative analytical framework based on three variables representing the sub-variables adopted from the C2 Maturity Model Model,[10] to illustrate the agility differences between a network and a hierarchical C2 structure in the battlespace. A timeline is added with the objective of illustrating the evolution of the network organization

[8] See Mitchell (2004) for original adaptation; See foundational work with optimality in Coleman, James S. & Thomas J. Fararo (Eds.) (1992). Rational Choice Theory: Advocacy and Critique. Newbury Park: SAGE: 195 and Coleman, James S. (1990). *The Foundations of Social Theory*. Cambridge: Belknap

[9] For original reflections in this regard see Checkel's (1999) suggestion of 'flexibility' that in some circumstances an RCT approaches should be used and in other circumstances - constructivism. I continue to suggest however, that distinguishing between both the instrumental notion of rationality and the normative notion of rationality provides the basis for the actual flexibility identified by Coleman– and therefore material/efficiency concerns as well as normative concerns can complement each other under an RCT framework.

[10] See NATO (2007) RTO SAS-05:23.

that essentially takes on a life of its own, and the challenges this evolution creates within a traditional hierarchal organization.

The three main variables to be controlled for and discussed within the comparative framework come from the targeting for effects process, and include a representative structural agility quotient (SAQ), a quantity of effects quotient (QEQ), and a measurement of effects (MoE) assessment. Sub-variables from each of these categories will act as the indicators by which comparative agility assessments will be made between the hierarchal and network organizations.

The timeline is from August 2010 to January 2011 and is divided into monthly periods to match the battle rhythm of TFH. Each period of analysis will begin with a short narrative from actual field notes depicting the overall military situation in the AO. It will then draw on the three measurements for qualitative discussions. Key conclusions will be summarized at the end of the paper.

Commanders Intent and General Desired Effects

The main objective was for the TFH during this period was to promote the influence of the GIRoA throughout one of the most violent and complex battlespaces areas of AFG, by mapping [11] and engaging the local nationals (LN). Unfortunately the insurgent (INS) networks had grown strong over the previous year because of a static approach to the battlespace that focused on protecting fixed patrol bases (PB), and avoiding improvised explosive devices (IEDs). This resulted in INS IED networks becoming extremely efficient in the production, distribution, and placing of IEDs around fixed coalition forces (CF) positions. The CF freedom of movement (FoM), especially in the minds of the soldiers, had become extremely limited.

Furthermore, the year respite had allowed INS weapons and ammunition stores were intact and they had small arms fire (SAF) capacity sufficient to support their IED strategy of separating CF and Afghan National Security Forces (ANSF) from the population. It was apparent from the start that if the DABG wanted to be able to engage and influence the local population, our FoM in the battlespace would have to be re-established. Attacking the INS network and retaking the initiative would have to take first priority, while force protection second. The INS C2 network was well established within a time and space understanding entirely different from that of TFH. What took us hours to travel due to force protection concerns (clearing roads of possible IEDs), took them 20-40 min on a motorcycle. Their safe house locations were variable and widespread, and key IED related facilities, expertise, and stores, were constantly being moved about. Historically in-synch with a COIN environment, the INS organization was by its very nature, agile, and would force us to become agile, or become irrelevant with regards to effect. In short, a high degree of kinetics would be necessary to degrade the INS network to a sufficient degree to once again allow CF/ANSF to engage and influence the local population.

The Commanders intent for the 6 months was to re-gain CF FoM in order to access the local population for human terrain mapping, and to set the foundation for expanding GIRoA influence.

[11] Refers to Human Terrain Mapping (HTM)

Structural Agility Quotient (SAQ)

Within the EBAO framework of this case study, structural agility refers to the degree the organizational structure facilitates the speed it takes to develop and convert knowledge into actions in the pursuit of desired effects.[12] This presents a very straight forward structural understanding of the DABG command organization that can provide the basis for a hierarchy versus network comparison. The ***total number of organizational filters (F*)** between the originator of knowledge and the decisions-maker with authority over actionable authorities will be counted, or the number of organization layers between the disseminator of knowledge and the decision-points for action. Simply dividing the **(F)** with ***total number of actionable assets (A)*** will provide a structural indicator of organizational agility within an EBAO context.

SAQ= F/A

A measurement of 2 (or less) implies the optimal structural agility, from the perspective of the EBAO framework, reflecting a direct line of communication between the point of knowledge generation and the capacity to act. Only absolute minimums, in terms of organizational filters, are recognized as it is structural facilitation of the social organization we are interested in here, and not the culture of communication between them.

Quantity Effects Quotient (QEQ)

As the SAQ does not account for the quantity of information that is relayed to the actionable assets in the form of situational awareness, for the purposes of a comparative analysis of social organization a ***quantity effects quotient (QEQ)*** is needed. This has been obtained by multiplying the ***number of targets generated (TG)*** by the ***number of targets actioned (TA)***. Using targeting (kinetic and non-kinetic) as the basis for the measure provides the most concrete measure of desired effects as it is based completely on the principles of actionable intelligence. Essentially the more targets produced, the more opportunities for action towards desired effects. Success is not measured in this calculation, and therefore it is not a MoE vis-à-vis commanders' intent or the organization.

QEQ = TG x TA

Nor does the QEQ account for quality of knowledge in the process, however a simple qualitative measurement of FoM effect relative to commander's intent will indicate if desired effects are being generated within the battlespace.

MoE: Tactical Freedom of Movement

The MoE relative to commanders intent is a *qualitative* estimate of the tactical FoM at the end of each month and is based on several indicators related to Human

[12] This understanding should capture the common use of agility that implies not only speed, but a quality of action appropriate to different situations, while the issue of authority is explored in detail by Albert & Hayes (2007):172,175.

Terrain Mapping (HTM); the number of CF/ANSF patrols into local population centers; the range of those patrols from respective bases; the number of shuras held with the local population; and the state of the insurgency based on all-source intelligence summaries. This measurement does not represent atmospherics (attitudes of local population towards GIRoA) and refers only to tactical FoM where all force protection TTPs must still be followed. The MoE will be geo-rectified for each month.

Table 1.0 Tactical Freedom of Movement

High	**Assets present +HTM possible + creation of white space for shaping and shuras**
Med	**Limited assets + HTM possible with non-organic assets**
Low	**No assets – or essentially 'no go' within framework ops for organic assets –no HTM**

ANALYSIS: AUGUST 2010

BATTLESPACE NARRATIVE AUGUST 2010

Though the new DABG team was still emerging from the initial assessment phase of the military situation they would be dealing with, some key issues are emerging: The first was that the INS had both a physical and psychological influence capacity that extends from Gereshk in the south, to Qaleh ye Gaz in the North with several key nodes of INS C2 in key locations, that are used for the projection of influence and kinetic activity.

