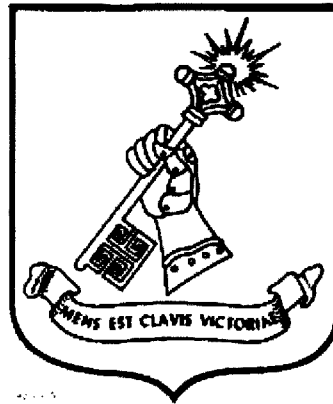


Application of Operational Art – The German 8th Army at the Battles at Tannenberg 1914

A Monograph

by

LTC (GS) Kim Oliver Frerichs
German Army



School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

2015-01

Approved for public release; distribution is unlimited.

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 01-03-2015		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) JUN 2014 – May 2015	
4. TITLE AND SUBTITLE Application of Operational Art – The German 8th Army at the Battles at Tannenberg 1914				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) LTC (GS) Kim Oliver Frerichs				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301				8. PERFORMING ORG REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Advanced Operational Arts Studies Fellowship, Advanced Military Studies Program.				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT Operational art is a doctrinal term used by the United States (US) Army to describe the effort of military leaders to arrange military actions in pursuit of strategic objectives. In 1914, the German 8th Army in Eastern Prussia pursued the strategic goal of defending Prussia in order to enable decisive operations of German forces west of Germany. This monograph answers the question if the German 8th Army applied operational art as described in US doctrine today. First, the author describes and compares German operational thought in 1914 with today's US doctrinal understanding of operational art. Second, this monograph analyzes the German battles at Tannenberg 1914 through the criteria of risk, trust, and synchronization. The author identifies that the German 8th Army applied at Tannenberg 1914 operational art as US doctrine understands it today. The German commander Hindenburg continuously arranged forces in time, space, and purpose while he pursued the strategic objective of the German Army High Command. However, the author identifies qualitative differences, especially in relation to risk acceptance, which can only be understood in relation with the German political and social circumstances in 1914.					
15. SUBJECT TERMS Operational Art; World War I; Tannenberg; risk; trust; synchronozation; German 8th Army; Hindenburg; Ludendorff;					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT (U)	18. NUMBER OF PAGES 63	19a. NAME OF RESPONSIBLE PERSON LTC Kim Oliver Frerichs
a. REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)			19b. PHONE NUMBER (include area code) +493601-7840100

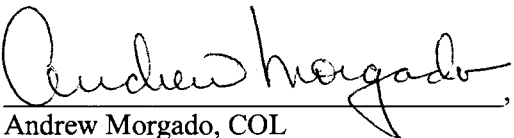
MONOGRAPH APPROVAL

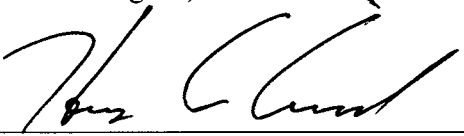
Name of Candidate: LTC (GS) Kim Oliver Frerichs

Monograph Title: Application of Operational Art – The German 8th Army at the Battles of Tannenberg 1914

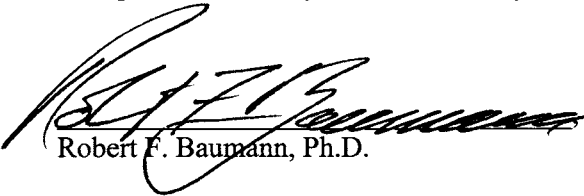
Approved by:


G. Stephan Lauer, Ph.D., Monograph Director


Andrew Morgado, COL, Seminar Leader


Henry A. Arnold III, COL, IN, Director, School of Advanced Military Studies

Accepted this 27th day of March 2015 by:


Robert F. Baumann, Ph.D., Director, Graduate Degree Programs

The opinions and conclusions expressed herein are those of the student author, and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other government agency. (References to this study should include the foregoing statement.)

Abstract

Application Of Operational Art – The German 8th Army at the Battles at Tannenberg 1914, by LTC Kim O. Frerichs, 57 pages.

Operational art is a doctrinal term used by the United States (US) Army to describe the effort of military leaders to arrange military actions in pursuit of strategic objectives. In 1914, the German 8th Army in Eastern Prussia pursued the strategic goal of defending Prussia in order to enable decisive operations of German forces west of Germany. This monograph answers the question if the German 8th Army applied operational art as described in US doctrine today.

First, the author describes and compares German operational thought in 1914 with today's US doctrinal understanding of operational art. The German political, social, and military constellations and their influence on German operational thought are of special consideration in this process. This section also considers the impact of German *Auftragstaktik* and US mission command on planning and execution of operations.

Second, this monograph analyzes the German battles at Tannenberg 1914 through the criteria of risk, trust, and synchronization. These criteria encompass facets of German doctrine in 1914 and current US doctrine. At the same time they reflect aspects of the respective leadership philosophies of both countries.

The author identifies that the German 8th Army applied at Tannenberg 1914 operational art as US doctrine understands it today. The German commander Hindenburg continuously arranged forces in time, space, and purpose while he pursued the strategic objective of the German Army High Command. Today's US operational art can be used to analyze and understand the German operations. However, the author identifies qualitative differences, especially in relation to risk acceptance, which can only be understood in relation with the German political and social circumstances in 1914.

An analysis of Tannenberg 1914 assists in the explanation of how the function of operational art was successfully executed in an historic operation. The approach of this monograph enhances the understanding of the role and function of operational art, and provides an opportunity to reevaluate today's doctrinal concept. At the same time it stresses the importance of political and social circumstance on the development of operational thought.

Contents

Abstract.....	iii
Contents	iv
Acronyms.....	v
Illustrations	vi
Section 1: Introduction.....	1
Section 2: Comparing 1914 German and Current US Operational Art – Finding and Following a Way.....	5
Politics, Society, and Military – The Trinity of German Military Thought 1914	5
Politics and Society	6
Military.....	7
US Army Operational Art	17
German Operational Thought 1914 and Today’s US Operational Art – A Comparison	19
Assessment Criteria.....	21
Section 3: German Operations at Tannenberg 1914 and the Application of Operational Art	23
German Strategic Considerations	23
Operations	28
The Planning	33
The Execution	39
Section 4: Conclusion: German Way of Operating at Tannenberg 1914 and Today’s US Operational Art – Similar but not the Same.....	51
Bibliography	54

Acronyms

ADP	Army Doctrine Publication
ADRP	Army Doctrine Reference Publication
ATP	Army Technique Publication
CavDiv	Cavalry Division
DA	Decisive Action
D.V.E.	<i>Dienstvorschriftserlass</i>
GdTF	<i>Grundsätze der höheren Truppenführung</i>
JP	Joint Publication
LTC	Lieutenant Colonel
OHL	<i>Oberste Heeresleitung</i>
Res	Reserve
ULO	Unified Land Operations

Illustrations

Figure 1. Area of operation and natural avenues of approach.	30
Figure 2. Russian forces and commanders.	31
Figure 3. German forces and commanders.	32
Figure 4. Situation August 23.	33
Figure 5. Operations August 23-25.	42
Figure 6. Operations August 26-27.	45
Figure 7. Operations August 28-31.	47

Section 1: Introduction

In 1914, Germany faced the strategic challenge of a two front war with insufficient forces to fight the enemy on both fronts with a favorable force ratio. As such, Germany made the strategic decision to accept risk of an unfavorable force ratio in Eastern Prussia to enable decisive operations in the West.¹ The 8th Army, employed in Eastern Prussia, was charged with defending against the Russian forces to “cover the back of the Western Front [in France].”² In order to accomplish this mission, the 8th Army operated against two Russian armies despite not being the main effort of the German Armed Forces. The German operations at Tannenberg were successful and fulfilled the mission. The arrangement of forces in time, space, and purpose met the strategic objective in Eastern Prussia. Therefore, there is merit in comparing and contrasting the German commanders’ and staffs’ art of operating during Tannenberg and the contemporary definition of *operational art* as depicted in current United States (US) doctrine.

An analysis of Tannenberg assists in the explanation of how the function of operational art was successfully executed in an historic operation. The approach of this monograph enhances the understanding of the role and function of operational art, and provides an opportunity to reevaluate today's doctrinal concept.

The commander and staff of 8th Army at Tannenberg in 1914 essentially applied an art of operating, which is in current US Army doctrine defined as *operational art*. This research identifies that the commanders of 8th Army synchronized defensive operations in the northeastern part of East Prussia with offensive operations in the southern part, while conducting movements to concentrate forces for the decisive operation against the 2nd Russian army. The 8th Army

¹ Theobald von Schaefer, *Tannenberg: In Schlachten des Weltkrieges*, Reichsarchiv, Vol. 19 (Berlin, Germany: Druck und Verlag Gerhard Stalling, 1927), 15.

² Ibid. 15.

orchestrated maneuver elements, decisive actions, and movements within Eastern Prussia based on reliable intelligence to successively defeat two Russian armies. Further, the trust among the German military leaders and headquarters coupled with the acceptance of prudent risks facilitated the success.

This study is arranged in three parts. Section 2 describes the German operational thought at the beginning of World War I, by comparing Germany's paradigm of warfare with the concepts of *operational art* and *mission command* defined in ADP 3-0.³ The doctrinal construct provides the theoretical framework by which to analyze the battle of Tannenberg. Section 3 provides the analysis of the research by illustrating the circumstances at the onset of the battles as well as the developments and events during the battles. Section 3 commences with the strategic setting and provides background of the military education of German general staff officer. The section continues by illustrating the forces and key players involved before proceeding with a description of the battles by synthesizing forces, time, space, and information. In this section the author continuously assesses how the German commanders applied operational art through the lens of risk, trust, and synchronization. The final section is the conclusion, which includes a summary of key arguments, which indicate that the trust among the German officers and headquarters, accompanied by their acceptance of risk facilitated the planning and execution of operations.

The contemporary understanding of operational art, viewed in an historical context provides the theoretical framework for this research. The author relates the contemporary understanding of operational art with historical actions, a concept alien to the commanders at that time, to validate and increase the comprehension of the current US definition of *operational art*. A comparison of theory and history enables an assessment of the actions at Tannenberg through

³ Army Doctrine Publication (ADP) 6-0, *Mission Command* (Washington, DC: GPO, May 2012), 1.

the lens of current US doctrine. The author does not focus on the US elements of operational art and operations design, but focusses his assessment on three selected criteria.⁴ The criteria to assess the application of operational art by the commanders of German 8th Army are first, the synchronized arrangement of *decisive actions* in time and space on an operational level.⁵ For the purposes of this monograph, the term ‘synchronization’ refers not to the synchronization of battlefield functions by large subordinate units of the 8th Army, but of the maneuver of those large units on the battlefield. The second formulation of criteria is the impact of *trust* and *prudent risk* as principles of the philosophy of *mission command* as seen in the operations of the 8th Army.⁶ This monograph elaborates on the criteria in more detail at the end of section 2.

Evidence in support of this argument consists of a combination of current US doctrine, German doctrine of 1914, and empirical data. The doctrinal sources include Joint Publication 5-0 *Joint Operation Planning* (JP 5-0); Army Doctrinal Publications 3-0 *Unified Land Operations* (ADP 3-0), Army Doctrinal Publications 5-0 *The Operations Process* (ADP 5-0); Army Doctrinal Reference Publication 3-0 *Unified Land Operations* (ADRP 3-0) and Army Doctrinal Reference Publication 5-0 *The Operations Process* (ADRP 5-0).⁷ The German Dienstvorschrift-Etat Nr. 53

⁴ Current US doctrine defines elements of operational art and elements of operational design to facilitate commanders in understanding the operational environment. These elements also support commanders in visualizing and describing their operational idea and approach. The elements of operational art are: End state and conditions, center of gravity, decisive points, lines of operation and lines of effort, operational reach, basing, tempo, phasing and transitions, culmination, and risk. The elements of operational design are: Termination, military end state, objective, effects, center of gravity, decisive point, lines of operation and lines of effort, direct and indirect approach, anticipation, operational reach, culmination, arranging operations, and force and function. (Army Doctrine Publication (ADRP) 3-0, *Unified Land Operations* (Washington, DC: GPO, May 2012), 4-3).

