3.7 Modern Warfare: An M&S Examination of the Dynamic Impact of Warlords and Insurgents on State Stability

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Abstract: 9/11 changed the world as we knew it. Part of this change was to redirect the military of the United States away from focusing primarily on conventional conflict to a primary focus on unconventional or irregular conflict. This change required a tremendous learning effort by the military and their supporting research and development community. This learning effort included relearning of old but largely forgotten lessons as well as acquiring newly discovered knowledge. During the process of our immediate 9/11 response, we identified that we were engaged in Iraq and Afghanistan in an insurgency. Subsequently, our focus converged upon the description of insurgencies and the requirements for counterinsurgency. This paper argues that emerging conditions now allow the re-evaluation of the type of conflict occurring today and into the foreseeable future: that we, including the modeling and simulation world, emerge from a singular focus on orthodox insurgencies and start to consider the consequences and opportunities of the complexity of current conflicts. As an example of complexity, this paper will use the relatively common phenomenon of the Warlord or Warlordism. The paper will provide a definition of this phenomenon and then describe the implications for modelers. The paper will conclude by demonstrating the impact of incorporating this one rather prosaic complexity into an insurgency model, using agent based modeling (ABM).

1. INTRODUCTION

9/11 changed the World as we knew it. Part of this change was to redirect the military of the United States away from an almost exclusive focus on conventional conflict to a primary focus on unconventional or irregular conflict. This change required a tremendous learning effort by the military. The supporting research and development community was part of this learning process. This effort included relearning old but largely forgotten lessons as well as acquiring newly discovered knowledge.

The exigencies of our response to 9/11, largely wrapped up in Operations Enduring and Iraqi Freedom, and our general unpreparedness for the unconventional conflicts emerging from these operations, required a strategically rushed response. Clausewitz observed that the first requirement of war is to identify the form of war you are fighting. During the process of our immediate 9/11 response, we identified that, in Afghanistan and eventually in Iraq, we were fighting an insurgency. Subsequently, our focus converged upon the description of insurgencies and the requirements for counterinsurgency, or COIN. Even though security intellectuals are debating the pertinence of terms such as guerilla war, hybrid war, fourth generation war, unrestricted war, new war, etc to describe our current conflicts, operators have moved forward in labeling the current conflicts as insurgencies and our response, necessarily, as counterinsurgency, or COIN. This

deduction was solidified by the publication of the US Army and Marine Corps doctrine manual on Counterinsurgency: FM 3-24/ MCWP 3-33.5 [1].

FM 3-24 borrows from Joint Publication 1-02 in defining insurgency as: "…an organized, protracted politico-military struggle designed to weaken the control and legitimacy of an established government, occupying power, or other political authority while increasing insurgent control" [2]. The same manuals provide a highly relative definition of COIN: "Those military, paramilitary, political, economic, psychological, and civic actions taken by a government to defeat insurgency" [2]. There is a level of monolithism in these definitions centered on the strategic goals of an insurgency: the transfer of political power from one group to another. This monolithism is also found in the common works on insurgency, including older works such as Galula's *Counterinsurgency Warfare* and Trinquier's *Modern Warfare*, and newer works such as Smith's *The Utility of Force* and Kilcullen's *Accidental Guerrilla*.

This paper argues that emerging conditions now allow the re-evaluation of the type of conflict occurring today and into the foreseeable future: that we, including the modeling and simulation world, emerge from a singular focus on orthodox insurgencies and start to consider the consequences and opportunities of the complexity of current conflicts. This first requires an appreciation of the complexity of the current conflict environment and its inherent and potential complexity and an appreciation of the implication of that complexity.

As an example of this complexity, this paper will use the relatively common phenomenon of the Warlord or Warlordism. Warlords arise and thrive in the power vacuum of weak and failed states—just the type of conditions into which the future will take the US military [see 6]. The paper will provide a definition of this phenomenon and then describe the implications for modelers. The paper will conclude by demonstrating the impact of incorporating this one rather routine complexity into an insurgency model, using agent based modeling (ABM).

