

The Importance of Decision-making in Major Combat Operations:  
Applying a Statistical Model to Understand Battle

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**Introduction:**

What makes the difference between succeeding or failing in combat operations and campaigns? Over the past ten years, the Major Combat Operations Statistical Model (MCOSM) has evolved into a successful, theoretically-based, statistical model that explains success and failure in major combat operations of the modern (1939 onwards) era. The model is derived from a theory of strategic organizational change, though it has been embellished due to feedback by those who have contributed data to the model. This paper presents the latest findings from the MCOSM. The analysis clearly and empirically demonstrates the critical importance of effective command and control systems in contributing to the success of such operations.

To accomplish its tasks, the paper is organized in the following sections. First, the paper will address the theoretical basis for the model. Second, it will summarize the structure of the model. Third, it will then turn to a discussion of the data generation, sampling and measurement issues. Fourth, the paper will present the findings of the latest analysis based on the latest iteration of the model. Fifth, the paper will consider what the findings mean, focusing on their application and importance to the subject of command and control. Sixth, and finally, it will make conclusions and recommendations concerning further use and development of the model.

**Theoretical Basis for the Model:**

The development of the model began with a conceptualization of war being a societal behavior of physical violence that sought some degree of social change. This meant that one side in a war wanted to change the conditions of its opponent, a change

that was so disagreeable to the opponent that it resorted to actively defending itself against the change. War in this way can be understood to be an extreme form for resolving social conflict.<sup>1</sup>

Major combat operations are the vehicle for achieving the desired change and resolving the conflict. Organizations, armed forces, conduct these operations. It follows therefore that the armed forces of one side seeks to change the behavior of the armed forces of the opponent(s.) Thus, it makes sense to seek a theory for understanding war's resultant social change(s) through examining possible organizational change theories.<sup>2</sup>

The specific organizational change theory selected for operationalization was Noel Tichy's Strategic Change Management.<sup>3</sup> This theory, focusing on accounting for discontinuous organizational change – a characteristic of organizations in combat – argued that to successfully change, organizations had to simultaneously account for three different perspectives, or systems, of that change: technical, cultural and political.<sup>4</sup> The technical system focuses on the tasks necessary for the organization to conduct the change; the political system addresses the decisions necessary to allocate appropriate resources to deal with the change; the cultural system concentrates on the organizational values and beliefs coupled with the particular management style of method of personnel

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<sup>1</sup> See Jonathan E. Czarnecki, "Oracle of Battle: Forecasting the Outcome of Joint Combat Operations, a First Approach," International Symposium of Forecasting, Sydney, Australia, July 4, 2004. This idea is directly derived from the theories of social conflict found in Pitirim A. Sorokin, Society, Culture and Personality: Their Structure and Dynamics; New York: Harper and Brothers. 1947, Chapter 33, especially pp. 507-514.

<sup>2</sup> A comprehensive and critical review of organizational change theories can be found in Marshall Scott Poole and Andrew H. Van de Van (editors), Handbook of Organizational Change and Innovation; New York: Oxford University Press, 2004.

<sup>3</sup> Noel Tichy, "The Essentials of Strategic Change Management," *Journal of Business Strategy*, Vol. 3, Issue 4, pp. 55-67.

<sup>4</sup> Ibid, p. 57.

selection, retention and development.<sup>5</sup> These perspectives could be focused through leadership using effective information processing to achieve the desired changes. Tichy identified three tools by which organizations could affect these three systems.<sup>6</sup> These tools are (1) the mission or strategy of the organization; (2) organizational structure; and (3) the human resource management system. Working together, Tichy believed that a coherent “strategic knot” composed of the three systems could be developed.

The strategic knot theory is attractive for modelling combat operations for two reasons. First, it is a theory built to account for sudden, unexpected change; this meshes very well with the context of combat. Second, it is a theory that has a body of research supporting its validity.<sup>7</sup>

The Major Combat Operations Statistical Model (MCOSM) can be understood to be an *interpretation* of Tichy’s strategic knot organizational change theory to fit the very different environment of war, as opposed to the peaceful (though often ruthless) competitive environment.