⁵ ADP 3-0, 5.

⁶ ADP 6-0, 2.

⁷ Army Doctrinal Reference Publication (ADRP) 3-0, *Unified Land Operations* (Washington, DC: GPO, May 2012); Army Doctrine Publication (ADRP) 5-0, *The Operations Process* (Washington, DC: GPO, May 2012).

Grundzuege der hoeheren Truppenfuehrung (Principles for troop leading at higher echelons) (D.V.E. Nr. 53) is the key doctrine for military operations at higher tactical and operational level.⁸ D.V.E. Nr. 53 describes the *German operational thought* at the beginning of World War I and is the basis for contrasting with today's US operational art. The US Army and Joint doctrine encapsulates the understanding of *operational art* in relation to both Army and Joint operations. Documentation of the *Reichsarchiv*, historical German doctrine, memoirs of key players, and maps, provides facts of the strategic and operational framework during the battles of Tannenberg. Secondary sources provide different assessments on the battle and key players to enhance the objective perspective of the monograph. Section 2, following, describes German operational thought of 1914 and operational art as defined in current US doctrine.

⁸ Kriegsministerium, *Grundzuege der hoeheren Truppenfuehrung (D.V.E. Nr.53)* (Berlin, Germany: Reichsdruckerei, 01 January 1910).

Section 2: Comparing 1914 German and Current US Operational Art – Finding and Following a Way

The US Army's concept of operational art is the theoretical framework for the analysis of the battles of Tannenberg 1914. A direct comparison of German operations with current US doctrine would fail to provide a complete and thorough validation and analysis. Hence, this section juxtaposes operational art as defined in US doctrine with the German operational thought of 1914. Initially, this section elaborates on the German politics, society, and military as key elements, which influenced the German operational thought at the beginning of the 20th century. The characteristic of this framework significantly differs from the United States circumstances and is a crucial influence on the German military thinking. However, the German military thought of 1914 and the US Army's operational art of today are the content of comparison, but it is imperative to understand, that these concepts emerged within different political, social, and military environments. Comparing and contrasting the two doctrinal constructs sets the stage for the analysis of the application of operational art at Tannenberg 1914. Finally, this section elaborates on the assessment criteria in relation to the German and US Army's military concepts.

Politics, Society, and Military – The Trinity of German Military Thought 1914

Understanding the German military thought at the beginning of the 20th century requires understanding of the key influencing variables. This understanding begins with appreciating the political and social implications on the German military. Using this as a baseline, the author will characterize the German military in 1914 by elaborating on the impact of patriotism, military education and training of officers, leadership philosophy, and doctrine. This approach will illustrate a holistic picture of the German operational thought prior to and at the beginning of World War I.

Politics and Society

The political and security situation significantly limited German policy discretion and demanded seizure of the initiative at the outbreak of any war. Germany and its ally Austria-Hungary were politically isolated. Germany, by its political and geographical position in Europe, had a strategic challenge - it was facing threats on at least two fronts.⁹ Germany's successes during the wars of unification and patriotism created a German *worldview* in which it saw itself as a key player and power in Europe.¹⁰ The other major strategic actors in Europe at that time were Great Britain, France, Russia, and Austria-Hungary. To maintain or to exploit its status, Germany needed to form stronger alliances or eliminate threats by bordering countries (*strategic goal*). The political efforts of German politicians were too biased by patriotism and honor. Paul von Hindenburg also observed these biases, "From the point of view of procuring allies our policy seemed to be inspired more by a code of honor than a proper regard for the needs of our people and our world situation."¹¹ The protection of honor; however, could not completely overcome Germany's isolation.

Until 1914, Germany had continuously and unsuccessfully attempted to mitigate its disadvantage of a central position in Europe through political channels.¹² After the assassination of the Austrian Archduke in Sarajevo by Serbian nationalists in 1914, the tensions between Serbia, supported by Russia, and Austria-Hungary increased. Germany had an alliance with

⁹ Robert Citino, *The German Way of War* (Lawrence: University Press Kansas, 2005), 191.

¹⁰ Citino, *The German Way of War*, 191.

¹¹ Paul von Hindenburg, *Out of my Life* (London: Cassell, 1920), 78.

¹² Showalter, *Tannenberg Clash of Empires 1914* (Washington, DC, USA: Brassey's, 2004), 30-35.

Austria-Hungary and was, therefore, in support of Vienna.¹³ Germany was neither able to defuse the tensions between Russia and Austria-Hungary nor to form favorable coalitions on the political level, which could rebalance the security situation in Europe. Hence, at the beginning of the 20th Century, Germany was isolated with Austria-Hungary as its only ally and its scope of action was very limited.¹⁴ This situation required political or military initiative to break the deadlock.

The German society of the early 20th century created a growing middle class, and saw a decline of the Junker's influence on social life. The rising pride of the middle class was also reflected in the affection for and understanding of the soldiers within the military.¹⁵ In this environment of reduced class differences, an officer commission presented an additional career track and the access to an elite club.¹⁶ The long German tradition of compulsory service in combination with the regional recruitment system created a solid familiarity of the army within the society. These tendencies in the society fostered increased social cohesion which spread into the military, but also shaped the German military itself.

Military

The influences of politics and society are reflected in the German military's organization, education leadership philosophy, and doctrine. These elements as a whole characterize the German operational thought of 1914. Therefore, the following paragraphs will address these

¹³ Markus Poehlmann, *Der erste Weltkrieg 1914-1918. Der deutsche Aufmarsch in ein kriegarisches Jahrhundert* (Muenchen, Germany: Bucher Verlag, 2014), 12.

¹⁴ Poehlmann, *Der erste Weltkrieg 1914-1918. Der deutsche Aufmarsch in ein kriegarisches Jahrhundert*, 12.

¹⁵ Showalter, *Tannenberg Clash of Empires 1914*, 108.

¹⁶ *Ibid.*, 110.

elements and how they inter-relate. Furthermore, the author indicates the links to the assessment criteria of synchronization, trust, and risk.

Germany's limited human and natural resources influenced the German way of war. If a war had to be won, it had to be short and decisive.¹⁷ Mainly influenced by the experience of the wars of 1870 and 1871, German military planners relied on a combination of firepower, numbers, and moral superiority.¹⁸ The elements of this triad represent disciplined infantry, effective artillery, and a patriotism with trust in soldiers, superiors, and country. German planners and strategists understood that the offensive was the preferred way to fight in inferiority.¹⁹ Germany had to fight on interior lines and build the *Schwerpunkt* (main effort), where it saw the opportunity for decisive action.²⁰ This understanding was present at the tactical, operational, and strategic level.²¹ This internal understanding of military requirements was not isolated. The German Army's organization and relation to the population supported and facilitated its effectiveness.

Cohesion, discipline, and firepower created a military tailored for short and decisive operations. The German Army's organization, recruitment, and planning of the early 20th century focused on the corps as its main element.²² The 25 active corps of the German Army founded

¹⁷ Hans H. Driftman, *Grundzuege des militaerischen Erziehungs- und Bildungswesens in der Zeit 1871-1939* (Regensburg, Germany: Walhalla u. Praetoria Verlag, 1980), 118.

¹⁸ Gerhard P. Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger* (Paderborn, Germany: Ferdinand Schoeningh, 2012), 122.

¹⁹ *Ibid.*, 68.

²⁰ *Ibid.*, 67-68.

²¹ *Ibid.*, 68.

²² Showalter, *Tannenberg Clash of Empires 1914*, 117.

their triumphs as the source of loyalties and traditions.²³ The regional recruitment system of the German Army ensured additional patriotic power and trust within the corps, divisions, and regiments. Instead of more or less meaningless numbers for units, the soldiers identified themselves with a unit, fostering cohesion and motivation, for example Brandenburgers or Pomeranians.²⁴ The corps, as regional “military families,” set the foundation for efficiency and trust among the soldiers, regiments, divisions, and staff within a corps. The regional Prussian-German corps fought to defend Eastern Prussia, a location where they were garrisoned, too.²⁵ The positive effect was an intrinsic motivation and pride enhanced through the positive leadership philosophy evident in the early 20th century.

Auftragstaktik and *Weisungen* (as roughly equivalent to US Army understanding of the term ‘doctrine’), created a spirit of initiative, offensive operations, and an orientation towards goals of the higher levels of war and command. The leadership philosophy of *Auftragstaktik*, emphasized initiative in order to utilize opportunities in the execution of decentralized operations.²⁶ The idea to empower subordinates to employ initiative based on a shared understanding and common procedures became the mantra of the German General Staff.²⁷ Every soldier in the German Army had to understand and act within the higher intent, displaying creativity and initiative.²⁸ “The improvement in firepower made a successful [attack] more challenging; but the discipline and the high level of training of our army as well as the fact that

²³ Showalter, *Tannenberg Clash of Empires 1914*, 117.

²⁴ Ibid.

²⁵ Schaefer, *Tannenberg*, 15.

²⁶ Trevor N. Dupuy, *Der Genius des Krieges: Das deutsche Heer und der Generalstab 1807 - 1945* (Graz, Austria: Ares Verlag, 2009), 158.

²⁷ Ibid., 159.

²⁸ Ibid., 158.

the military leader is used to act by himself, justify us to count on a successful solution even to challenging missions.”²⁹ The communality in understanding and procedures required institutionalized education and training system.

German institutional education and training created an officer corps which worked and thought within the above described paradigm based on the idea of *Aufklaerung*.³⁰ The educational system for officers consisted of three pillars - *Kadettenanstalten*, *Kriegsschulen*, and *Kriegsakademie*. The *Kadettenanstalt* was an institution which combined civil and military training and was open for officers who passed the assessment center.³¹ Even though the attendance was not mandatory, it ensured a high educational standard for those who visited the institution. The *Kriegsschule* was the next step in the officer education and was the first mandatory course. The *Kriegsschule* still reflected the humanistic approach but focused on military subjects and sports.³² The *Kriegsakademie* was the institution, which trained the elite of the officer corps. The *Kriegsakademie* had a strict selection process and conducted the general staff officer training.³³ The purpose of this comprehensive educational approach was the creation of coherent operational thought within the German officer corps.³⁴ The continuing education and training consisted of *Uebungsreisen* (battlefield trips) with tactical problem solving exercises, *Winterarbeiten* (planning tasks and exercises), and *Kriegsspiele* (war gaming) to enhance and

²⁹ D.V.E. Nr. 53, 23 (translated by the author).

³⁰ Driftmann, *Grundzuege des militaerischen Erziehungs- und Bildungswesens in der Zeit 1871-1939*, 19.

³¹ Ibid., 53.

³² Ibid., 61.

³³ Ibid., 68.

³⁴ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 65.

maintain common military skills.³⁵ This system pillars of Prussian-German officer education and training ensured common understanding in procedures. German doctrine at that time reflected the military thought and provided a common and shared reference.