The second is that the INS have apparently invested heavily in perfecting a multi-layered system of IED networks based on establishing short & long-term caches ranged to target seeding areas for convenience (30-300m/200-1000m), and larger IED production and storage facilities ranged to target seeding areas for security (2-2Okm). The objective appears to continue to fix our forces either in bases or limit our FoM to perform influence operations in conjunction with GIRoA. The INS IED system is designed to disrupt and block landlines only, and is completely dependent on successful seeding techniques by quantity or quality to stress, or overwhelm, our CIED (Counter-IED) capacities. When this happens it extends the time/space ops lines for land maneuver beyond all usefulness, resulting in the fact that one IED strike can fix a COY (company) for a day. This situation has developed over the past year where units have prioritized force protection of fixed bases, and because of the INS IED strategy, now find their FoM seriously restricted, and therefore contact with the local population throughout the AO extremely limited. This does not bode well for Human Terrain Mapping (HTM) as the units need to get out amongst the population.

Finally, early indications are that a degree of agile intelligence driven kinetic operations to disrupt and degrade their IED network capacities will likely be

necessary to create a more permissive environment (FoM) for influence operations to actually take place.

Fig. 2.0 SAQ AUG

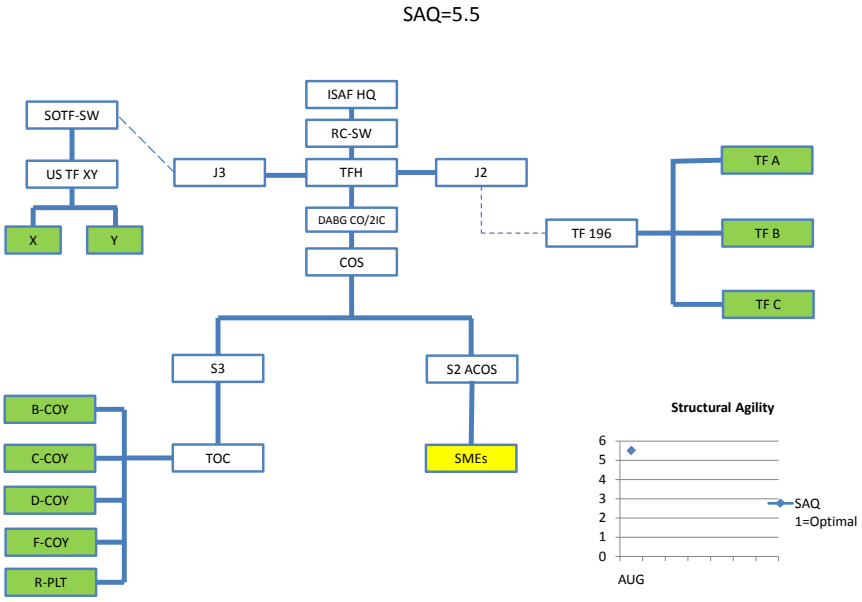

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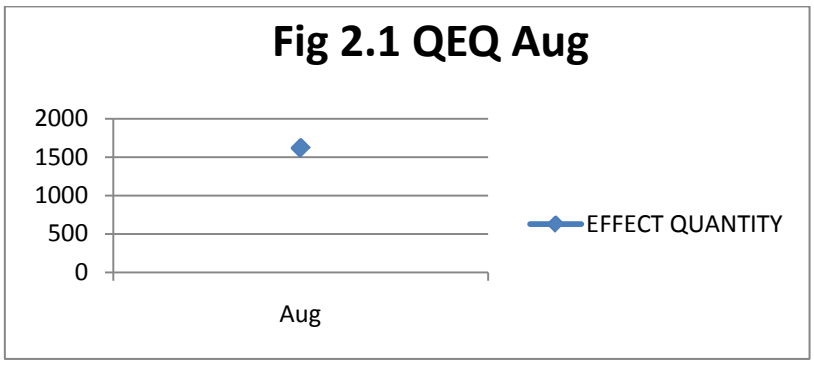
Table 2.0 QEQ Aug

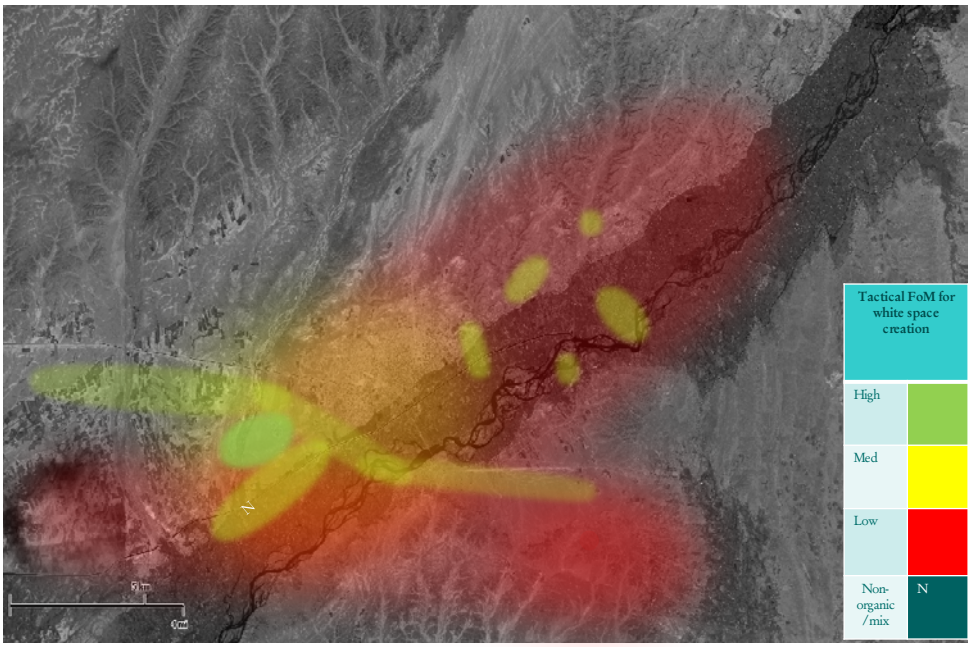
Compounds of Interest (COIs), Persons of Interest (POIs), Battle Group (BG), Special Operations Forces/Special Forces (SOF/SF)

Targets/COIs/POIs Generated for BG	Targets/COI/POIs Generated for SOF/SF	Exploited by BG	Exploited by SOF/SF
59	**18**	**9**	**12**

QEQ=TGxTA
= (59+18) + (9+12)
= 1617



Map 1.0 August 2010 Tactical FoM



(N)=TF X

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ASSESSMENT AUGUST: Degree of Situational Understanding

At the start of the tour the traditional C2 hierarchical structure was in place for managing the sharing of knowledge in order to produce situational awareness. From a C2 Planning Maturity Model[13] perspective, the C2 structure of the BG had very restricted or 'stove piped' information flows, reflecting the traditional military hierarchy approach to social organization. At this point it was the battlespace itself that was making us aware of the shortfalls of the hierarchal structure in place. The planning procedures of the staff, with all the internal communication that accompanies it, could not compete at all with daily INS agility. Quite simply information was being forced up and down the hierarchy, reducing information accuracy and currency, and negatively affecting shared awareness, decision correctness, and finally action accuracy, precision, appropriateness, and timeliness. The extra organizational filters of the hierarchy appeared to be forcing the situation to fit to its traditional operational planning role, extending timings on operational lines beyond all usefulness. In terms of optimality within an EBAO context, the hierarchal structure was

[13] See Alberts & Hayes (2007):168-179.

having a significant negative effect on the conversion of ‘knowledge to action’ processes both in terms of timeliness and quality. The most extreme example from this period was a real-time video showing an explosives cache being buried in a field relatively short distance from a main operations base. Though perfect for a quick reaction force pick-up, it was turned into a 17 day ‘concept of operations’ process that resulted nothing except angry local farmers wanting compensation for the fields torn up by plethora of heavy vehicles. The first signs of a natural (not planned or organized) circumvention of the hierarchy began by the third week in august.