### **Structure of MCOSM:**

The model is composed of one dependent variable, *operational success*, and seven independent variables, *decisions, timing, integrated combat power, training, information processing, organizational leadership, and opponent*. The dependent variable, *operational success*, is the measure of change in terms of efficiency and

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<sup>5</sup> Ibid. pp. 61-64.

<sup>6</sup> Ibid. p. 58.

<sup>7</sup> Tichy followed up his articles with a research program that he captured in his Managing Strategic Change: Technical, Political, and Cultural Dynamics; New York: Wiley, 1983.

effectiveness of the change due to the combat operation/campaign. Early in the model's development, *integrated combat* power was conceived to mimic Tichy's Technical System, *decisions* the Political System, and *training* the Cultural System.<sup>8</sup> Over time, *timing* was added to the Technical System, *information processing* to the Political System, and *organizational leadership* to the Cultural System. *Opponent* was the final independent variable added to the model, to account for very unique change environment of combat operations.<sup>9</sup> The definitions of these variables are shown in Table 1 below:

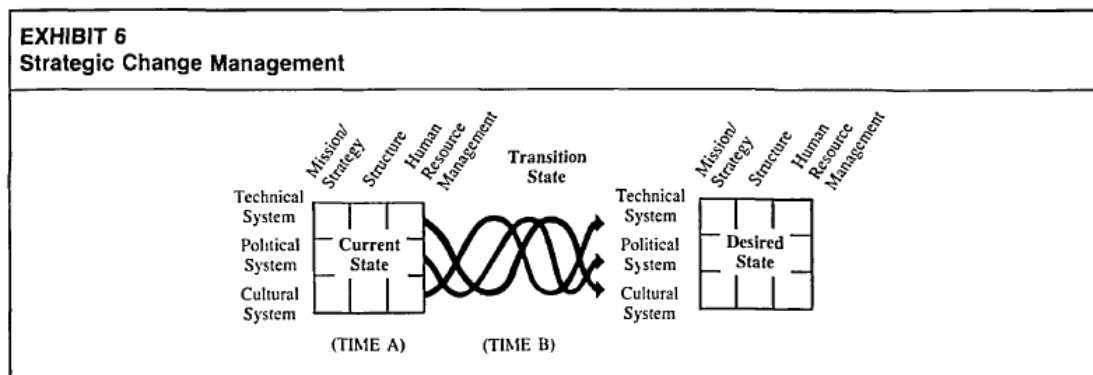
Definitions of Independent Variables	
1.	<b><u>Training</u></b> means the degree to which an armed force is individually, morally and collectively trained to accomplish the specific operation.
2.	<b><u>Integrated Combat Power</u></b> means the combined energy and mass effects, including Logistics and Mobility, across the operational environment.
3.	<b><u>Decisions</u></b> mean the degree of rationality and speed of decision-making.
4.	<b><u>Information Processing</u></b> means the accuracy of information perceived (sensed), and the degree of distribution to those who need it.
5.	<b><u>Timing</u></b> means the sequencing and synchronization of operations.
6.	<b><u>Organizational Leadership</u></b> means the process of transforming information into action to achieve objectives and/or effects.
7.	<b><u>Opponent</u></b> means the enemy in terms of number and quality.
Definition of Dependent Variable	
<b><u>Joint Operational Success</u></b> means the degree to which the specific major combat operation succeeded in achieving its objectives and/or effects.	

**Table 1**  
**Definitions of MCOSM Variables**

<sup>8</sup> Czarnecki, "Oracle of Battle...."

<sup>9</sup> These additions reflected the consensus feedback of the student judges who made the specific assessments for each operation/campaign. As part of their assessment, they were asked to recommend changes to the model to improve its performance.

Tichy's theory does not distinguish any direction of causality, nor does it specify the precise relationships among his systems and tools; the most descriptive he gets is in a graphic from his "Essentials of Strategic Management" article shown in Figure 1 below:



**Figure 1**  
**Tichy's Relationships in TPC Theory**

Throughout the MCOSM's analytic history, no temporal or causal precedence of the independent variables was considered.