The German doctrine at the beginning of World War I depicts a paradigm of warfare characterized by maneuver, initiative, offensive operations, main effort, interior lines, tempo, surprise, and annihilation.³⁶ These attributes had developed over time and reflected ‘lessons learned’ from previous wars in the 19th century.³⁷ The German General Staff discussed the experience of the wars against France and Austria and how to prepare for the next war. However, the discussions were not limited to the general staff – all officers and civil theorists contributed to the commentary.³⁸ The main point of concern was the geographical position between the major European continental powers France, Austria, and Russia as well as the numeric inferiority of the German army. The military leadership in Germany understood that this geographic position was both an advantage and disadvantage. On one hand, the German Army was not able to successfully fight a simultaneous two front war.³⁹ On the other hand, the central position offered the opportunity to operate on interior lines, which meant that Germany was be able to shift and concentrate forces.⁴⁰ This assessment led to the importance of *Schwerpunktbildung* (building the main effort). In terms of numbers, inferior forces had to be concentrated at the right place at the

³⁵ Driftmann, *Grundzuege des militaerischen Erziehungs- und Bildungswesens in der Zeit 1871-1939*, 35.

³⁶ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 102.

³⁷ Ibid., 64.

³⁸ Ibid., 63.

³⁹ Ibid., 55.

⁴⁰ Ibid., 62.

right time to set conditions for decisive actions. In respect to the threat from two fronts, *Schwerpunkt* (main effort) was associated with strategic risk, generating the requirement for detailed planning and synchronization in the execution. Moltke the Elder, the Chief of the General Staff, understood this challenge and subsequently focused his efforts on the *Aufmarsch* (movement/deployment).⁴¹ Schlieffen continued the restructuring of the general staff in order to create a structure which decreased possible frictions within the movement and *Aufmarsch*.⁴² The mobilization and *Aufmarsch* had to be rapid in order to gain the initiative by attacking the enemy before he was ready to fight against Germany. This general assumption laid the foundation for the need for the initiative and offensive operations against enemy forces.

The *German Grundzuege der hoeheren Truppentruppenfuehrung (GdTF)* (Basics for Senior Force Commanders) of 1910 clearly reflects the offensive spirit based on *Bewegung* (maneuver), initiative, and short but decisive operations.⁴³ The importance of this *Vorschrift* was comparable to the current ADP 3-0 and ADRP 3-0. It provided the basis for operational thought and operations at all levels, specifically aimed at military leaders at the operational level.

Clausewitzian theory also influenced the German warfare. In the preface of GdTF, the German Kaiser emphasized that he did not intend to prescribe fixed rules but general principles to allow more freedom for his subordinated commanders.⁴⁴ This leeway gave the commanders the freedom to adapt to chance and uncertainty. GdTF also addressed the inevitable uncertainty of

⁴¹ Peter, Paret, ed., *Makers of Modern Strategy: from Machiavelli to the Nuclear Age* (Princeton, New Jersey, USA: Princeton University Press, 1986), 289.

⁴² Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 81-83.

⁴³ D.V.E. Nr.53.

⁴⁴ *Ibid.*, 1.

warfare itself.⁴⁵ The most obvious link to Clausewitz is in the GdTF, which describes the relationship between military and politics. It stated that the political level provides a purpose, which is achieved using the military as the means.⁴⁶ These contents clearly identify the influence of Clausewitz's theory.

GdTF demanded quick and decisive offensive operations to achieve victory.⁴⁷ A well planned *Aufmarsch* and movement should set the conditions for the required operations.⁴⁸ Discipline and trust in education and training of the German army should facilitate the military commander in his operations.⁴⁹ Leadership and the quality of the forces should mitigate the most likely inferiority of German forces in numbers and equipment.⁵⁰ This leadership had to act with initiative wherever possible and not wait for orders.⁵¹ The offensive spirit based on initiative and maneuver relied on an agile leadership and disciplined well trained forces. Where necessary, Germany was willing to accept the risk in concentrating forces after shifting on the interior line.

The German doctrine also addressed the impact of technology and modernization of its developed paradigm of warfare. To mitigate the increase in enemy firepower, maneuvers should be agile and *weit ausholend* (enveloping).⁵² The engagement itself should then combine fixing forces with the attacking forces to facilitate success.⁵³ These examples illustrate that the German

⁴⁵ D.V.E. Nr.53, 24.

⁴⁶ Ibid., 15.

⁴⁷ Ibid., 13.

⁴⁸ Ibid., 15.

⁴⁹ Ibid., 14.

⁵⁰ Ibid., 16-17.

⁵¹ Ibid., 21.

⁵² Ibid., 23.

⁵³ D.V.E. Nr.53, 28.

understanding of warfare considered technological change, and the geography and numerical capacity of Germany within Europe. The implication was a need for an efficient deployment plan (*Aufmarsch*) utilizing available technology. The *Aufmarsch* and its coordination relied heavily on the railway system and the telegraph. The structure of the General Staff reflected the importance of these operational factors. In 1913, the *Abteilung I* (staff division 1) of the General Staff had the main responsibility to plan and coordinate the *Aufmarsch*, transport, and railway operations.⁵⁴

The German operational thought was based on political implications, impact of the society, geographical situation and technological change. The resulting paradigm of warfare was reflected in the GdTF. The operational thought as a whole indicated that synchronization was a requirement to employ the German military capabilities; trust empowered the German military efficiency; and acceptance of risk was a common element and necessity at all levels of war.

Synchronization and trust are important elements in the German operational thought prior to World War I; both elements were intrinsic in the planning and execution of operations. Further, both influenced German operational thought and the *Auftragstaktik* (German command philosophy). The synchronization of movement and *Aufmarsch* were immense. Not only had the structure of the General Staff reflected this effort, as indicated above, but also the function of general staff officers. Their responsibility had transitioned from heroic leaders to professional facilitators of art and science in warfare.⁵⁵ The General Staff planned, changed, and adapted the plans for mobilization, transport, and *Aufmarsch* annually.⁵⁶ On the contrary, the conduct of combat operations showed a different face of the German Army. The German command

⁵⁴ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 82.

⁵⁵ Ibid., 84.

⁵⁶ Ibid., 81.

philosophy was the *Auftragstaktik*, which relied upon decentralized execution and initiative. Moltke the Elder was convinced that only facilitated initiative from the private to the general could utilize opportunities and exploit favorable conditions.⁵⁷ He implemented this idea in the German doctrine and GdTF reflected this idea, as well.⁵⁸

The centralized work of the General Staff dominated the planning. However, the execution was the domain of the creativity and experience of the commanders facilitated through *Auftragstaktik*. Nevertheless, this command philosophy and the GdTF indicate a cognitive synchronization, which constrained the execution of operations. The superior's intent guided the tactical actions and were framed by the concept of *Auftragstaktik*.⁵⁹ The GdTF addresses the cognitive synchronization of operations, "The army commanders have to ensure that their arrangements meet the intent of the supreme army command through collective actions in pursuit of a common objective."⁶⁰ The construct of centralized planning and decentralized execution with cognitive constraints mitigated the tension between limitations and provided leeway to facilitate freedom of action.

Trust is both specified and implied throughout German operational thought of 1914, specifically in terms of *Auftragstaktik*. The decentralized execution and the embedded cognitive linkage to higher objectives indicate that the German army entrusted its soldiers and commanders with immense responsibility to achieve mission success. The GdTF specifically addressed the

⁵⁷ Dupuy, *Der Genius des Krieges: Das deutsche Heer und der Generalstab 1807-1945*, 158.

⁵⁸ D.V.E. Nr. 53, 21.

⁵⁹ Daniel J. Hughes, ed. *Moltke on the Art of War, Selected Writings*, Translated by Daniel J. Hughes and Harry Bell (New York: Random House, 1993), 231.

⁶⁰ D.V.E. Nr. 53, 55 (translated by the author).

role of trust. First, the trust a superior had in his subordinates, enables his ability to lead.⁶¹ Second, commanders had trust in the army. Commanders trusted the high training standards, morale, and the correct interpretation of the impact of modernization in relation to warfare.⁶² This reciprocal trust was the glue for the German operational thought.

Risk was a common element of operational ideas at all levels of war. The German inferiority required rapid and bold but calculated actions. The idea of operating on interior lines was inherently risky. Only a profound assessment at strategic level could lead to success. A highly trained army and skillful commanders were the elements to mitigate these risks.⁶³ At the operational and tactical level the morale and will had to overcome the enemy superiority.⁶⁴

The different attributes described above made up the German operational thought. The political and social situation cannot be compared with the US Army circumstances in which operational art has been developed. Therefore, the author elaborated on this trinity of operational thought in more detail. This monograph does not elaborate on the obviously differing influences of United States politics and society, but it is important to understand the German framework in which military thinking developed. Before this section compares German operational thought with US Army operational art, it is necessary to elaborate on the US Army concept as the other part of the comparison.

⁶¹ D.V.E. Nr. 52, 7.

⁶² Ibid., 23.

⁶³ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 69.

⁶⁴ Ibid., 70.

US Army Operational Art

Unified Land Operations (ULO) describes the US Army concept for military operations. *Operational art* and *mission command* are concepts within the US Army's construct of ULO.⁶⁵ The underlying logic of ULO is that the political level assigns strategic military objectives, in which the US Army has a part in achieving. These objectives present the '*ends*' within the triad of 'mean-ways-ends'. The US Army is a '*means*' and develops '*ways*' to meet the assigned objectives. The '*ways*' consist of the arrangement of various actions, which the US Army labels as *decisive actions* (DA). The arrangement of DAs in pursuit of the assigned objective is a creative task for the commander and his staff. It is a cognitive effort, which the US Army coins *operational art*.⁶⁶

"Operational art is the pursuit of strategic objectives, in whole or in part, through the arrangement of tactical actions in time, space, and purpose."⁶⁷ Operational art orchestrates tactical actions for a common purpose. The application of operational art is more than the arranging of DAs in time, space, and purpose in pursuit of strategic objectives. It "spans the continuum – from comprehensive strategic direction to concrete tactical actions."⁶⁸ It is the exertion of art, as Clausewitz understood it - a creative ability in which judgment is an essential part.⁶⁹ Skill, knowledge, creativity, experience, and judgment are attributes that facilitate commanders and

⁶⁵ ADP 3-0, 1.

⁶⁶ The Content of this paragraph is refereeing to ADP 3-0, iii-iv.

⁶⁷ ADP 3-0, 9.

⁶⁸ ADRP 3-0, 4-1.

⁶⁹ Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret (Princeton, New Jersey, USA: Princeton University Press, 1989), 148.

staffs in the application of operational art.⁷⁰ The US Army exercises *mission command* as its leadership philosophy to facilitate these attributes.⁷¹

Mission command envisions an environment with enough freedom of action, planning, and creativity at all levels to enable the application of operational art. The principles of mission command reflect this attitude.⁷² *Mutual trust* in leaders at all levels enables this freedom of action. Trust enhances the creativity in centralized and parallel planning. Trust also empowers decentralized execution. The US Army guides and synchronizes the available freedom and effort through a *shared understanding* of the operational environment and the *commander's intent*, which communicates the purpose, key tasks, and end state of the operation.⁷³ The intent unifies commanders and leaders in purpose and sets limits, but it is broad enough to allow creativity and initiative within these limits.⁷⁴ Military leaders accept *prudent risk* through the decentralized execution of operations.⁷⁵ This acceptance facilitates *disciplined initiative* and adaptability. While operational artists balance risk and opportunity during the planning of operations, they also accept prudent risk during the execution of operations on subordinated levels to create more opportunities at their level.

ULO reflects synchronization within two domains. First, operational art cognitively synchronizes tactical actions among each other orientated towards a common purpose. Second,

⁷⁰ ADRP 3-0, 4-1.