2. Describing the Warlord

Warlords are a common historical phenomenon. The specific term was coined to label local, militaristic leaders that dominated China between the collapse of the Ming Empire and the rise of the KMG [3]. However, all continents have seen Warlords. They existed in Europe through the Dark and later Ages following the collapse of the Roman Empire—Warlords and their retainers built many of the castles seen today in Europe. In North America, Comanche war party leaders represented Warlord traits [4]. Warlords existed in historical Japan. Today, Warlords are found in Africa and Southwest Asia, specifically in Afghanistan.

The word "Warlord" is a term applied by humans to label a particular social phenomenon. As with much from the social sciences, this is not a singularly discreet phenomenon with easily identifiable boundaries. Rather, it is location upon the vast spectrum of how humans organize themselves and, in the process, deal with other humans [3][4]. Thus, the definition and description of a Warlord and of Warlordism will always contain flexibility relative to the experiences and attitudes of the word's user. In the case of the term Warlord, an example of this flexibility may be found in the aspect as to whether the Warlord is or is not financially motivated [4].

This paper will use a broad definition of Warlord. A Warlord is an individual un-beholden to an external physical, intellectual, or emotional authority such as a state or cause; successful in leadership through charisma and other motivational qualities; possessing military organizational traits; and himself internally motivated by personal gain, be that gain physical (i.e. financial) or emotional (i.e. glory, reputation, etc).

This definition includes those elements that make the Warlord both similar

and dissimilar from the insurgent leader. The Warlord's personality and military organization allow him to collect and organize an effective force of retainers, personnel loyal first and, perhaps, only to him. This could be said of many leaders, including insurgent leaders. However, the insurgent leader—Mao, Begin, Castro, Pol Pot, Noriega, Zarqawi—are in word if not in action, subservient to some higher calling, such as communism, nationalism, or fundamentalism. Through their insurgency, they seek initial instability in order to weaken the state so they can subsequently replace it, whereupon the insurgent imposes its own, personally motivated stability. The Warlord is interested in only his own gain. He seeks instability to create the conditions in which he thrives. He has no interest in transitioning to some new, stable situation. Thus, in the initial phases of an insurgency, the Warlord will work with the insurgent if not disguise himself as one—the Warlord's interest parallel the insurgent's. Later in the insurgency, when the winning insurgent begins to impose his own stability upon the state, the Warlord will turn on the insurgent, continuing to destabilize the situation. The example of this is Charles Taylor who entered Sierra Leone allied with the anti-government revolutionaries of the Revolutionary United Front (RUF) to start an insurgency, and then killed off those revolutionaries to seize control of RUF for his personal profit [3].

3. Methods and Model Construction

In order to experiment with the concepts presented above we constructed an agent based model (ABM) of insurgent and warlord instability activity. We constructed the model for this experiment using NetLogo [7], a software which is ideally suited for this type of modeling and simulation work. Within NetLogo it is possible to create large groups of agents, and by assigning them a set of rules to follow observe the aggregate results of each one's individual actions.

The model consisted of a population of 1,000 agents with varying levels of initial instability. The model also included a state security force trying to maintain stability and support for the current ruling group, an insurgent influence attempting to create instability and subsequently win populace support for their views, and a Warlord influence seeking to create and maintain instability. In order to test our hypothesis that Warlord influence will result in greater instability by complicating the re-stabilization process, we included a switch to allow the model to create a baseline by running without the Warlord influence and then run with the Warlord influence to measure the significance.

The model consisted of five variables of interest: the insurgent influence level, the security force influence level, the warlord influence level, the initial instability within the model, and the threshold for agents to become unstable. The influence levels represented the amount an agent's instability variable can change based on interaction with the security, insurgent, or warlord factions. The greater the influence the more the faction could change the agent's stability level. The initial instability within the model allowed us to seed the simulation with some level of instability. This allowed us to experiment with relatively stable situations or those already in a state of relative instability. Finally, the instability threshold allowed us to experiment with how resilient an agent is to becoming unstable. The higher the threshold the more negative influence an agent needed to become unstable.