ANALYSIS: SEPTEMBER 2010

BATTLESPACE NARRATIVE SEPT 2010

> *The military situation remains stable. There is relative quiet within our battle space with some minor SAF incidents. Unfortunately, the IED threat continues to affect our operations and restrict our FoM. It is appears that despite the best efforts of the BG to over watch frequently used areas – it does not reduce the threat, but inspire the enemy to greater heights of deadly innovation. Of particular vulnerability is the PBL that continues to stand for the greater part of IED losses in the AO. However, it appears that the successful removal of a key INS Commander ‘X’ from the battlespace has, for the time being, contributed to maintaining the “military” status quo up to elections. Removing this key INS Commander ‘X’ who was reportedly ready to directly set his kinetic resources into the pre-election campaign, likely removed a distinct strategic threat from the coming election. That the INS will be able to re-organize their capacities quick enough to generate complex attacks up to elections, is still to be seen. It will be interesting to monitor what military effects the absence of the key Commander will have on INS tactically as well as their lines of operations for UGV.*

Fig. 3.0 SAQ Sept

Note: SME - Subject Matter Experts

SAQ=2.0

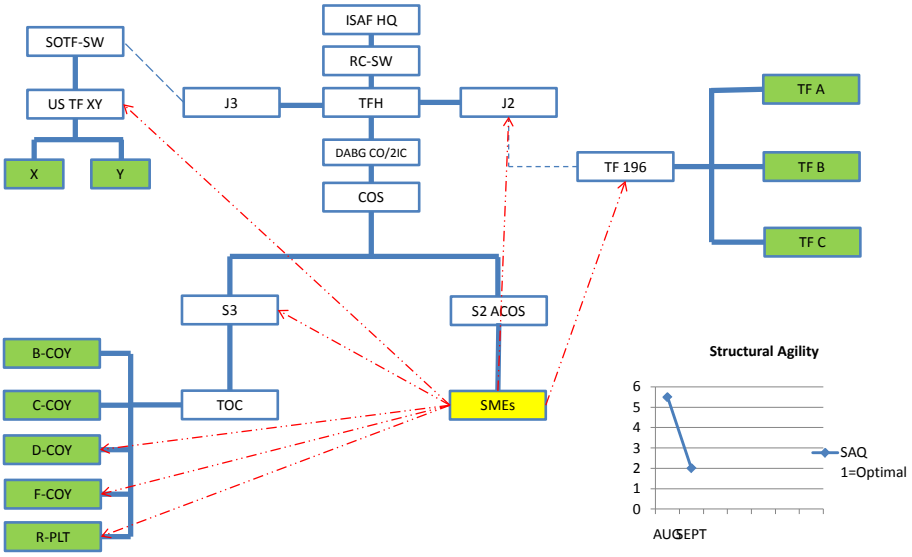

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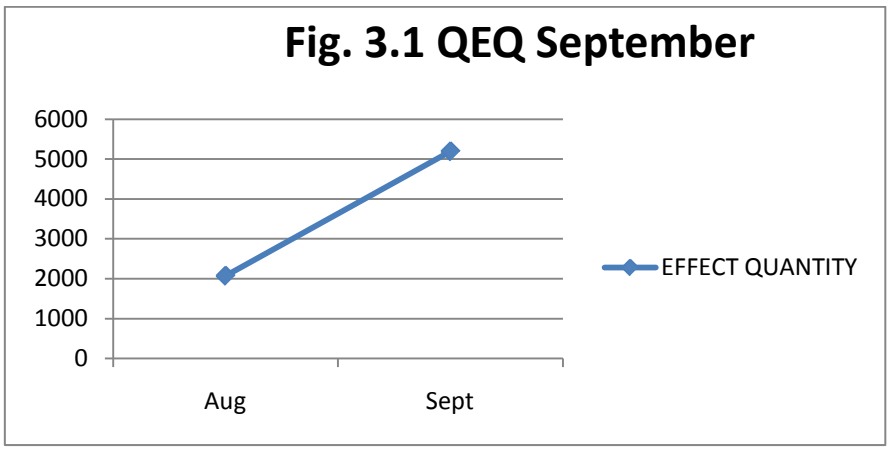
Table 3.0 QEQ Sept

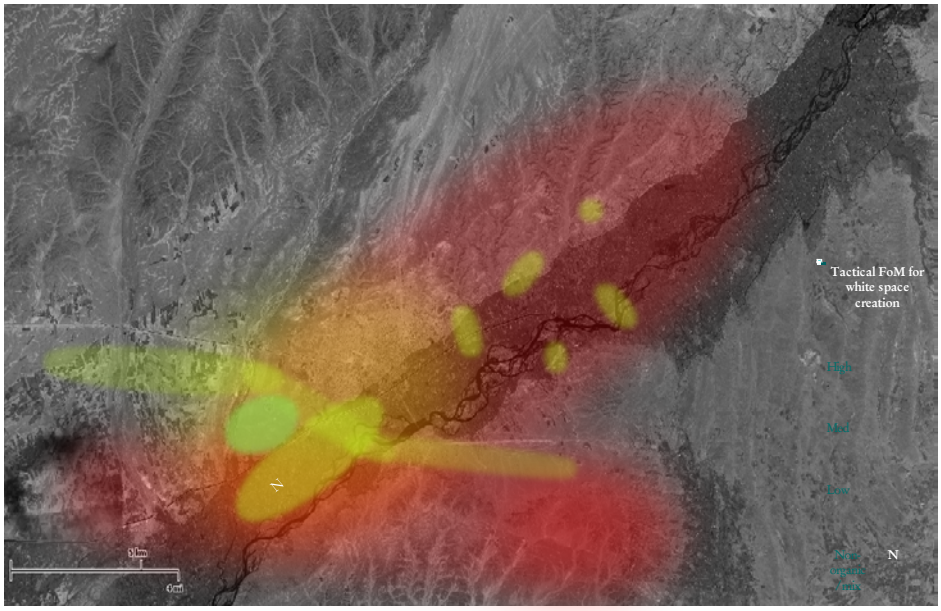
Compounds of Interest (COIs), Persons of Interest (POIs), Battle Group (BG), Special Operations Forces/Special Forces (SOF/SF)

Targets/COIs/POIs Generated for BG	Targets/COI/POIs Generated for SOF/SF	Exploited by BG	Exploited by SOF/SF
29	60	9	45

QEQ=TGxTA
= (29+60) + (8+45)
= 5194



Map 2.0 September 2010 Tactical FoM



(N) = TF X, TF Y, ATF

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ASSESSMENT SEPT: Degree of Situational Understanding

The nature of the insurgency in itself required fast paced reaction times on intelligence in order to have any chance at degrading the INS IED network, and breaking their very efficient IED belting organization, to create enough military FoM to access the population. Immediately, it became apparent that the pace of traditional organizational staff work could not match. Networking then developed out of necessity. This necessity was assessed to be driven by a sense of responsibility attached to the awareness that the subject matter experts (SMEs) had knowledge important to the situational understanding. SMEs also had ownership of complete information as to who could use the knowledge in our battlespace. Thirdly, SMEs the technological means to delivery it directly with a click of a button. It would defie logic and moral good sense with regards to units operating in the field - not to do it. It gave the BG its first action with big effect in terms of a key threat to coming elections.