⁷¹ ADP 6-0.

⁷² ADP 6-0, 2.

⁷³ Army Doctrine Reference Publication (ADRP) 5-0, *The Operations Process* (Washington, DC: GPO, May 2012), 1-5.

⁷⁴ *Ibid.*, 2-4.

⁷⁵ *Ibid.*, 2-5.

ADP 3-0 posits synchronization within the execution as one of the tenets of ULO.⁷⁶ The purpose of this synchronization is the optimization of mutually supporting effects and efforts at the decisive point in space and time.⁷⁷

Within the construct of ULO, operational art and mission command are intended to complement each other. Mission command fabricates an environment in which operational art prospers best. It ensures the required freedom, creativity, and adaptability while limited by a common purpose and intent. These limits provide a linkage between subordinate objectives and higher objectives - *nesting*.⁷⁸ A lack of nesting leads to 'cross-purpose' of the overall strategy.⁷⁹

German Operational Thought 1914 and Today's US Operational Art – A Comparison

The intent to compare German operational thought with US Army operational art implies there will be a structure of similarities and differences. However, the concepts themselves are mainly similar in their purpose and elements. Both systems characterize operations based on initiative, tempo, and offensive action to achieve success. Both nations' military thoughts stressed the importance of trust, however the comprehension of risk and synchronization varies. Furthermore, the two concepts envision the same relationship between military operations and politics. The German operational thought of 1914 and current US Army definition of operational art both identify the need for nesting the military operations into a political purpose or objective. The predominant difference between the two concepts lies in the quality of trust, synchronization, and risk.

⁷⁶ ADP 3-0, 7-9.

⁷⁷ Ibid., 9.

⁷⁸ Joint Publication (JP) 5-0, *Joint Operation Planning* (Washington, DC: GPO, August 2011), IV-46.

⁷⁹ Ibid.

The German *Auftragstaktik* and US Army mission command both rely on trust as a basis for decentralized execution. German strategic to tactical operations relied heavily on the trust in training level, will, and morale of the German Army. The assumed superiority of these three attributes was the prerequisite for German operational thought. Although ULO also addresses these elements, the US Army does not plan to operate in inferiority and therefore does not rely on the elements as the German Army did in 1914. US Army doctrine appears to ignore these factors, or to assume either their presence or, if lacking, a superiority that mitigates them.

For German operational thought, risk is a common element. It is not limited to the operational or tactical level. The geographical circumstances and the relative combat power of the German Army forces the assumption of risk at all levels of war. US Army doctrine identifies risk as necessary to create opportunities. US Army commanders seek to identify and accept prudent risk to achieve their objectives, while German commanders operate within a strategic environment, which is characterized by risk to the political objective.

Cognitive synchronization is common to both nations and affects the operational planning and execution. Germany emphasized synchronization and detailed planning especially in the *Aufmarsch* as precondition for the strategic approach. This detailed synchronization was the military effort to mitigate the risk on strategic level. During the execution, the German system relied upon the synchronizing effect of *Auftragstaktik* to ensure mission success on the one hand and maximum flexibility for the commander on the other hand. The US Army system stresses the need for synchronization in execution. The ULO tenet 'synchronization' envisions a more detailed preplanned synchronization of efforts during the operation, which on the one hand facilitates synergy but, on the other hand, limits the flexibility of the commander. Hence, the difference herein is that Germany focusses on cognitive synchronization and provides by this more leeway for the commander, while US Army concepts have operationalized synchronization to a much higher degree.

Assessment Criteria

The different interpretations of operational art require a definition of the assessment criteria for this monograph. Risk, trust, and synchronization are three inextricably linked elements derived from the two concepts of *operational art* and *mission command*. Additionally, these criteria are recognizable in the German paradigm of warfare. At the same time, all three elements distinguish the two concepts in a qualitative dimension. Hence, the author uses risk, trust, and synchronization to assess the battles at Tannenberg in a way which applies to both concepts.

Risk is an element of operational art. Commanders account for risks in the development of an operational approach. The acceptance of these risks creates opportunities, which enable success. Commanders assume risk through decentralized execution, too. Acceptance of prudent risk is a principle of mission command. The leadership philosophy requires this attribute to create opportunities to avoid defeat.⁸⁰ This monograph will analyze if and how the commanders of 8th Army identified and managed risk.

Trust is a principle of mission command. Trust among commanders and staffs at all levels of war is crucial for smooth planning and execution of operations. Trust provides the leeway for creativity and decentralized initiative. The author uses this principle of mission command as criteria to evaluate whether the commanders at Tannenberg operated within the same philosophical framework as envisioned in current US Army doctrine. The analysis focuses on the question if the identified level of trust during the battles facilitated or hampered the application of operational art.

The last criterion is the *synchronization* of tactical actions of large maneuver units on the battlefield. This criterion analyzes the synchronization of task and purpose in space and time during the planning and the execution at operational level. The evaluation focuses on how the 8th

⁸⁰ ADP 6-0, 5.

Army commander envisioned, planned, and directed the tasks and purposes at the operational level and in relation to the assigned objectives. Using these criteria, the following section explains the circumstances, key actors, and the progress of the battles of Tannenberg. The application of operational art is assessed in relation to risk, trust, and synchronization at the operational level.

This section described the unique environment which influenced German operational thought. Politics and society were indivisibly linked the German operational thought, and were different from the US Army circumstances. Based on this understanding the author compared the German and US Army concepts. The German operational thought and the US Army operational art indicate similarities in the elements of risk, synchronization, and trust. Nevertheless, this section highlighted that the perceived quality of risks, trust, and synchronization differ between the concepts. US Army operational art and German operational thought need synchronization and nesting for success. US Army operational art understands risk and trust as facilitating factors within an operation. German military leaders understand that risk and trust are inevitable elements without them they could not mitigate geographical and numerical disadvantages. The ensuing section relates risk, trust, and synchronization to the German battles at Tannenberg.

Section 3: German Operations at Tannenberg 1914 and the Application of Operational Art

This section compares the operations of German 8th Army at Tannenberg in 1914 with current US Army definition of operational art using the identified criteria of risk, trust, and synchronization. First, the author describes the strategic considerations and the involved key players. Following, this section describes the battles at Tanneberg and the application of operational art based on the defined criteria. The operations passage commences with a description of the area of operation and the military situation at the onset of the battles. The elaborations focus on the planning and execution at operational level. Of key emphasis herein are the German perspective and operations of the 8th Army between August 23, 1914 and August 31, 1914. Russian information or perspectives are considered only where the understanding of German maneuver decisions requires it.

German Strategic Considerations

The campaign in Eastern Prussia was nested in a strategic approach, which had evolved over time and had consciously adapted. Section 2 described that, if the political level was not able to set favorable conditions for German prosperity and security in Europe, the military had to fight a multi-front-war and defeat the most imminent adversaries first. The major threats to Germany materialized as France and Russia; their defeat was the first *strategic military goal*. Although Germany and Austria-Hungary were isolated, no coordinated and common defense-plan existed.⁸¹ The German Army had insufficient numbers to achieve both objectives in simultaneous efforts.⁸² Therefore, the German General Staff planned sequential campaigns. The German contingency

⁸¹ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 109.

⁸² Schaefer, *Tannenberg*, 28.

war plans addressed the challenges of the German two-front-position through the annual *Aufmarschplanung* (deployment and movement plan).⁸³ These plans adapted continuously based on the political and military threat assessment.⁸⁴

Until 1891, the Aufmarsch was planned with the main effort against Russia; however, due to the improved mobilization capabilities Schlieffen shifted the focus towards France.⁸⁵ In 1906, Moltke the Younger assumed command of the General Staff and continued the planning effort. During the following years, Moltke kept modifying the former Schlieffen-Plan. He shifted forces within the planning for the western front, which strengthened the center, but weakened the envelopment forces for the west.⁸⁶ He also abandoned the idea of an attack through the Netherlands to avoid an additional enemy in the west.⁸⁷ While Schlieffen planned for three divisions in the east, Moltke shifted six additional divisions from the west towards Eastern Prussia.⁸⁸ Moltke did not fundamentally change the Schlieffen-Plan, but the latter change had significant impact on the battle of Tannenberg.

⁸³ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 81.

⁸⁴ Dupuy, *Der Genius des Krieges: Das deutsche Heer und der Generalstab 1807 -1945*, 183.

⁸⁵ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 85.

⁸⁶ Dupuy, *Der Genius des Krieges: Das deutsche Heer und der Generalstab 1807 -1945*, 188.

⁸⁷ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 99.

⁸⁸ Dupuy, *Der Genius des Krieges: Das deutsche Heer und der Generalstab 1807 -1945*, 188.

Finally, the *Aufmarschplanung* 1913/14 envisioned a two-phase approach.⁸⁹ First, the plan required a decisive attack against France in the west, while simultaneously delaying Russia in the east (*military purpose* of 8th Army). In the second phase then shifted the main effort and decisive operation to focus on Russia in the east.⁹⁰ The characteristics of the western and eastern theater of war were different in both quantity and quality. In terms of quantity, about 85% of the German Army were employed in the west against France.⁹¹ From the perspective of quality, the plan for the west was more preplanned and sophisticated, due to the millions of soldiers and the limited maneuver space, hence, less flexible. The plan for the east assigned just a broad task and purpose to the 8th Army.⁹² The prerequisites for the German military strategy were a rapid mobilization and movement of military forces.⁹³ These prerequisites were the challenge in that fragile political situation of 1914. If Russia and France were faster in their force buildup and movement, Germany would not be able to execute its war plan. The German military relied on quick political decisions to execute a successful mobilization and *Aufmarsch*. These strategic considerations shaped the operational environment in Eastern Prussia. The human dimension at the battles of Tannenberg impacted the conduct of the battles, too. Hence, the author highlights the principle key actors before this section continuous with operations and planning at operational level.

The German Army and its principal actors in Eastern Prussia differed in character but were common in education and training. The attributes of the German military leaders in key

⁸⁹ Gross, *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*, 100.

⁹⁰ Ibid., 91.

⁹¹ Ibid., 100.

⁹² Ibid., 110.

⁹³ Ibid., 86-87.

positions during the battles in Eastern Prussia were characterized by traits common to the German military system through which they rose in rank and responsibility. The focus on the operational level reduced the number of key actors significantly. On the German side: General Maximilian von Prittwitz and Gaffron was the commander of the 8th Army. General Paul von Hindenburg became the successor of General von Prittwitz. When General von Hindenburg replaced General von Prittwitz, his new chief of staff, Major General Erich von Ludendorff, accompanied him. The chief of operations, Lieutenant Colonel Max Hoffmann, played a special role among these general officers. Hoffmann linked the command groups of General von Prittwitz with General von Hindenburg, due to Hoffmann serving under both commanders in the same function.

General Maximilian von Prittwitz was the descendent of a Prussian officer family. His family originated from Silesia. He belonged to the infantry branch and completed training at the Kriegsakademie during his career. Von Prittwitz served prior to his command of the 8th Army also in the Great General Staff. His last combat experience was during the Franco-Prussian-War. General von Prittwitz was 65 years old when the battles in Eastern Prussia took place.⁹⁴ *General Paul von Hindenburg* was also an infantry officer by trade. Von Hindenburg, born in Posen, was like von Prittwitz, a descendent of a Prussian officer family. Hindenburg was trained and educated in Kadettenanstalt in Silesia.⁹⁵ During his career, von Hindenburg finished the Kriegsakademie and was selected for service in the General Staff. His performance allowed him to go back to the Kriegsakademie and teach for five years.⁹⁶ General von Hindenburg served prior to World War I in the Austrian-Prussian-War and the Franco-Prussian-War. Von Hindenburg was 66 years old during the battle of Tannenberg. *Major General Erich von Ludendorff* was the son of

⁹⁴ Michael Duffy, "Who is Who – Maximilian von Prittwitz," *firstworldwar.com* (August 2009); accessed November 18, 2014, <http://www.firstworldwar.com/bio/prittwitz.htm>.