### **Measurement, Data Generation, and Sampling:**

The unit of analysis for MCOSM is the particular major combat operation/campaign. Measurement of the dependent variable originally attempted a bi-dimensional efficiency-effectiveness visual scale; this approach proved impracticable, and so a seven-point Likert scale measuring success (from highly unsuccessful to highly successful) substituted for the visual scale. The scale appears to be highly reliable (Cronbach's  $\alpha$  exceeding .86 over repeated sample comparisons.)

Measurement of the independent variables requires two assessments, one for *quality of the variable to the operation* and one for *importance of the variable to the operation*. The *importance* assessment works as a possible weighting factor when

multiplied by *quality*. Both assessments use a seven point Likert scale (very low quality to very high quality; highly unimportant to highly important.) Originally, the independent variables, like the dependent variable, *joint operational success*, were to be bi-dimensional visual scales; similar to the dependent variable, this approach became unworkable and the Likert scales substituted. The independent variables exhibit good reliability (Cronbach's  $\alpha$  is .79 when including the last cases to the model in 2013.)

The model used data generated by subject matter experts who assessed a specific operation/campaign using the scales of the independent and dependent variables. The subject matter experts were student military officers doing laboratory reports on the operations.<sup>10</sup> The efficacy of this approach was an application of the psychometric Law of Comparative Judgment, in this case using separate groups of student officers to independently assess the same operations; the correlation among the groups exceeded  $r = .92$ .<sup>11</sup>

The original focus of the research program that developed the model was modern joint military operations in the post-1975 period; the sample population was all such operations in that timeframe in which there was adequate English language documentation to make the assessments. There were two reasons for this population selection. First was the working hypothesis that joint combat operations, as currently understood, emerged from the wake of the American experience in Vietnam. Second and relatedly, the original interest for the model was American combat operations.

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<sup>10</sup> The officers were students of the Joint Maritime Operations course, part of the U.S. Naval War College curriculum for professional military education. Since the lab report was a graded event, there was significant incentive for the officers to perform their assessments well.

<sup>11</sup> Discussion of the Law of Comparative Judgment can be found in Jum C. Nunnally, Psychometric Theory; New York: McGraw-Hill, 1967, p.53.

By 2008, four years after development began, the model demonstrated significant explanatory power (adjusted  $R^2 > .70$ ); however, presentation of the model at various conferences revealed two major flaws.<sup>12</sup> First, the explanatory power of the model was limited to only the American experience, and thus could not become a general model for understanding joint combat operations. Second, limiting the sample population to only the post-1975 period assumed that the ways American conducted combat operations after 1975 was significantly different than before this year; there simply was no justification for this assumption.

To rectify the model's flaws, the sample population for the model expanded to encompass the entire modern period and to include all, not just American, combat operations/campaigns for which there were sufficient English languages references.<sup>13</sup> A stratified random sampling for operations' selection was applied, with the strata being year and operation. By 2013, there were ninety-six (96) operations/campaigns in the MCOSM database.

### **Findings:**

Scattergram observation of the relationship between the dependent variable and each of the independent variables reveals a pattern of linearity; similarly, the scattergram relationships among the independent variables also demonstrates linearity. The weakest relationship, however still linear, is between the dependent variable and *opponent*.

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<sup>12</sup> Jonathan E. Czarnecki, "Understanding Modern Operational Warfare: Lessons from the Extreme Edge of Politics," presented at the Midwest Political Science Association Annual Conference, Chicago, Illinois, April 4, 2008.

<sup>13</sup> The modern period of combat operations encompasses the years 1918 forward, according to Stephen Biddle, Military Power: Explaining Victory and Defeat in Modern Battle; Princeton, New Jersey: Princeton University Press, 2004. At this (2008) stage of model development, the expansion of years started in 1939; the research approach was that of evolution and expansion with checks at each expansion.