During each run of the model the following procedures occurred: populace members received influence from the security force, the insurgent force acted to influence agents, if warlords are present they acted to influence agents, agents calculated their instability, the model calculated the overall instability. During the security force interaction, populace agents had a 15% chance of receiving influence from the security force. Because the force's goal was to maintain stability, they operated

throughout the entire system. However, to ensure they were not omniscient and thus able to constantly positively influence all agents, the 15% level meant on each run roughly 15% of the entire populace, or 150 agents, would receive positive influence. The insurgent would always reach a group of agents. However, which group they reached was random. This allowed us to mimic the way insurgent groups operate, not always attacking the same target day after day but selecting and attacking vulnerable targets. In the model, Warlords operated in a similar manner, always interacting with a random group of populace members. The main difference between the groups was that Warlords would only instigate instability but the insurgent would instigate instability and try to win support for their cause. During the instability check procedure, all agents calculated whether they had crossed the threshold to become unstable. The number of agents who were unstable was then fed to a master variable that determined when 60% of the populace had reached instability. Once this occurred, the model considered the populace unstable and noted the time. This also triggered a change in behavior in the model, with initial instability resulting in an attempt by insurgents to return order and support for their goals, while warlords simply continued to seek instability. Once this process began the model would note when a new stable rate occurred, if it ever occurred. The second instance of stability represents a shift by the populace to support of the insurgent. If 60% of the populace never reach instability, the model would never become unstable, and likewise if the model became unstable but never reached a second instance of stability this was noted.

To support our contention that the community expand its perspective beyond the traditional insurgency conflict model, we wanted to illustrate the impact of adding complexity to that model, specifically adding the rather common phenomenon of Warlordism. We thus created an experiment. We intentionally kept the experiment simple. The design required creating a simple insurgency model within an ABM. We based this model on a generic insurgency scenario. The scenario postulated a small group disaffected against the government, i.e. the insurgents. That group desired to replace the government. To do so, they first had to remove the link between the existing government and the populace, i.e. create instability. Once instability reached a critical mass, the group then attached the population to themselves, i.e. create insurgent sponsored stability.

The design included creating a baseline. This was a scenario without a Warlord presence. The next part of the design was to include a Warlord and then determine if there was an impact, measure the impact, determine what that impact was, and measure the significance of the impact. The Warlord sought instability. While the insurgent focused on causing instability, the Warlord served as his ally. However, once the model reached the tipping point and the insurgent started to focus on causing stability, the Warlord would work against the insurgent. The experiment anticipated that in the initial phase, the Warlord would serve as an accelerant. In the second phase, the Warlord would serve as a modulator.
To keep the experiment simple, it did not include any outside COIN force, i.e. an intervening United States. It did, however, include a local security force. This force worked to maintain stability. The local security force acted upon the entire population but with reduced effectiveness due to being spread out. Additionally, the security force lost influence near the tipping point when the population became instable.

3.1. Experimental Protocol

We conducted 17,280 runs of the model under varying conditions. The main purpose of the experiment was to measure the impact of adding a Warlord to a conflict by determining if the impact of the inclusion on the speed that a population would both become initially unstable and subsequently re-stabilizing under the insurgent influence. While this was the main thrust of the

experiment, we also examined the impact upon results of the variables governing insurgent influence, Warlord influence, security influence, instability thresholds, and initial instability within the model.

4. RESULTS

The results of the experiment demonstrate the significance of adding complexity into an insurgent model. The inclusion of a Warlord presence in the model supported our hypothesis that including the Warlord presence would result in faster times to initial instability but a much longer run to reach a new level of stability. Tables 1 and 2 below outline the number of steps it took the model to reach instability and then re-stabilize (ticks), the number of turns it took the model to reach initial instability (un-stable-turn), and the number of times out of 8,640 trials that the model reached a level of initial instability. As the tables show, when the Warlord was not present, it took the model almost 300 additional turns to complete. Completion meaning the model reached an initial unstable level and then returned to stability. In addition, it took over 40 more turns to reach the initial instability. These numbers represent a 36% increase in steps to complete and 26% increase in time taken to reach initial instability when there is no Warlord presence. The number of unstable trials also demonstrates that Warlord presence greatly increased the likelihood of instability as there was a 59% increase in trials where instability occurred when the warlord was present.

Table 1: No Warlord present

Warlord Off	
ticks	**un-stable-turn**
803.75	177.06
Number of trials unstable	
1928	

Table 2: Warlord present in the model

Warlord On	
ticks	**un-stable-turn**
512.89	130.49
Number of trials unstable	
4747	

In order to determine if the results we observed in these experiments were significant we conducted an Independent Samples T-Test on the data. The results of the test appear in Table 3 and demonstrate that there was a significant difference between the two sets of experiments. This confirms our observation that including a Warlord in the model will cause quicker time to initial instability (p-value < .01), but result in a longer amount of time until a new level of stability occurs (p-value < .01).