⁹⁵ Hindenburg, *Out of My Life*, 9.

⁹⁶ *Ibid.*, 57.

a merchant from Posen. He joined the Infantry after his education in the Kadettenanstalt of Ploen and was selected for the General Staff for his performance at the Kriegsakademie. During his time at the General Staff, Ludendorff contributed to the development of the Schlieffen-Plan. Erich von Ludendorff saw his first military actions during the battle for Luetlich in 1914. He was 49 years old when he became the chief of staff of the 8th Army in Eastern Prussia.⁹⁷ *Lieutenant Colonel Max Hoffmann* joined the Prussian infantry as a volunteer. Hoffmann served in the General Staff under General Schlieffen after he finished the Kriegsakademie. Max Hoffmann was a Prussian military observer during the Russo-Japanese-War. He became chief of operations of the 8th Army after the mobilization. He was 45 years old during the battles.⁹⁸

The Russian key actors were mainly the commanders of the two Russian armies opposing the German forces in Eastern Prussia. Both generals were cavalry by trade, trained at the Russian academy of the general staff and had seen actions during the Russo-Turkish-War and Russo-Japanese-War. *General Pavel Karlowitsch von Rennenkampff* was born in 1854 and commanded the 1st Njemen Army at Tannenberg.⁹⁹ *General Alexander Samsonov* was four years younger and commanded the 2nd Narew Army.¹⁰⁰

The strategic considerations and the involved principle actors set the stage for the operational level in this section. The challenging strategic setting and the German operational thought significantly impacted the operational level. Additionally, the involved and described

⁹⁷ Michael Duffy, "Who is Who – Erich von Ludendorff," *firstworldwar.com* (August 2009): accessed November 18, 2014, <http://www.firstworldwar.com/bio/ludendorff.htm>.

⁹⁸ Michael Duffy, "Who is Who – Max Hoffmann," *firstworldwar.com* (August 2009): accessed November 18, 2014, <http://www.firstworldwar.com/bio/hoffmann.htm>.

⁹⁹ Michael Duffy, "Who is Who – Paul von Rennenkampff," *firstworldwar.com* (August 2009): accessed November 18, 2014, <http://www.firstworldwar.com/bio/rennenkampf.htm>.

¹⁰⁰ Michael Duffy, "Who is Who – Alexander Sansonov," *firstworldwar.com* (August 2009): accessed November 18, 2014, <http://www.firstworldwar.com/bio/samsonov.htm>.

German key actors represent ‘products’ of the German military educational system, which will shape the conduct of the operations, as well.

Operations

This passage divides assessment of the application of operational art at battles at Tannenberg into two perspectives – planning and execution. A description of the military situation at the operational level, the area of operation, and the employed forces commences prior to the assessment of planning and execution from a German perspective.

The situation at the operational level mirrored the challenges identified at strategic level. The *Aufmarsch*, with its initial decisive action in the west against France, assigned the 8th Army in the east the *mission* to defend Eastern Prussia and to defeat Russian forces.¹⁰¹ The German Supreme Army Command (OHL) envisioned a mobile defense with decisive counterattacks to defeat the two Russian armies sequentially (*operational military purpose*).¹⁰² Prussian society influenced the military and the perceived importance of the military objective in the east, too. In addition to the described *military purpose*, Eastern Prussia itself was of high value to the German society and economy. The majority of the ruling political and social class had its roots and real estate in Eastern Prussia.¹⁰³

The initial battle of the Eastern Prussia campaign was at Gumbinnen on August 19 and 20, 1914. The Commander of the 8th Army, General von Prittwitz, was not able to achieve a decisive victory against the 1st Njemen Army. Instead, he wanted to break contact and withdraw

¹⁰¹ Hindenburg, *Out of My Life*, 110.

¹⁰² Ibid.

¹⁰³ Ibid., 83.

the 8th Army towards the west in order to defend along the Weichsel River.¹⁰⁴ By this action, Eastern Prussia would have fallen into Russian hands and Germany would not have achieved its strategic goal. In this situation, the OHL relieved the commanding general of 8th Army and replaced him with a new commander and his chief of staff - General Paul von Hindenburg and Major General Erich Ludendorff.¹⁰⁵ This duo had to achieve the strategic military objective in the east. The OHL had selected these two Generals for specific reasons. Von Hindenburg had been stationed in Eastern Prussia and possessed combat experience from two wars, but the decisive reason for his selection was his leadership style and his benevolence.¹⁰⁶ General von Ludendorff possessed the imperturbable trust of the OHL and the German Kaiser.¹⁰⁷ Ludendorff had also a remarkable hunger for initiative and was incredibly reliable.¹⁰⁸ After the battle at Gumbinnen, the 8th Army developed a new operational approach to fight the two Russian Armies successively. This operational challenge had already been the subject of a planning exercise in 1888.¹⁰⁹ The challenge for the eastern theater remained the same. Neither the 1st Njemen Army of General Rennenkampf nor the 2nd Narew Army of General Samsonow were defeated.

The Area of operation comprised Eastern Prussia. It bordered the Baltic Sea in the north, Russia in the east and south, and the river Weichsel to the west. The Masurian Lakes divided the terrain into two avenues of approach suitable for an attack of not more than one army. The

¹⁰⁴ Schaefer, *Tannenberg*, 17.

¹⁰⁵ Ibid., 18.

¹⁰⁶ Ibid.

¹⁰⁷ Erich von Ludendorff, *Meine Kriegserinnerungen 1914-1918* (Berlin, Germany: Ernst Siegfried Mittler und Sohn, 1921), 15.

¹⁰⁸ Schaefer, *Tannenberg*, 18.

¹⁰⁹ Ibid., 16.

western avenue was between the Weichsel River and the Masurian Lakes, and the northern avenue between the Masurian Lakes and Koenigsberg.

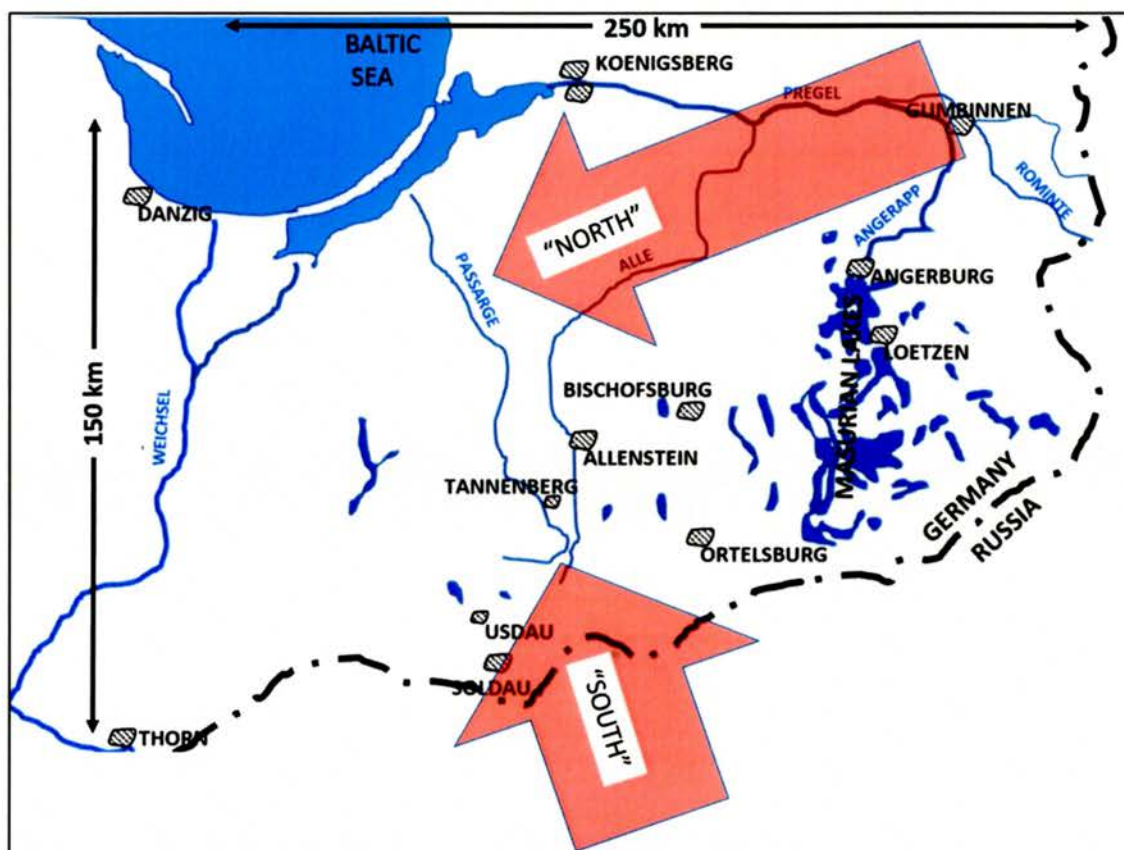


Figure 1. Area of operation and natural avenues of approach.

Source: Figure created by author using information from Theobald von Schaefer, *Tannenberg: In Schlachten des Weltkrieges*, map 1.

Russian situation. 1st Njemen Army, on the north avenue, with four corps and five cavalry divisions, was employed along the Angerapp River between Gumbinnen and Angerburg and orientated towards west-south-west. This disposition allowed the 1st Njemen Army to pursue the German forces along the western avenue of approach and to threaten the fortress of

Koenigsberg.¹¹⁰ The 2nd Narew Army, on the south avenue, consisted of five corps and three cavalry divisions, was moving to contact on the southern avenue of approach and had crossed the border between Russia and Germany.¹¹¹ The divide by the Masurian Lakes hampered any mutually direct support among the Russian armies.