SECTION 5 – Oct

BATTLESPACE NARRATIVE OCT 2010

> *The military situation remains stable. There has been a sustained reduction in complex attacks on CF, a point also reflected in reduced radio chatter throughout the AO. It appears the INS are in a period of uncertainty, a recent INS shura held in the East of our AO was attended by 20 plus insurgents ended with an agreement not make attacks, contrary to the initial agenda. The cause of this uncertainty and reflection is likely due to the recent losses in leadership and facilitating infrastructure. This high risk environment for INS Commanders has particularly affected the, with several key INS leaders having been successfully removed from the battlespace. The assessed targeting effects in our AO have been relatively accurate, and the positive*

effects on disrupting the INS IED organization can be seen. Patrols are getting out amongst the population and beginning to conduct human terrain mapping.

Fig. 3.0 SAQ Oct

Note: SME - Subject Matter Experts

SAQ=1.3

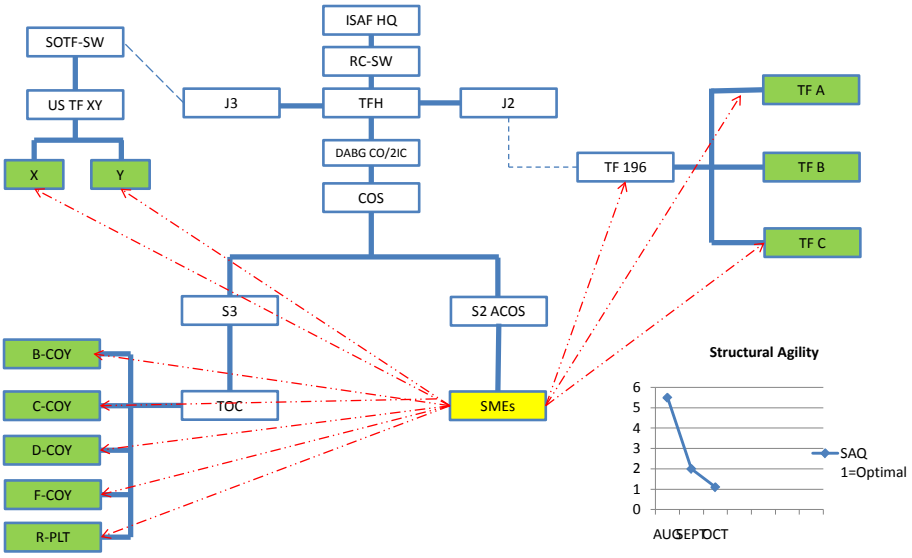

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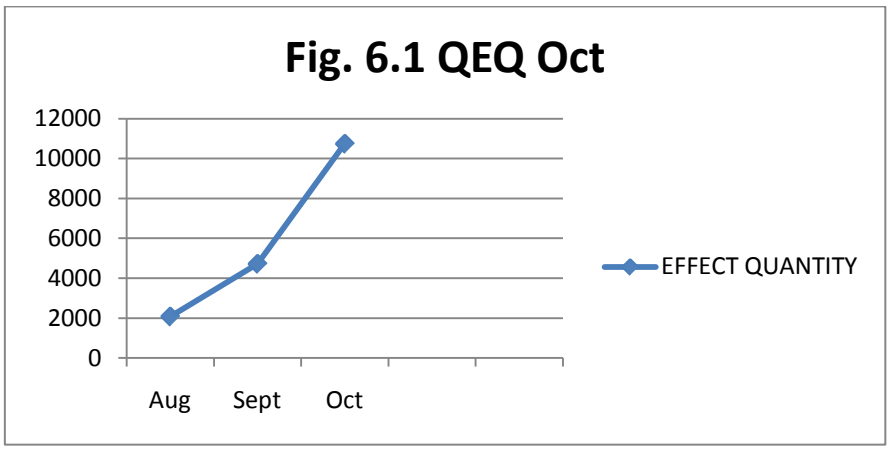
Table 4.0 QEQ Oct

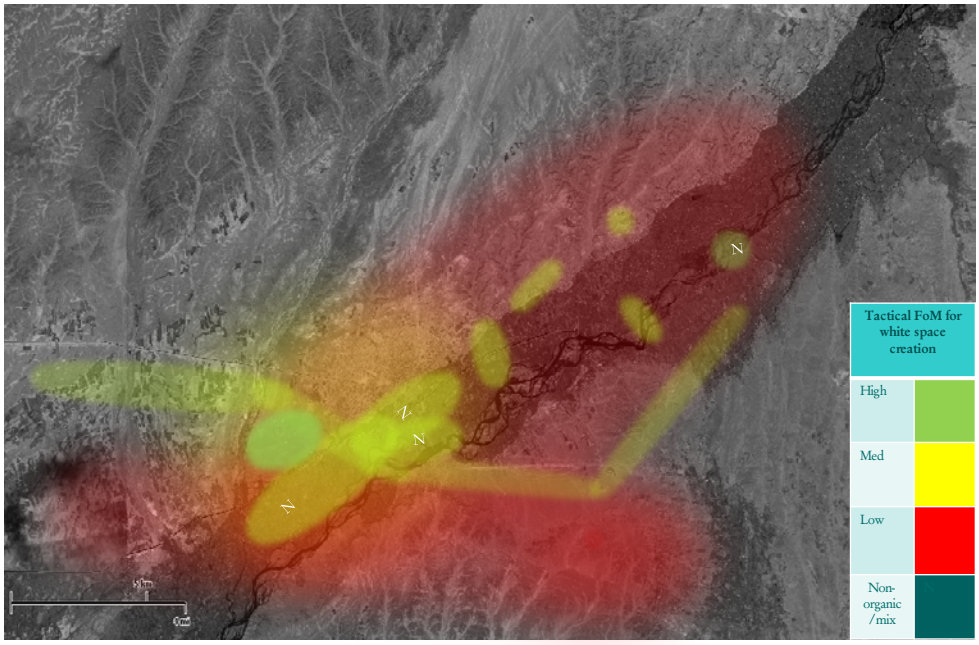
Compounds of Interest (COIs), Persons of Interest (POIs), Battle Group (BG), Special Operations Forces/Special Forces (SOF/SF)