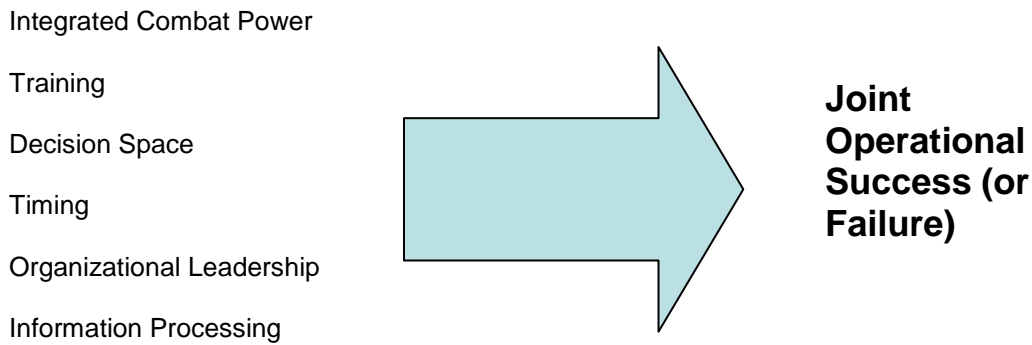
The correlations among the model variables are shown in Table 2 below:

	<i>Opnl Success</i>	<i>Decisions</i>	<i>Org Ldrshp</i>	<i>Timing</i>	<i>Training</i>	<i>Int Cbt Power</i>	<i>Info Process</i>	<i>Opponent</i>
Opnl Success	1.00							
Decisions	0.75	1.00						
Org Ldrshp	0.60	0.71	1.00					
Timing	0.64	0.62	0.52	1.00				
Training	0.54	0.45	0.40	0.50	1.00			
Int Cbt Power	0.61	0.50	0.41	0.57	0.52	1.00		
Info Process	0.62	0.62	0.55	0.53	0.48	0.48	1.00	
Opponent	-0.44	-0.41	-0.35	-0.48	-0.37	-0.40	-0.39	1.00

**Table 2**  
**Correlations among MCOSM Variables**

All correlations are significant to at least the .01 level.

The starting regression model is depicted in Figure 2 below:



**Figure 2**  
**Visualization of Starting MCOSM Regression Model**

The results of the application of the linear regression model are shown in Table 3 below:

Coefficients <sup>a</sup>										
Model	Unstandardized		Standardized	t	Sig.	Correlations			Collinearity	
	Coefficients		Coefficients			Zero-			Statistics	
	B	Std. Error	Beta			order	Partial	Part	Tolerance	VIF
1 (Constant)	-.177	.773		-.229	.819					
Decisions	.420	.104	.399	4.030	.000	.748	.395	.244	.374	2.670
Orgnl	.063	.100	.056	.631	.530	.603	.067	.038	.472	2.119
Ldrshp										
Timing	.140	.100	.124	1.401	.165	.641	.148	.085	.473	2.114
Training	.120	.093	.099	1.284	.202	.538	.136	.078	.624	1.603
Int Cmbt	.223	.094	.191	2.366	.020	.612	.245	.143	.566	1.767
Pwr										
Info	.143	.093	.128	1.533	.129	.624	.161	.093	.527	1.899
Process										
Opponent	-.040	.083	-.034	-.478	.634	-.441	-.051	-.029	.719	1.390

a. Dependent Variable: Opn Success

**Table 3**  
**Initial MCOSM Regression Model Results**

The summary of the initial regression is shown below:

Model Summary <sup>b</sup>					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.822 <sup>a</sup>	.676	.651	1.150	1.704

a. Predictors: (Constant), Opponent, Orgnl Ldrshp, Training, Int Cmbt Pwr, Info Process, Timing, Decisions

b. Dependent Variable: Opn Success

Clearly, MCOSM has significant explanatory power, and it does so with an economy of independent variables. However, as one looks closely at Table 3, one point stand out: of the seven independent variables, only *decisions* and *integrated combat power* significantly contribute to explaining joint operational success. This is inconsistent from the hypothesized interpretation of Tichy's strategic change (TPC or Strategic Knot) theory. Why?