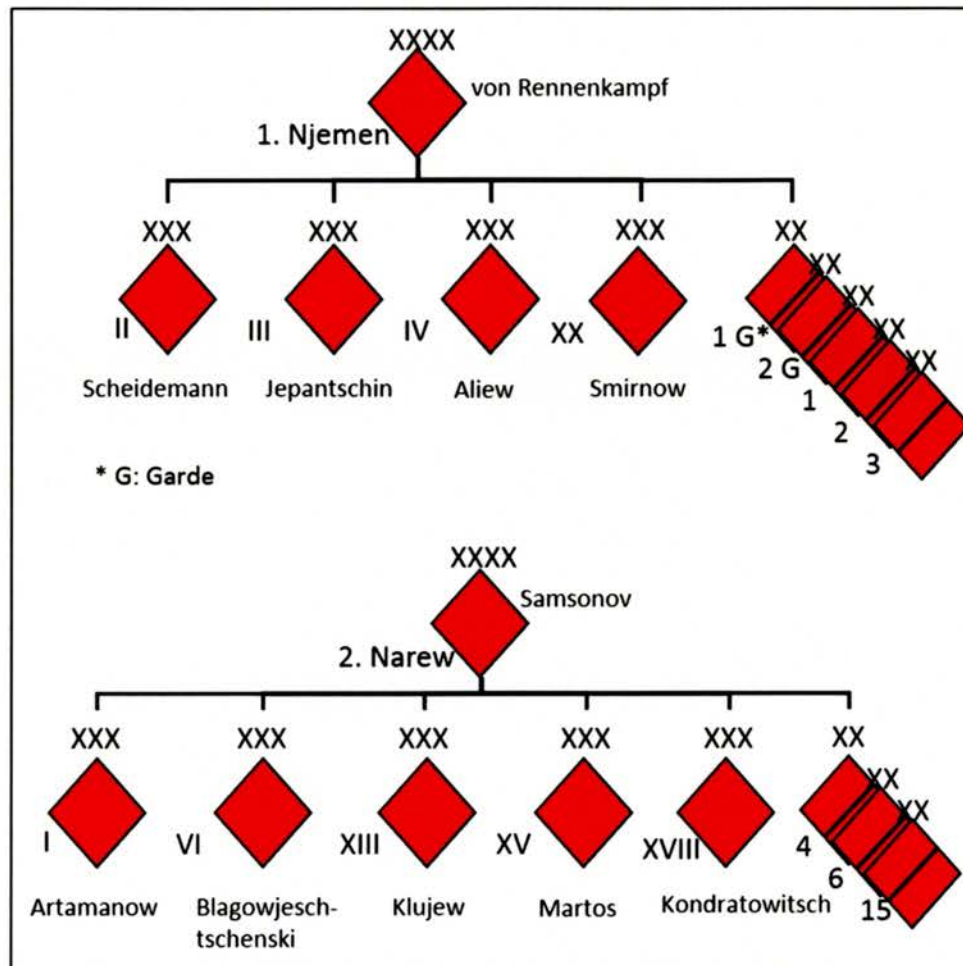


Figure 2. Russian forces and commanders.

Source: Figure created by author using information from Theobald von Schaefer, *Tannenberg: In Schlachten des Weltkrieges*, Anlage 2, 263-264.

¹¹⁰ Showalter, *Tannenberg Clash of Empires 1914*, 9.

¹¹¹ Ibid.

German Situation. The 8th Army commanded four corps, one cavalry division, and the Landwehr (units to defend the fortresses and borders).¹¹² In front of the 1st Njemen Army: I, XVII, and I Reserve (Res) Corps conducted retrograde operations to the river Weichsel. The 1st Cavalry Division conducted guard operations to cover the withdrawal. In front of 2nd Narew Army: the XX Corps was in defensive positions in the vicinity of Tannenberg to protect the southern flank of the 8th Army.¹¹³

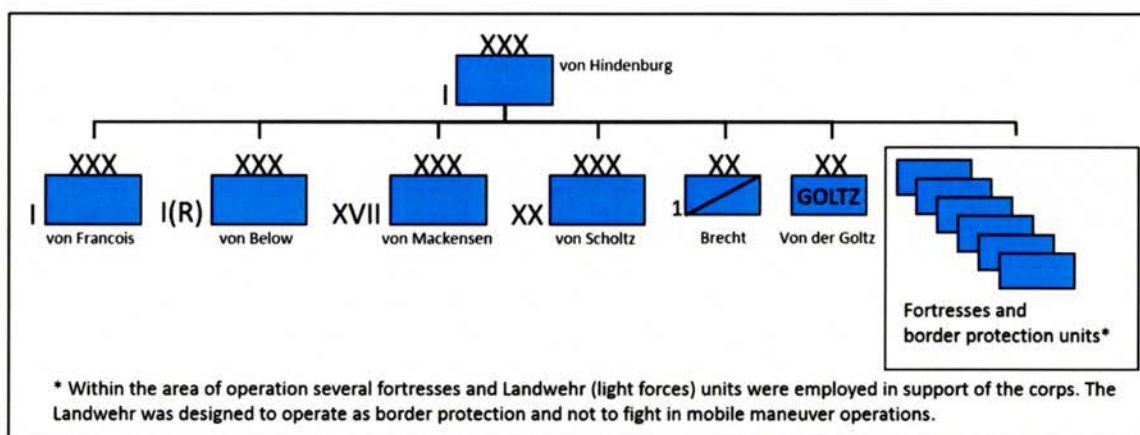


Figure 3. German forces and commanders.

Source: Figure created by author using information from Theobald von Schaefer, *Tannenberg: In Schlachten des Weltkrieges*, Anlage 2, 258-263.

¹¹² Showalter, *Tannenberg Clash of Empires 1914*, 8.

¹¹³ Werner Bromba, *Die Schlacht bei Tannenberg im August 1914: Informationsueberlegenheit eroeffnet Initiative und Handlungsfreiheit. In Grundsaeetze der Truppenfuehrung im Lichte der Operationsgeschichte von vier Jahrhunderten* (Hamburg, Germany: Arbeitsgruppe Joint und Combined Operations (JACOP), 1999), 74-75.

The Planning

To assess the planning efforts of the German 8th Army this passage begins with the planning considerations and proceeds with evaluating this planning through the lenses of risk, trust, and synchronization. Hindenburg and Ludendorff clearly understood the strategic goal, their assigned operational objective, and the problem they had to solve: How to defend Eastern Prussia through the defeat of two Russian armies in a divided terrain with dispersed and inferior own forces?¹¹⁴

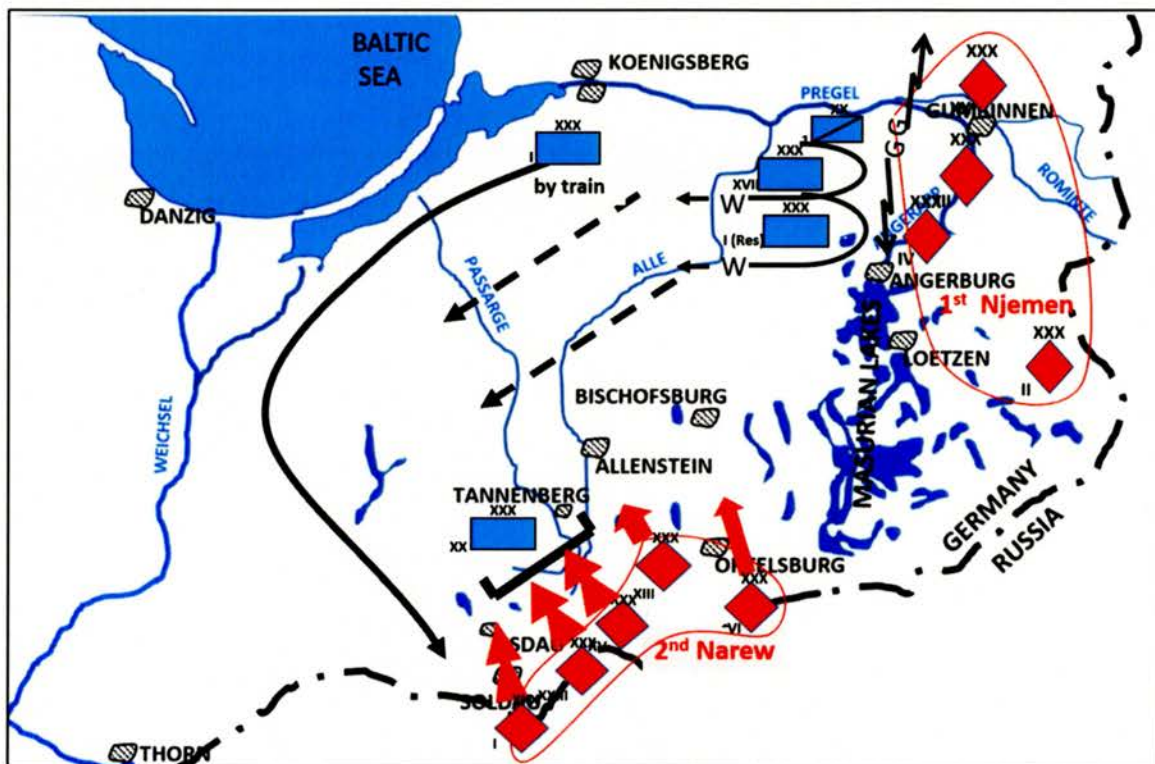


Figure 4. Situation August 23.

Source: Figure created by author using information from von Mantey, *Kartenbild des Sommerfeldzuges 1914 im Osten*, map 2.¹¹⁵

¹¹⁴ Ludendorff, *Meine Kriegserinnerungen 1914-1918*, 16.

¹¹⁵ Oberst a.D von Mantey, *Kartenbild des Sommerfeldzuges 1914 im Osten* (Berlin: E.S. Mittler & Sohn, 1930), Karte 2.

When von Hindenburg and Ludendorff met for the first time, they were already on their way towards Eastern Prussia.¹¹⁶ From the beginning, the relationship between the two generals was dominated by inherent trust and a shared common understanding.¹¹⁷ While still on the way from Coblenz at the Rhine River to Eastern Prussia, Ludendorff gave orders to redirect the retrograding corps. Instead of defending along the Weichsel River, they had to march in the vicinity of central Eastern Prussia and wait for new orders.¹¹⁸ When the generals von Hindenburg and von Ludendorff arrived in Eastern Prussia, their relationship to the staff of 8th Army was cold and unsociable.¹¹⁹ This changed after the involved actors concentrated on the common goal.¹²⁰ After that, all planning took place in an atmosphere of trust.¹²¹ General Hindenburg published his first order to the troops of 8th Army as soon as he arrived in Eastern Prussia. In this short order he communicated three key messages: He takes over the command of 8th Army, the soldiers have to rely on their trust in each other, and they will do their duty together.¹²² The commander of 8th Army, his chief of staff, and his chief of operations planned an operational approach in two phases. General von Hindenburg envisioned the operation as follows:

In first place we opposed a thin center to Samsonoff's solid mass. I say thin not weak. For it was composed of men with hearts and wills of steel... While this center was engaged two important groups on its wings were to carry out the decisive attack... 1st Corps... from the north-west... 17th Corps and 1st Reserve Corps... from north and north-east... we had to annihilate [Samsonoff]. Only thus could we get a free hand to deal with... *Rennenkampf*... Only thus we really and completely free our old Prussian land...

¹¹⁶ Hindenburg, *Out of My Life*, 82.

¹¹⁷ *Ibid.*, 83.

¹¹⁸ Ludendorff, *Meine Kriegserinnerungen 1914-1918*, 16.

¹¹⁹ *Ibid.*

¹²⁰ Hindenburg, *Out of My Life*, 92.

¹²¹ *Ibid.*, 85.

¹²² Schaefer, *Tannenberg*, 29.

Everything must be thrown in which could prove of slightest use in maneuver warfare and could at all be spared.¹²³

The basic outline of the operation was now set in the mind of the commander. This operational approach was not new; it was based on the already developed plan of Lieutenant Colonel Hoffmann.¹²⁴ He had given the first orders and developed the idea directly after the unsuccessful battle at Gumbinnen.¹²⁵ Hindenburg and Ludendorff were surprised how similar their vision of the operation and Hoffmann's plan were.¹²⁶ The commonality of the envisioned operation contributed to even more trust within the staff of the 8th Army.¹²⁷ The army staff started to plan on details. Transferred into today's US tactical terms Hindenburg's vision reads as follows: 8th Army defeats the 2nd Narew Army in the south first, while delaying the 1st Njemen Army in the north. Ensuing, 8th Army attacks to defeat the 1st Njemen Army in the north.

Based on this approach the operation consisted of two efforts; First the defeat of 2nd Narew Army and second, the defeat of 1st Njemen Army. The defeat of the 2nd Narew Army required several tactical actions, which had to be sequenced in time and space to get to mutually supporting effects against the army of Samsonov. *XX Corps* had to defend against 2nd Narew Army to fix 2nd Narew Army in order to protect 8th Army's southern flank and set conditions for the later attack against it. The purpose was to delay 2nd Narew's attack towards north by keeping Samsonov in a position in which *Rennenkampf* could not support him.¹²⁸ The follow-on task was

¹²³ Hindenburg, *Out of My Life*, 87-88.