Targets/COIs/POIs Generated for BG	Targets/COI/POIs Generated for SOF/SF	Exploited by BG	Exploited by SOF/SF
98	**84**	**8**	**59**

QEQ=TGxTA
= (98+84) + (8+59)
= 12194



Map 3.0 October 2010 Tactical FoM



(N) =MSOC, TF Y, ATF, BRF

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ASSESSMENT OCT: Degree of Situational Understanding

For the second month running, indicators suggest the more networked the 'knowledge to authority to act with assets' became, the higher the rate of effects produced. However at this point frictions within the hierarchal organization became apparent. The structures in place had a clear expectation that their hierarchal betters expected the level in under it to have complete information. As reporting returns from the increased rate of activity began to overwhelm traditional hierarchal levels, they could not meet this traditional hierarchal demand. The question to ask here is whether or not this negatively affected decision making in battlespace? It was highly unlikely, as the authority was already given to the assets to make decisions based on desired effects presented under Commanders Intent. Therefore it was a question of how much of the hierarchal requirement for ownership of complete information by each level was a simply a cultural function of the hierarchal

organization, rather than a necessity of the battlespace. In other words, was the requirement by the hierarchy done in the belief it would make the organization more effective, or was it force of habit? It certainly felt like information was beginning to flow in all directions as persons at various levels above and below struggled to keep up with the pace of activities at the edge, and serving the briefing requirements of various levels became more of a time consuming hindrance not synched with the timeliness requirement for effective action.

SECTION 6 – Nov

BATTLESPACE NARRATIVE NOV 2010

> *Military situation in our AO is stable but dynamic with 4 concurrent operations ongoing throughout the AO and flank BG battlespace. After an initial increase in kinetic interaction due to new operations it appears senior key INS commanders have been given guidance to disengage from sustained engagements and return to a program of IEDs. Over the last two weeks our AO has clearly moved from a long static period, to becoming much more dynamic in favor of sustained CF initiatives back by improved information sharing, to frustrate INS networks. Seen from INS eyes, it must seem like a totally different CF MO being used throughout the AO. There are already clear signs that the increasing agile CF actions, are stressing the INS network in terms of weapons and ammunition, as they overinvested in a strategy based on the last two years success with IEDs.*

Fig. 5.0 SAQ Nov

Note: SME - Subject Matter Experts

SAQ=1.0

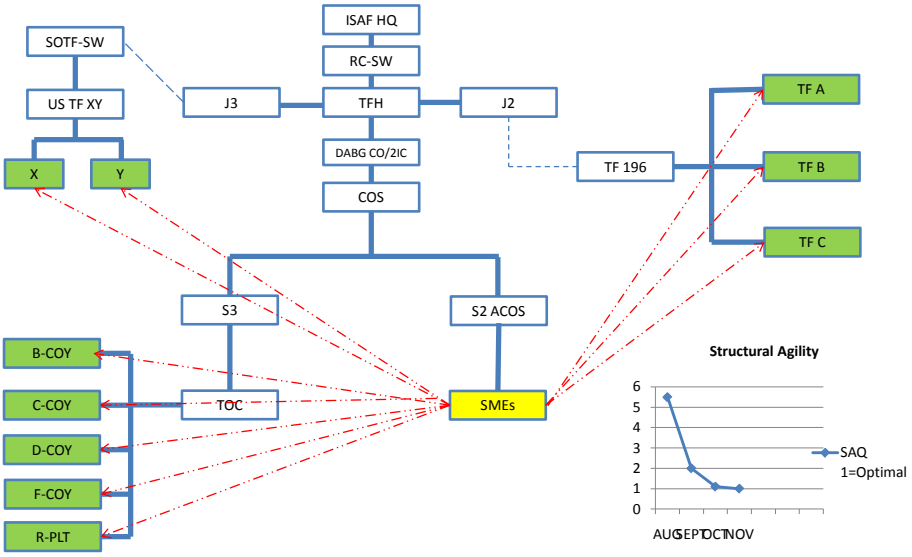

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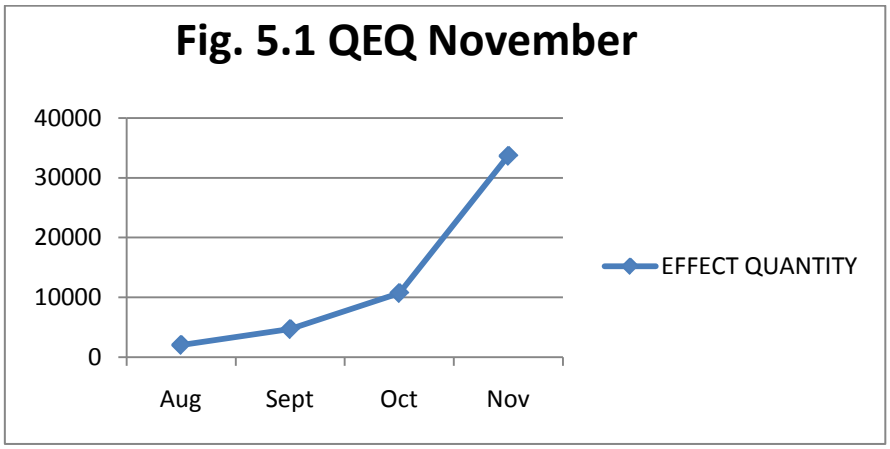
Table 5.0 QEQ Nov

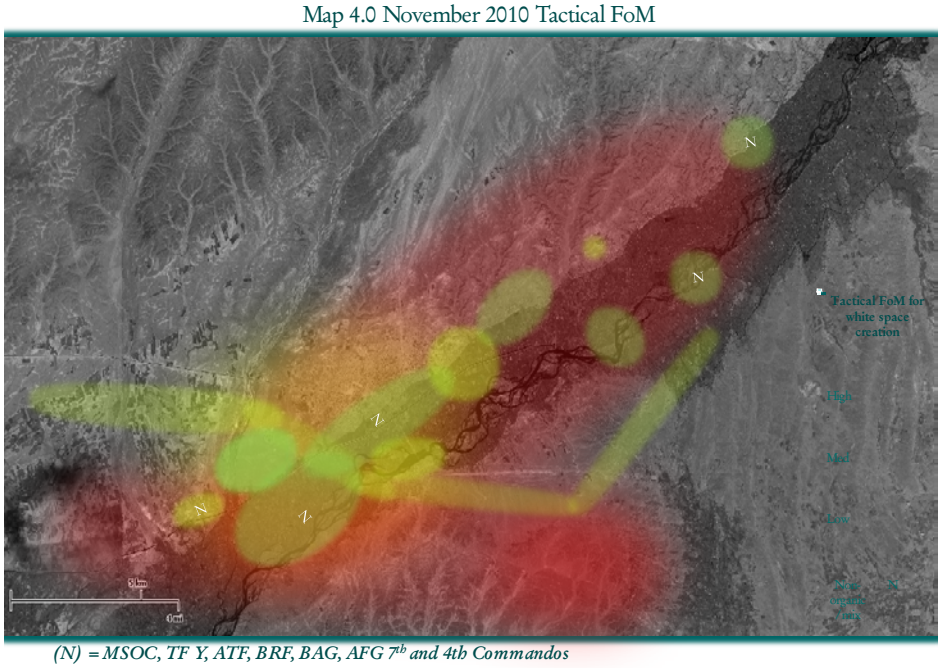
Compounds of Interest (COIs), Persons of Interest (POIs), Battle Group (BG), Special Operations Forces/Special Forces (SOF/SF)