Table 3: Two Sample T-Test

Group Statistics

	WarLord	N	Mean	Std. Deviation	Std. Error Mean
Ticks	.00	8640	803.7503	423.77172	4.55906
	1.00	8640	512.8897	421.80117	4.53786
UnstableTurn	.00	8640	39.5109	109.62365	1.17936
	1.00	8640	71.6947	131.61067	1.41591

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
Ticks	Equal variances assumed	11.919	.001	45.217	17278
	Equal variances not assumed			45.217	17277.625
UnstableTurn	Equal variances assumed	235.898	.000	-17.465	17278
	Equal variances not assumed			-17.465	16731.166

Independent Samples Test

		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
Ticks	Equal variances assumed	.000	290.86065	6.43251
	Equal variances not assumed	.000	290.86065	6.43251
UnstableTurn	Equal variances assumed	.000	-32.18380	1.84274
	Equal variances not assumed	.000	-32.18380	1.84274

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
Ticks	Equal variances assumed	278.25228	303.46902
	Equal variances not assumed	278.25228	303.46902
UnstableTurn	Equal variances assumed	-35.79575	-28.57184
	Equal variances not assumed	-35.79576	-28.57183

In addition to the findings regarding the presence of Warlord impact on instability, we examined how the other variables related to the time taken to reach instability. In order to determine what relationships existed and if they matched our hypothesis', we employed regression analysis. Our hypothesis was that insurgent influence, stabile influence, initial instability, and the warlord influence would all have negative relationships with the time taken to reach instability. By this we mean that where these variables increase, time to instability would likely decrease. In addition, we included the instability threshold in the regression, hypothesizing that the higher the threshold the longer it would take the model to reach instability. Tables 3 and 4 below display the regression statistics.

Table 4: Regression without Warlord

Regression	
Multiple R	0.61
R Square	0.37
Adjusted R2	0.37
Stand Error	104.14
Trials	8640

	Coefficients	*Standard Error*	*t Stat*	*P*
Intercept	157.72	5.59	28.21	0.00
ins-inf	-43.48	0.67	-64.97	0.00
stab-inf	32.01	0.71	44.83	0.00
initial	-0.63	0.07	-9.01	0.00
war-inf	-7.03	0.53	-13.20	0.00
threshold	1.59	0.07	23.15	0.00

Table 5: Regression with Warlord

Regression	
Multiple R	0.61
R Square	0.37
Adjusted R2	0.37
Stand Error	104.14
Trials	8640

	Coefficients	*Standard Error*	*t Stat*	*P*
Intercept	157.72	5.59	28.21	0.00
ins-inf	-43.48	0.67	-64.97	0.00
stab-inf	32.01	0.71	44.83	0.00
initial	-0.63	0.07	-9.01	0.00
war-inf	-7.03	0.53	-13.20	0.00
threshold	1.59	0.07	23.15	0.00

For almost all of our hypotheses, we were able to confirm our initial projections. However, we did discover one interesting note. When the Warlord presence did not exist, the relationships between insurgent influence and stable influence were opposite of what we expected, i.e. in these runs, an increase in insurgent influence would result in a longer time to instability and increased stable influence would result in quicker time to instability. This may be a result of the way we ran our experiment. Due to computational limitations, we choose only to use a strong security force and a weak security force. Because we did not sample across more variable values, this may be a demonstration of sensitivity within the model. In future runs, we would experiment across more variable values and examine whether the results remain the same. Despite this finding, the model appears to function properly and we were able to confirm our main hypothesis that the presence of a Warlord influence will result in quicker time to initial instability, but a prolonged time to re-stabilize.

5. CONCLUSION

The results of this experiment support proposal of the requirement to move beyond simple applications and incorporate complexity in our appreciation of contemporary conflict. Our experiment confirmed our initial hypothesis that the inclusion of a complicating factor, such as a Warlord, will significantly affect an insurgency model. This research does not approach addressing all of the variables that would inevitably be present in an actual insurgency. Thus, it is not a beginning to better understanding but, hopefully, a beginning to a beginning.

6. REFERENCES

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