¹²⁴ Showalter, *Tannenberg Clash of Empires 1914*, 196.

¹²⁵ Max Hoffmann, *Tannenberg wie es wirklich war* (Berlin, Germany: Verlag fuer Kulturpolitik, 1926), 15.

¹²⁶ *Ibid.*, 21.

¹²⁷ Schaefer, *Tannenberg*, 25.

¹²⁸ *Ibid.*, 28

to attack 2nd Narew Army together with the mass of 8th Army as soon as I Corps had arrived. *Ist Corps* was to march by train into the vicinity of XX Corps and position on its right flank. Follow-on mission was to attack in conjunction with XX Corps against 2nd Narew army's main body. *I Reserve Corps and XVII Corps* had to break contact with 1st Njemen Army and withdraw to the west. *I. Reserve Corps* then had to march south towards 2nd Narew Army, then attack further south and support the attack against 2nd Narew Army's main body. The follow-on task for *XVII Corps* was not defined at that time. *Ist Cavalry Division* delays 1st Njemen Army. These actions were aimed at shaping the conditions for the decisive operation for the first effort, when all corps of 8th Army mass against 2nd Narew Army in the south and attack simultaneously.¹²⁹ The supporting effort was against the 1st Njemen Army in the northeast of Eastern Prussia. During the planning, the actions against General Rennenkampf were only broadly envisioned. As soon as 2nd Narew Army was defeated, 8th Army had to attack 1st Njemen Army north east of the Masurian Lakes.¹³⁰

The 8th Army's command group developed this approach not only based on ground intelligence, but also on signal intelligence, and the information provided by the reconnaissance planes assigned to each corps.¹³¹ The intercepted Russian radio messages were particularly helpful in the understanding of the enemy situation and intent.¹³² On the same day he arrived, General Hindenburg reported his intent to the OHL in a short message. "Concentration of the army for an enveloping attack in the region of XX Corps planned for August 26".¹³³

¹²⁹ Schaefer, *Tannenberg*, 28.

¹³⁰ *Ibid.*, 29.

¹³¹ Showalter, *Tannenberg Clash of Empires 1914*, 152.

¹³² Schaefer, *Tannenberg*, 46-47.

¹³³ Hindenburg, *Out of My Life*, 91.

The planned operational approach clearly indicated the cognitive effort, which current US doctrine understands as operational art. Ludendorff and Hindenburg orientated their planning towards the assigned strategic goal. Both understood that a withdrawal to the Weichsel River would fail to meet the strategic objective and allow the Russian armies to concentrate their combat power against the German forces. ADRP 3-0 postulates that commanders include the desired end state and conditions into military planning.¹³⁴ The command group of 8th Army arranged tasks and purposes to the subordinated elements with mutually supporting effects. The offensive paradigm of German operational thought drove the operational planning. The *offensive* idea is reflected in current US doctrine as a principle of joint operations.¹³⁵

The operational approach was associated with high operational and strategic risk. However, Hindenburg and Ludendorff accepted this risk to create mass in the south in order to conduct the decisive operation against the 2nd Narew Army. The economy of forces in the north with a cavalry division delaying against the enemy had three levels of risks. First, the loss of the only cavalry element within the 8th Army would significantly deteriorate reconnaissance capabilities for follow-on operations. Second, the tactical risk of employing a German unit in a delay operation was not reflected in training or doctrine.¹³⁶ Finally, the move presented an operational risk to the overall efforts of defending Eastern Prussia. A failure of 1st CavDiv may have led to the collapse of 8th Army's operations. The strategic risk of this approach was implied. If the eastern theater had not met its objective, the western theater had to shift additional forces to the east. This contradicted the intent of the approach at the strategic level. Hindenburg and

¹³⁴ ADRP 3-0, 4-3.

¹³⁵ Ibid., 4-2.

¹³⁶ Showalter, *Tannenberg Clash of Empires 1914*, 206.

Ludendorff were aware of these risks and weighed them against the created opportunities.¹³⁷ The intercepted radio messages of the Russian armies, air reconnaissance, and the trust in the capabilities of the 8th Army supported their decision.¹³⁸

Trust dominated the environment. Especially in this phase Hindenburg trusted in his chief of staff and his capabilities and gave him the leeway necessary to plan and coordinate in conjunction with LTC Hoffmann. In his post-war memoir, Hindenburg related,

After I had learnt the worth of General Ludendorff, and that was soon, I realized that one of my principal tasks was, as far as possible, to give free scope to the intellectual powers, the almost superhuman capacity for work and untiring resolution of my Chief of Staff, and if necessary clear the way for him, the way in which our common desire and our common goal pointed...¹³⁹

Furthermore, Hindenburg firmly believed in the capabilities of the XX Corps, which had to fix the 2nd Narew Army to set prerequisites for the decisive operations.¹⁴⁰ “I was entitled to credit our side with a plus on the ground of intrinsic value instead of a minus for our numerical inferiority.”¹⁴¹

The operational approach demanded significant synchronization. Three corps (I, I Res, and XVII) had to break contact with the enemy and the I. Corps had to move to the south, while 1st CavDiv and XX Corps continued its fight against two separated Russian armies.¹⁴² In addition, the movements were planned using a combination of train, road, and foot movements.¹⁴³

¹³⁷ Ludendorff, *Meine Kriegserinnerungen 1914-1918*, 16 -17.

¹³⁸ Schaefer, *Tannenberg*, 26.

¹³⁹ Hindenburg, *Out of my Life*, 84-85.

¹⁴⁰ *Ibid.*, 88.

¹⁴¹ *Ibid.*, 91.

¹⁴² Ludendorff, *Meine Kriegserinnerungen 1914-1918*, 167.

¹⁴³ Hoffmann, *Tannenberg: Wie es wirklich war*, 23.

The developed operational approach was executed beginning August 23, 1914.

The Execution

The challenges in leading a modern mass-army can only be overcome, if the army commanders are constantly aware of their belonging to a greater whole.¹⁴⁴

— *Grundzuege der hoheren Truppenfuehrung*, 1910.

The method to assess the battles at Tannenberg groups the key event at the operational level into three sequenced time periods. Each period is internally structured in the same way. This temporal analyses will describe the event, waged decisions and then assess the application of operational art referring to risk, trust, and synchronization. Finally, a visualization supports the description of each time frame. The elaborations below focus on the units under direct control of the 8th Army, the effort against 2nd Narew Army, and addresses 1st Njemen Army only where necessary for the operational picture. These units are I Corps, I Reserve Corps, XVII Corps, XX Corps, 1st Cavalry Division, and Division “Goltz”. The overarching assessed timeframe is August 23 - 31, 1914 and encompasses the battles to defeat Russian 2nd Narew Army.

August 23-25. This timeframe encompasses the efforts to set the initial conditions for the battle against 2nd Narew Army. Russian situation: 1st Njemen Army was in contact with elements of the German Army northeast of the Masurian Lakes but did not attack in force. 2nd Narew Army advanced with five corps abreast. One of these corps, the VI Corps, was the right wing and in a forward exposed position.¹⁴⁵ German situation: The 8th Army had to coordinate and synchronize the fighting and movement of all corps simultaneously. The XX Corps defended to fix 2nd Narew Army and waited for the arrival of the I Corps on its right flank. The I Corps marched by train

¹⁴⁴ D.V.E. Nr. 53, 16.

¹⁴⁵ Schaefer, *Tannenberg*, 45.

and was directed to arrive not prior to August 26. I Reserve Corps had broken contact with Rennenkampf's army and marched south. XVII. Corps had broken contact and expected a follow-on-task. 1st CavDiv played a crucial role in delaying and deceiving the 1st Njemen Army.¹⁴⁶ The significant shift of German forces from north to south had to be concealed. An additional reinforcement of Division "Goltz" for the 8th Army was expected.¹⁴⁷ Furthermore, Moltke had decided to send two additional corps from the west front to Eastern Prussia.¹⁴⁸ Ludendorff unsuccessfully resisted against this decision, as he wanted to avoid weakening the western decisive effort.¹⁴⁹ These two corps would not arrive during the operations against 2nd Narew Army.¹⁵⁰

In this situation, Hindenburg made two decisions mainly based on signal intelligence on the enemy situation and intent.¹⁵¹ Understanding that 1st Njemen Army would not attempt to seize the initiative in the north and the right wing-corps of 2nd Narew army was exposed, Hindenburg ordered I Reserve Corps and XVII Corps to attack south to defeat the Russian VI Corps.¹⁵² The second decision related to Division 'Goltz', Hindenburg and his command group decided to employ this division as a reserve in the vicinity of the threatened XX Corps.¹⁵³

¹⁴⁶ Schaefer, *Tannenberg*, 49.

¹⁴⁷ This summarized developments are generated from Schaefer, 30-50.

¹⁴⁸ Dupuy, *Der Genius des Krieges: Das deutsche Heer und der Generalstab 1807 -1945*, 205.

¹⁴⁹ Ibid.

¹⁵⁰ Ibid.

¹⁵¹ Bromba, *Die Schlacht bei Tannenberg im August 1914: Informationsueberlegenheit eroeffnet Initiative und Handlungsfreiheit*, 75.

¹⁵² Schaefer, *Tannenberg*, 96.

¹⁵³ Ibid., 46.

Hindenburg and Ludendorff assumed more risk than the planning anticipated. The fact that 1st Njemen Army still had not assumed an attack in force against the German units in the north enabled Hindenburg's decision to move the XVII Corps in order to create a more favorable force ratio against 2nd Narew Army.¹⁵⁴ This decision reflects the US understanding of *economy of force*, a joint principle of operation.¹⁵⁵ The movement of XVII Corps away from the vicinity of 1st Narew Army led to the situation that no infantry division would be available to reinforce 1st CavDiv's delaying operations. This was a high risk in favor of massing combat power in the south. The order to I (Res) and XVII Corps implied a risk for the XX Corps defending in the south. A reinforcement by I (Res) and XVII Corps was not possible.¹⁵⁶ The XX Corps (still the only flank protection for the 8th Army towards south) was forced to fight without reinforcements.

The trust in the accuracy of the collected intelligence on the enemy intent and situation, coupled with the capabilities of 1st CavDiv was enormous. If one of these elements turned out to be unworthy, the operation would fail, subsequently leading to a failure to achieve this strategic objective. In US ATP 5-19, this risk is labeled as "catastrophic" due to the consequence of complete mission failure.¹⁵⁷ Based on these developments, the 8th Army increased the synchronization at the army level. Hindenburg's decision to attack VI Russian corps, increased the complexity of synchronization.

Through the lens of operational art, the 'arranging tactical actions in pursuit of strategic objectives, while accounting for risk' and 'balancing risk and opportunity', this decision

¹⁵⁴ Schaefer, *Tannenberg*, 49.

¹⁵⁵ ADRP 3-0, 4-2.

¹⁵⁶ Schaefer, *Tannenberg*, 45.