Targets/COIs/POIs Generated for BG	Targets/COI/POIs Generated for SOF/SF	Exploited by BG	Exploited by SOF/SF
269	157	26	53

QEQ=TGxTA
= (269+157) x (26+53)
= 33654



Map 4.0 November 2010 Tactical FoM



(N) = MSOC, TF Y, ATF, BRF, BAG, AFG 7th and 4th Commandos

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ASSESSMENT NOV: Degree of Situational Understanding

In November, as far as battlespace agility being related to the speed of relaying knowledge to assets to for action, we had reached maximum organizational agility seen from an EBAO understanding. Knowledge produced was being delivered directly to all key assets with authority and assets to take action, at the same time generated effects from those actions, were being delivered directly back to the SMEs. The QEQ shot through the roof, which is likely more a reflection of some sort of tipping point, where accelerated knowledge production used effectively, produced more useful knowledge at a higher rate, producing a higher rate of actions. There were far more targets (kinetic and non-kinetic) than could be persecuted in a timely manner, and therefore prioritization became an important issues in terms of effects assessment. However, frictional issues concerning situational understanding up the hierarchal organization would soon began to push back, as attempts at moving knowledge completeness away from the edge up the hierarchy were simply steamrolled by effects driven real time developments. The phones went mysteriously quiet, as the upper echelons of the hierarchy naturally tried to resolve awareness completeness with networking of their own.

SECTION 7 – Dec

BATTLESPACE NARRATIVE DEC 2010

The military situation in our AO is stable. Reporting suggests the INS in general are slowing down their operations, with more requests for personnel, ammunition, and HME. It is likely due to a combination of factors including, a high CF tempo with regards to targeting, the poppy season, which tends to reduce INS operations or at least shift their focus squarely on IEDs production and dispersion. CF operations into

new areas in the north have forced INS insurgents to move men and material around, providing new knowledge as to INS routes and TTPs.

Fig. 6.0 SAQ Dec

Note: SME - Subject Matter Experts

SAQ=1.0

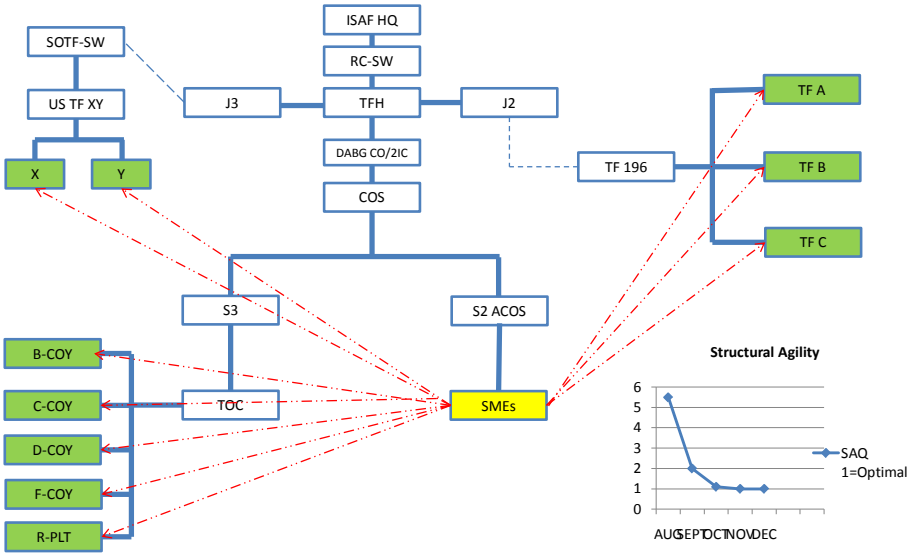

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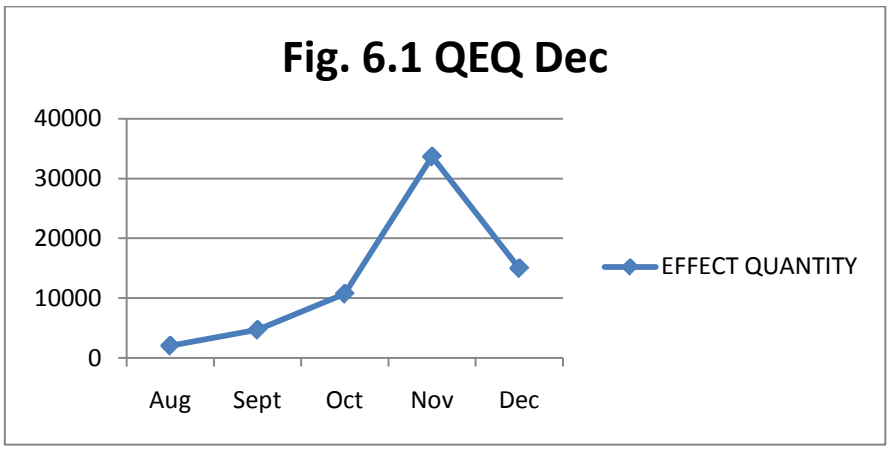
Table 6.0 QEQ Dec

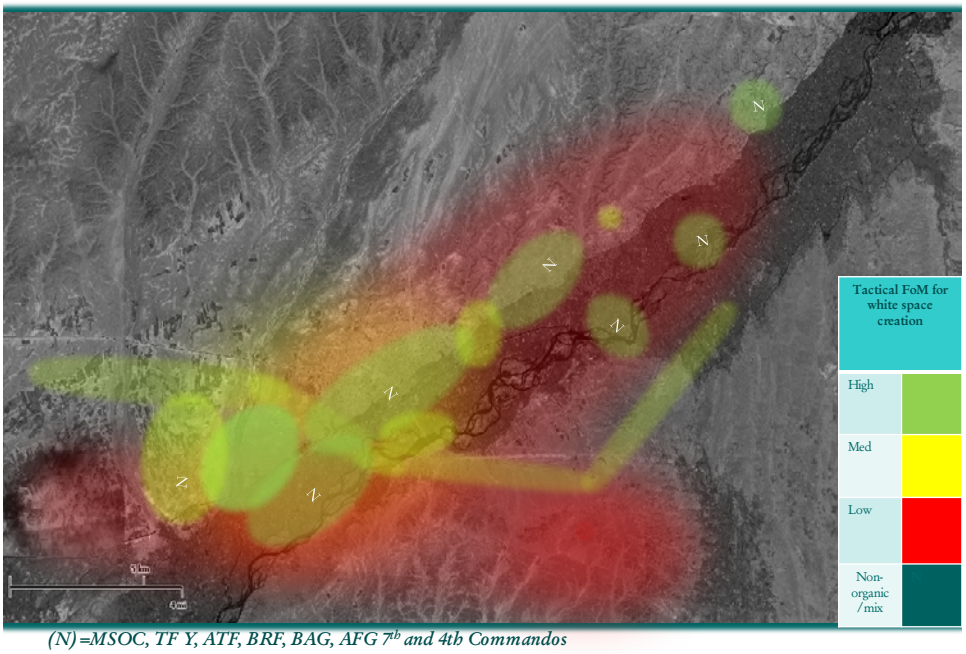
Compounds of Interest (COIs), Persons of Interest (POIs), Battle Group (BG), Special Operations Forces/Special Forces (SOF/SF)