The first clue for the failure of the hypothesized MCOSM interpretation of the Tichy theory can be found by observing the correlation coefficients in Table 2; all the variables are at least moderately correlated. Thus, multicollinearity may be present. The VIF multicollinearity measure, from Table 3, appears to indicate that there is at least some multicollinearity, particularly among the *decisions*, *organizational leadership*, and *timing* variables.<sup>14</sup> This evidence is partially offset by the tolerance measure of multicollinearity also found in Table 3; only if tolerance is  $< .10$  can multicollinearity be considered, and no tolerance measures among the MCOSM independent variables meet that criterion.<sup>15</sup>

A second clue for the failure of the hypothesized relationship emerges from examination of the free-form unrotated factor pattern matrix. Factor analysis is an excellent exploratory method for discerning possible underlying constructs; if three, or

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<sup>14</sup> Variable Inflation Factors (VIF) indicate the degree of multicollinearity among variables. There is widespread disagreement in the applied statistics field concerning just what is the minimum VIF that demonstrates multicollinearity, ranging from greater than 1 to over 10. Here, I use a conservative approach, using a VIF of greater than 2 to indicate at least some multicollinearity. For general reference, consult Jacob Cohen, Patricia Cohen, Stephen G. West and Leona S. Aiken, Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences (3<sup>rd</sup> ed.); New York: Routledge, 2003, pp. 421-425.

<sup>15</sup> Ibid, p. 423.

four with consideration of *opponent*, factors are iterated, that would be some evidence of Tichy's theory.<sup>16</sup> However, the factor pattern matrix of the independent variables, left to itself, converges to one factor, explaining over eighty-eight (88) percent of the factor variance. What this means is that all the independent variables appear to measuring a common underlying construct, or structure. Of course, that underlying construct is measured by the dependent variable, *joint operational success*. Also, this finding seems to indicate that any forced factors would necessarily be correlated.<sup>17</sup>

That the independent variables all appear to measure the same phenomenon is desirable, but there can be too much of a good thing; one cannot easily and directly observe the inter-relationships of the independent variables. However, one can spatially examine these inter-relationships to see if there is any evidence of the Tichy theory through forcing factors and rotating them to convergence. Of course, one must have a very good reason for doing so; in this case such a reason exists – the theory indicates that there should be at least three (technical, political and cultural) factors and one unique environmental factor, *opponent*. When this method is applied, the results are shown in Table 4 below:

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<sup>16</sup> See Stanley A. Mulaik, Foundations of Factor Analysis (2<sup>nd</sup> ed.); Boca Raton, Florida: Chapman & Hall/CRC, 2010, p.2.

<sup>17</sup> Ibid. p. 328. If the factors, or components, are correlated, then it is appropriate to use oblique rotation of the factor space to maximize the isolation of the factors or components.

Pattern Matrix <sup>a</sup>				
	Component			
	1	2	3	4
Decisions	.810	.031	-.026	.168
Orgnl Ldrshp	.935	.046	.017	-.015
Timing	.291	.045	-.187	.590
Training	.001	-.888	-.034	.125
Int Cmbt Pwr	-.042	-.107	.028	.920
Opponent	.035	.000	1.013	.010
Info Process	.621	-.379	-.072	-.071
Extraction Method: Principal Component Analysis.				
Rotation Method: Oblimin with Kaiser Normalization.				
a. Rotation converged in 10 iterations.				

**Table 4**  
**Forced Four Factor Pattern Matrix for Independent Variables**

In Table 4, only the first component, or factor, has a statistically significant strength (expressed as eigenvalues.) However, the pattern of factor loadings across components appears to follow what one expects from Tichy's theory. The first component, appears closely related to the political aspect, the second related to the cultural aspect, the third is the unique environmental component of combat, the opponent, and the fourth tracks closely to the technical aspect of Tichy's theory. It is also of interest that the first component is comparable to the variables that make up the CCRP Command and Control Approach Space, in that the *decisions* variable is analogous to how information is allocated in the C2 Approach Space, *organizational leadership* is similar to patterns of

interaction, and *information processing* can be understood in terms of information distribution.<sup>18</sup> Thus, one can refer to component 1 as the C2 factor.