Targets/COIs/POIs Generated for BG	Targets/COI/POIs Generated for SOF/SF	Exploited by BG	Exploited by SOF/SF
238	**30**	**35**	**21**

QEQ=TGxTA
= (238+30) x (35+21)
= 15008



Map 5.0 December 2010 Tactical FoM



(N) =MSOC, TF Y, ATF, BRF, BAG, AFG 7th and 4th Commandos

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ASSESSMENT DEC: Degree of Situational Understanding

By the end of December, upper echelons seemed quite content to identify single issues within the battlespace for attention, than to try and maintain "complete knowledge" for all issues. This however resulted in the upper echelons unilaterally applying their authority over supplemental assets to be consumed in a particular case of interest, rather than based on a common situational awareness of the battlespace for synchronization to maximize effect. The situational understanding of the organization as whole was becoming fragmented, and signs that insulation[14] at different organizational levels above was beginning to occur. In short, they we're building their own networks to assets at various levels for their topic of interest, that naturally worked against the development of self-synchronization at the edge. It created vertical networks that would compete with the flat-lined network at the edge, for ownership of complete information and situational

[14] See Mitchell (2004):85

understanding. However they were formed not to complete their own information awareness, but to allow them to fulfill traditional requirements in the hierarchal system. This resulted in a limited degree kaos, as information streams conflicted in terms of information accuracy, completeness, precision. It was no longer a question of structural friction contained within the organization, but now it was directly affecting the quality of knowledge in the battlespace. Battlespace agility remained high – however the exploitation of targets persecuted dropped as the lower levels of the hierarchy was circumvented. Unfortunately it was the fusion at the edge that could provide a significantly more information richness because of direct ownership of the majority of COIN sensors, the soldiers, as well as ownership of more complete information on adjacent battlespaces.

SECTION 8 – JAN

BATTLESPACE NARRATIVE JAN 2011

The military situation remains stable with very limited INS kinetic response to CF operations. This week has shown a distinct decrease in kinetic activities during the period. During the reporting period CF have had a clear upper hand, causing frustration amongst the INS due to their limited ability to conduct offensive operations to counter CF. Despite reports of INS higher leadership directions in terms of an increased focus on IEDs and high-profile attacks, this has not materialized in the use of IEDs in order to compensate for the lack of fighters and possibility to counter CF operations throughout the AO.

Fig. 7.0 SAQ Jan

Note: SME - Subject Matter Experts

SAQ=1.0

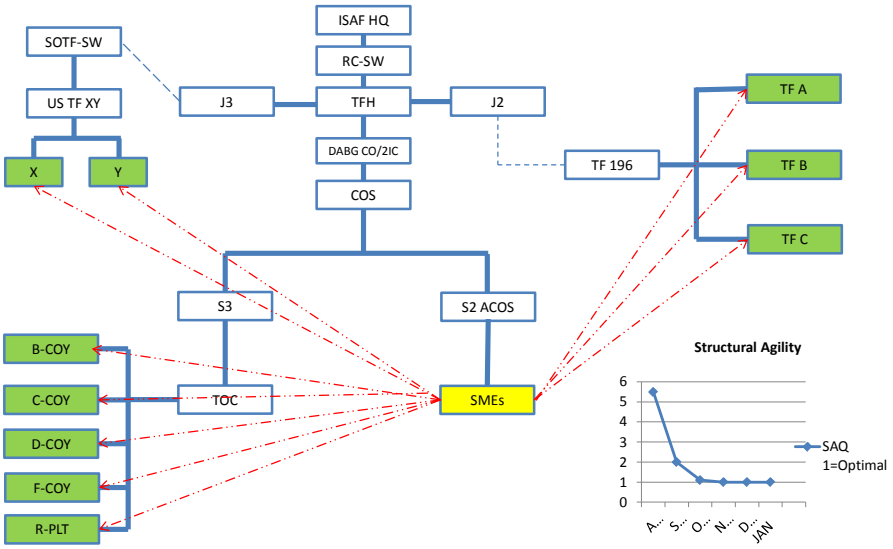

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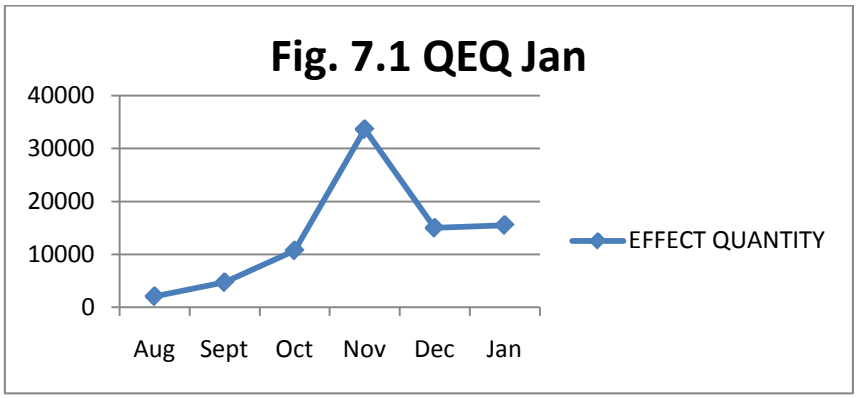
Table 7.0 QEQ Jan

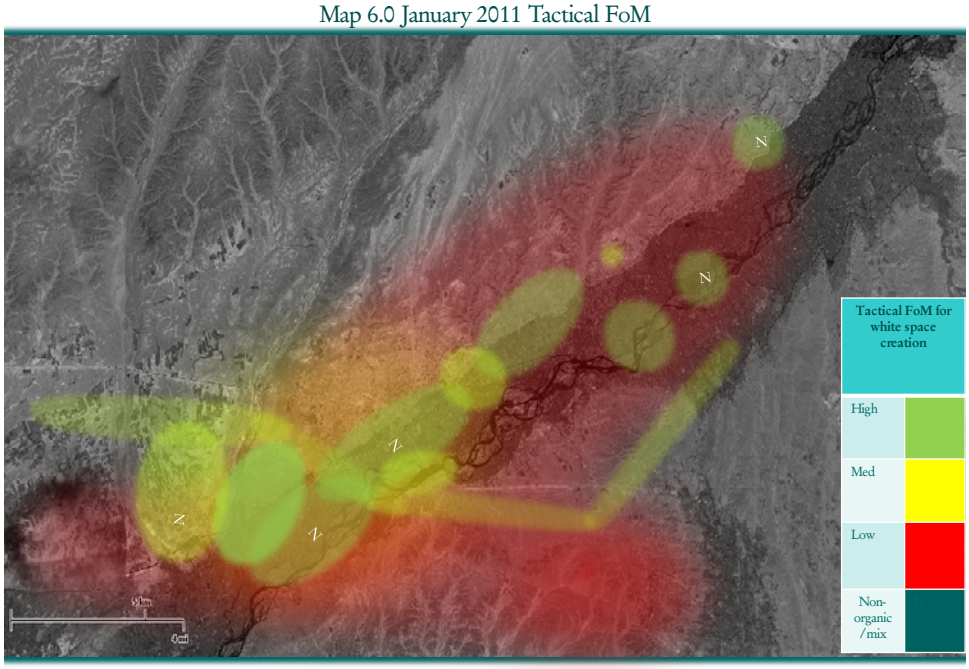
Compounds of Interest (COIs), Persons of Interest (POIs), Battle Group (BG), Special Operations Forces/Special Forces

Targets/COIs/POIs Generated for BG	Targets/COI/POIs Generated for SOF/SF	Exploited by BG	Exploited by SOF/SF
282	35	33	16

QEQ=TGxTA
= (282+35) x (33+16)
= 15533



Map 6.0 January 2011 Tactical FoM



(N) =MSOC, TF Y, ATF, BRF, BAG, AFG 7th and 4th Commandos

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ASSESSMENT JAN: Degree of Situational Understanding

Once kaotic networking was identified as the problem, efforts were made to resolve the issue with the establishment of extra liaison officers (LOs) at higher levels by which to channel information to certain assets, however the intention behind the structural adaption was once again not driven by battlespace agility, but a structural addition to attempt to keep the hierarchy relevant. No authority to act was taken away from the assets, and the adjustment was quickly was overtaken by the flat lining of information on the new tactical ground reporting tool (TiGR) system. It was putting end for the hierarchy to require complete information from lower echelons as they could retrieve a great part of it themselves with a terminal. Anyone with a TiGR terminal has access to the most up to date information from the field units everywhere, no matter what level of the hierarchy one was on.

SECTION 10 – Conclusion

In terms of optimality the hierarchal dynamic has a natural tendency not only to 'stovepipe' information, but to subject those restricted information streams to organizational timings not relevant to the pace of the battle. This has a negative effect on battlespace agility in a complex environment. When information is subject to hierarchal channeling, the speed and precision of the information flow and subsequent knowledge-action- effects conversion, becomes extremely open to perversions and delays by the structural requirements of each level in the hierarchy. Every time we delay the transfer of one piece relevant knowledge, for a fixed briefing - timeliness suffers and the knowledge deteriorates. Every time the knowledge is repeated, information precision is threatened. Like the' rumor'[15] game, every filter between the original source and the capacity to act, will without doubt, change the context to varying degrees. The fact that complex battlespaces require an increase in the quantity of relevant information to the planning process[16] exacerbates this phenomenon.

The quantity of information required at the edge for one unit engaged has increased greatly, hence the need for HTM, so the natural ownership of complete information has moved down the hierarchy out of pure necessity to tailor actions to fit the local complexities. This is reflected by the efforts to flat-line and support individual companies with an intelligence support cell. The traditional division of strategic, operational, and tactical levels that naturally promoted ownership of complete information at the top of the hierarchy are simply, gone. Between the technical and social developments of the last 20 yrs., in terms of information management is the major factor to the undermining of the traditional hierarchal organization. An issue identified by previous C2 research.[17] There is simply too much information at the tactical level, or at the edge, that can have strategic implications, and each little battlespace has its own characteristics. Therefore both technology and social developments in terms of network thinking promote the ownership of complete information to the lowest echelon of the current hierarchal organization. This of course undermines the hierarchy, generates friction, and promotes chaotic networking that negatively affects optimality.

We have built a 21st century ISTAR[18] platform that provides situational awareness; we have the 21st century information technologies that facilitate the flat-lining of information across an organization. This stands in stark contrast to the functional social organization of

[15] The rumor game refers to the popular party game of taking a group of people in a room, whispering a story to the first person, who whispers it on to the next until it returns to the originator; the result is usually a very different story than first told.

[16] From 1 dimension of focus, the military, to 6 dimensions of focus built into PMESII.

[17] See available CCRP research at www.dodccrp.org.

[18] Intelligence, Surveillance, Target Acquisition, and Reconnaissance

the military hierarchy that at best can be described as 19th Century. It cannot manage 4th generation ISTAR and 'flat- lining" information sharing technology such as 'sharepoint' or TiGR[19]. Essentially real-time intelligence can be made available in very short order across the board, up and down hierarchies as well as across different hierarchies. Both systems especially TiGR absolutely reduce the number of extra filters between information collected on a patrol and whoever is interested to none if they have a terminal. Furthermore, it will be the most up to date information as the network is updated and new information typed in one time by the patrol. These developments have rendered one more traditional role of the hierarchy obsolete, ensuring the re-distribution of complete information. The General - who is interested in what happened to section X, of a platoon X, of company X, of a regiment or battalion X, of battle group or brigade X, of a division or Army X out the field, can simply open the TiGR terminal and read the patrol report and see pictures or video, or can go on the sharepoint and read the company report posted for that day. No filters - up or down reducing timeliness. And no repetition filters reducing information precision and optimality. The hierarchal organization responded to the feeling of lack of complete information control reacts in a very logical way, it forms vertical networks of its own on specific topics of interest, where they feel they have the complete information control. This phenomenon worked directly against battlespace agility and efforts to self-synchronize. It did so by taking resources away from the edge, where the self-synchronization works best, and created a permissive environment for the competing lines of operation in the same area, undermining optimality.

The complication we have attached to modern warfare in complex environments is not due to EBAO, acknowledgement of the cognitive dimension, or network philosophies, but possibly from our attempts to force them into traditional organization and doctrine, that are not compatible. Unfettered by the history of the industrial age, the ease at which the INS exploits network social organization supported by GSM, is a perfect example. While the INS sends an SMS request directly to the person with authority to take action, our combatant must relay a request through at least 2 or more radio hubs, depending on the permission or asset being requested. At each hub, there is a risk for a delay.

To conclude, based on the data and participant observation experiences, there are significant issues regarding the traditional hierarchy's effectiveness in a modern complex battlespace environment. The sought after optimality in terms of generating knowledge, action, and effect argues overwhelming in favor of network organization. New social organizational roles are needed while some traditional echelons of the military hierarchy are no longer needed. In this regard, social network builders, managers, synchronization experts, or time & space experts/managers would be far more useful than many of the current echelons of hierarchy that actually just frustrate effectiveness. It must soon be time to acknowledge that asymmetric or irregular warfare is the conventional warfare of our age and adjust the fundamental organizational principles (conventions) of the military to manage that reality. This should include a doctrinal foundation for the creation of military organizations built on a social network philosophy, what we need is a revolution in military affairs (RMA) – 4th generation.

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