The pattern loadings in Table 4 guide development of two factor scales, the first of which is referred to above, the C2 factor. The second can be understood to be a Capabilities factor, composed of *integrated combat power* and *timing*.<sup>19</sup> The other two components are defined by single variables (*training* and *opponent*.) A factor analysis of these scales and components, forcing the a priori four factors, reveals a clearer visualization of the relationships, here shown in Table 5:

Pattern Matrix <sup>a</sup>				
	Component			
	1	2	3	4
C2I Factor	1.000	.000	.000	.000
Capab Factor	.000	.000	.000	1.000
Training	.000	.000	-1.000	.000
Opponent	.000	1.000	.000	.000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 7 iterations.

**Table 5**  
**Forced Factor Pattern Matrix for Factor Scales**

Notice that the components are purely defined. Table 6 reveals how much variance among the scales and variables is explained.

<sup>18</sup> David S. Alberts, Francois Bernier, Kevin Chan, Marco Manso, *C2 Approaches: Looking for the Sweet Spot*, Report NSD 5036, Alexandria, VA: Institute for Defense Analysis, October 2013.

<sup>19</sup> The scales are calculated thru adding the values of the separate independent variables and dividing by the number of independent variables in the scale. The scales assume equal weighting of the participating variables. N.B. using normalized factor loadings as weights did not result in meaningful differences in succeeding statistical analyses.

Total Variance Explained							
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings <sup>a</sup>
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	2.548	63.695	63.695	2.548	63.695	63.695	1.907
2	.647	16.168	79.863	.647	16.168	79.863	1.582
3	.485	12.135	91.999	.485	12.135	91.999	1.732
4	.320	8.001	100.000	.320	8.001	100.000	2.027

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

**Table 6**  
**Total Variance (among scales and variables) Explained**

As with the earlier case of the separate independent variables, only the first component, the C2 Factor, significantly contributes to explaining the variance of all the scales and variables. The C2 Factor alone explains over sixty-three percent of that total variance. The weak support of the Tichy strategic change theory (TPC Theory) remains as it was with the separate independent variables.

The dimension reduction accomplished by the above factor analyses sets up the revisiting of multiple regression for explaining the dependent variable, *joint operational success*. The results are presented in Tables 7 and 8:

Model Summary <sup>b</sup>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.812 <sup>a</sup>	.659	.644	1.161	.659	43.927	4	91	.000	1.745

a. Predictors: (Constant), Training, Opponent, C2I Factor, Capab Factor

b. Dependent Variable: Opn Success

**Table 7**  
**Summary of Multiple Regression for Factor Scales, *Training*, and *Opponent***

With just four independent scales and variables, the regression explains all but two percent of the variance in the original regression with seven variables; efficiency in the model is improved.

Coefficients <sup>a</sup>										
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance
1	(Constant)	-.389	.773		-.503	.616				
	C2I Factor	.627	.108	.495	5.814	.000	.762	.520	.356	.518
	Capab Factor	.398	.119	.306	3.350	.001	.707	.331	.205	.448
	Opponent	-.038	.084	-.033	-.457	.649	-.441	-.048	-.028	.724
	Training	.115	.094	.094	1.224	.224	.538	.127	.075	.633

**Table 8**  
**Details of Factor Scale and Variable Regression**

Only the two factors, C2 and Capability, significant contribute to explaining *joint operational success*.<sup>20</sup> These two factor scales alone account for over eighty percent of the total explained variance.

<sup>20</sup> A variety of alternative regression analyses were examined, in which the explanatory order of the independent variables was changed, based on the possibility that all the independent



## Analysis:

In its latest iteration, the Major Combat Operations Statistical Model (MCOSM) explains over sixty-five (65) percent of the variance in success or failure in joint operations. It accomplishes this with just four input variables and scales. The model is both efficient and robust. The two competing models that are similar to MCOSM in explaining why one side succeeds or fails in war do so with a far larger inventory of explanatory variables and scales.<sup>21</sup> If MCOSM is considered valid, then the two most important determinants for success or failure in major combat operations and campaigns are (1) the command and control systems and methods, as understood by the C2 Approach Space, employed by the combatants, and (2) the integrated capabilities and timing of those capabilities similarly employed.

The model is much less successful as an interpretation or illustration of Noel Tichy's strategic change theory. Only the technical and political aspects of his theory demonstrate significant explanatory power of the changes wrought by combat operations. It is possible that MCOSM contains insufficient definition of the cultural aspects of Tichy's theory to truly reflect his ideas. But MCOSM used the theory as an organizing reference, not as a validating concept; the model's purpose was meant only as an interpretation of strategic change theory.

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variables and scales do not exert the influence on the dependent variable at the same time. However, no significant differences from the results in Table 8 were found.

<sup>21</sup> The two are found in (a) Stephen Biddle, Military Power: Explaining Victory and Defeat in Modern Battle; Princeton, New Jersey: Princeton University Press, 2004, and (b) the SWORD model is documented in two places, Max Manwaring and John T. Fishel, "Insurgency and Counterinsurgency: Toward a New Analytic Approach," *Small Wars and Insurgencies* (Winter 1992), Frank Cass, London, pp. 273-305. The best and most succinct description of the model is found in John T. Fishel, "War by Other Means? The Paradigm and its Application to Peace Operations," in John T. Fishel (editor), The Savage Wars of Peace: Toward a New Paradigm of Peace Operations; Boulder, Colorado: Westview Press, 1998, pp. 3-17.

## Conclusions and Recommendations:

This paper has presented the latest iteration of the Major Combat Operations Statistical Model, having reviewed its theoretical basis, presented its structure, validation, findings and analysis. The major conclusion is straightforward: MCOSM works as a model for understanding why one side in a major combat operation wins or loses. It does have its limits, however. Sixty-five percent explained variance leaves thirty-five percent unexplained. What accounts for this?

Two reasons seem to be responsible for the limits to MCOSM's explanatory power. First, even though the model's major virtue is its simplicity, perhaps it is too simple. That is, there may be additional concepts relevant to major combat operations not adequately captured in the model. For example, several judges who assessed operations for the model's database have commented on the need to more clearly express the role of logistics and intelligence in the model; these two concepts could be additional technical aspects in the Tichy framework. Also, as mentioned earlier, the fact that only the *training* variable reflects the cultural aspect of Tichy's theory seems incomplete. Tichy himself refers to culture as, "values, objectives, beliefs, and interpretations shared by organizational members."<sup>22</sup> Training clearly represents only one dimension of this idea.

The second reason for the amount of unexplained variance may be attributable to problems with measurement, hitherto unidentified, or, equally likely, Clausewitzian change or Machiavellian fortune. Both these gentlemen believed strongly that even in the presence of excellent planning, probability plays a significant role in determining the

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<sup>22</sup> Noel Tichy, "The Essentials of Strategic Change Management...", p.59.

outcome of battle. Here this inescapable fact of organizational life, especially in the environment of active opposition, must have its due.

In the end, MCOSM really does state what should be obvious to military practitioners of operations and campaigns. Command and control arrangements and the ability to well utilize the capabilities available are paramount to maximizing the chances of success on the battlefield. The contributing value of the model is that here it can quantify just how important those factors are in that maximization.

## Explains

	Training	ICP	Opponent	C2I Factor	Operational Success
Training	1.00				
ICP	0.52	1.00			
Opponent	-0.37	-0.40	1.00		
C2I Factor	0.55	0.59	-0.49	1.00	
Operational Success	0.54	0.61	-0.44	0.79	1.00
All correlations significant to the .01 level of significance					

Regression Statistics	
Multiple R	0.81
R Square	0.66
Adjusted R Square	0.64
Standard Error	1.16
Observations	96.00

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.42	0.77	-0.55	0.59
Training	0.11	0.09	1.17	0.25
ICP	0.23	0.09	2.42	0.02
Opponent	-0.04	0.08	-0.44	0.66
C2I Factor	0.81	0.11	7.16	0.00

1	2
3	4
5	6
7	