¹⁵⁷ *Army Techniques Publication (ATP) 5-19: Risk Management* (Washington, DC: GPO, April 2014), 1-9.

emphasized the commitment of the 8th Army to achieve the assigned strategic objective.¹⁵⁸ The risks comprising an increased level of synchronization, economy of force in the north, and the battle against Russian VI, were balanced against with the opportunity to defeat the right wing of 2nd Narew. The 8th Army's ability to balance these risks with opportunity illustrated the prominence and application of modern operational art. Ludendorff resisted the additional reinforcements envisioned by the OHL, which emphasizes the strategic understanding of 8th Army's command group. Ludendorff understood the importance of the operations at Tannenberg as part of the overall strategy, he 'lived' GdTF, which postulates that commanders had to be constantly aware of their belonging to a greater whole.¹⁵⁹ JP 5-0 defines this as nesting.¹⁶⁰

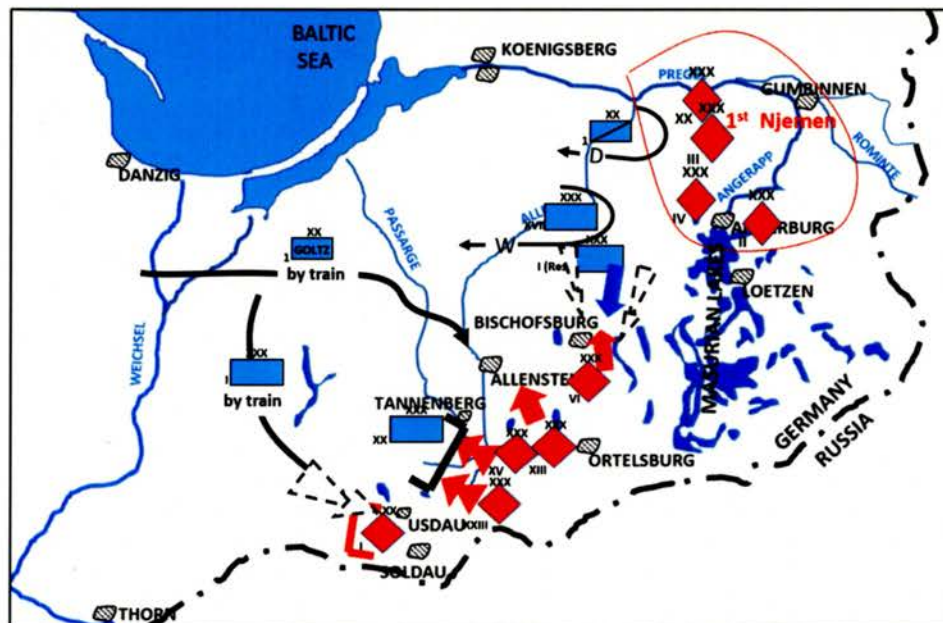


Figure 5. Operations August 23-25.

Source: Figure created by author using information from von Mantey, *Kartenbild des Sommerfeldzuges 1914 im Osten*, map 2.

¹⁵⁸ ADRP 3-0, 4-1.

¹⁵⁹ D.V.E. Nr. 53, 16.

¹⁶⁰ JP 5-0, IV-46.

26./27. August. In this period the 8th Army fought two battles against elements of the 2nd Narew Army. Russian Situation: Still the 1st Njemen Army did not decisively engage the German forces in the north. The 2nd Narew Army employed I and XXIII Corps against the German I. Corps and XX Corps. The Russian XV And XIII Corps were able to advance further north.¹⁶¹ The Russian VI Corps was engaged with the German XVII Corps. The German situation: 1st CavDiv delayed as planned. XX Corps fought against Russian XIII And XV Corps and waited for the I Corps readiness to launch the coordinated attack.¹⁶² I Corps was later than expected ready to attack in conjunction with XX Corps.¹⁶³ While XVII Corps fixed the Russian VI Corps through a meeting engagement, I (Res) Corps attacked the left flank of Russian VI Corps. The coordinated German attack of two corps forced the Russian corps to retreat.¹⁶⁴

The command group of 8th Army dealt with friction during the march of the I Corps, which delayed the attack against the bulk of 2nd Narew Army.¹⁶⁵ The key tasks for the army command were to balance the combat power between three regional efforts: The fights against the Russian VI Corps, the fight against Russian XV and XIII Corps, and the attack of XX Corps in conjunction with I Corps against the 2nd Narew Army. The decision to employ XVII Corps and I Reserves Corps against the Russian VI Corps defeated the right wing of 2nd Narew Army and reflected the joint principle of *mass*.¹⁶⁶ Immediately after the success against the Russian VI

¹⁶¹ Bromba, *Die Schlacht bei Tannenberg im August 1914: Informationsueberlegenheit eroeffnet Initiative und Handlungsfreiheit*, 75.

¹⁶² Schaefer, *Tannenberg*, 50.

¹⁶³ Ibid., 53.

¹⁶⁴ Ibid., 105-106.

¹⁶⁵ Bromba, *Die Schlacht bei Tannenberg im August 1914: Informationsueberlegenheit eroeffnet Initiative und Handlungsfreiheit*, 76.

¹⁶⁶ ADRP 3-0, 4-2.

Corps Hindenburg ordered the I Reserve Corps to attack Russian XIII Corps in vicinity of Allenstein, while XVII Corps had to pursue the retrograding VI Corps.¹⁶⁷

The exploitation by XVII Corps and I Reserve Corps reflects the *offensive* spirit of the 8th Army and is also a principle of joint operations.¹⁶⁸ Waiting for the buildup of sufficient combat power (I Corps) before launching the attack against the left wing of 2nd Narew ensured the following success. At the end of August 27, the 8th Army had defeated the left and right wing of 2nd Narew Army. The ordered exploitation in the east (XVII Corps) and in the southwest (I Corps) closed the ring in the south and in the east.¹⁶⁹ In his memoirs Hindenburg related

...we opposed a thin centre [XX Corps] to Samsonoff's solid mass. ... it was composed of men with hearts and wills of steel. ... behind them everything they had. This thin centre might bend under the enemy's pressure but it would not break. While this centre was engaged two important groups on the enemy's wings were to carry out the decisive attack [in this phase]. ... 1st Corps ... were brought to battle from the right, the north-west, ... 17th Corps and 1st Reserve Corps ..., from the left, the north and north-east. These men ... also had behind them everything which made life worth living.¹⁷⁰

General Hindenburg's words reflect trust and indicate his understanding for synchronization and risk. His words are characterized by a deep rooted trust in the capabilities of his army and the importance of their morale. Hindenburg reflects comprehension for the required synchronization of the tactical actions at the center and wings of German 8th Army. Hindenburg saw the opportunity to defeat Samsonov's wings without underestimating the risk to the XX Corps.

¹⁶⁷ Ludendorff, *Meine Kriegserinnerungen 1914-1918*, 18.

¹⁶⁸ ADRP 3-0, 4-2.

¹⁶⁹ Schaefer, *Tannenberg*, 118.

¹⁷⁰ Hindenburg, *Out of my Life*, 87-88.

The 8th Army accepted tactical risk to maintain operational opportunity. The frictions in the movement of I Corps led to the situation that General Francois, commander I Corps, requested a delay of the attack against the Russian right flank.¹⁷¹ General Francois illustrated that an attack without the still missing artillery of I Corps might fail.¹⁷² Hindenburg relied on the attack of I and XX Corps. The advance of the Russian XIII and XV Corps had to be stopped to provide enough maneuver room for the XVII and I (Res) Corps.¹⁷³ Hindenburg accepted the risk and ordered the attack of I Corps against the Russian left flank, while I (Res) Corps and XVII Corps attacked the Russian right flank.¹⁷⁴ The synergetic effect of a synchronized effort against 2nd Narew Army at operational level outweighed the tactical risk at I Corps.

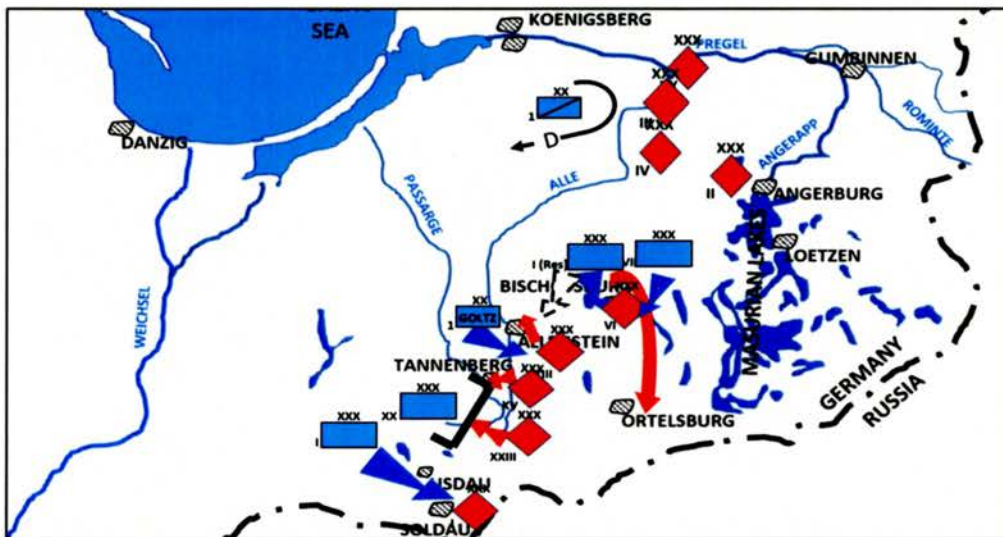


Figure 6. Operations August 26-27.

Source: Figure created by author using information from von Mantey, *Kartenbild des Sommerfeldzuges 1914 im Osten*, map 3 and map 4.

¹⁷¹ Hoffmann, *Tannenberg: Wie es wirklich war*, 36.

¹⁷² Schaefer, *Tannenberg*, 50.

¹⁷³ Ludendorff, *Meine Kriegserinnerungen 1914-1918*, 17.

¹⁷⁴ Schaefer, *Tannenberg*, 50.

August 28.-31. The 2nd Narew Army was threatened by encirclement and 1st Njemen Army continued its slow advance towards Koenigsberg.¹⁷⁵ The division “Goltz” had arrived and was employed to close the gap between I Reserve Corps and XX Corps.¹⁷⁶ August 28 was characterized by continuous fighting and the effort to finally close the ring around 2nd Narew army.¹⁷⁷ August 29 demanded a challenging decision by Hindenburg. An intercepted and broken radio message indicated that 1st Njemen Army intended to launch an attack to relieve 2nd Narew Army.¹⁷⁸ In this situation, Hindenburg decided not to change his intent. He assessed that only the defeat of 2nd Narew set conditions for overall success in redirecting forces against 1st Njemen Army and would have led to a split of forces which would have neither defeated Samsonov nor Rennenkampf.¹⁷⁹ Hindenburg completed the encirclement of 2nd Narew Army with this decision. On 30th August, Samsonov tried unsuccessfully to break the encirclement with I and VI Corps from outside. On August 31, Hindenburg wired to the OHL that 2nd Narew Army was defeated – XIII Corps, XV Corps, and XIII Corps were destroyed; I Corps and VI Corps were severely attrited.¹⁸⁰ On the same day, the 8th Army received reinforcements from the OHL. The XI Corps, the Guard Reserve Corps and the 8th CavDiv were attached to 8th Army for follow-on operations.¹⁸¹ Furthermore, OHL tasked 8th Army to clear Eastern Prussia from 1st Njemen

¹⁷⁵ Hindenburg, *Out of my Life*, 96.

¹⁷⁶ Schaefer, *Tannenberg*, 142.

¹⁷⁷ Hindenburg, *Out of my Life*, 96.

¹⁷⁸ Bromba, *Die Schlacht bei Tannenberg im August 1914: Informationsueberlegenheit eroeffnet Initiative und Handlungsfreiheit*, 76.

¹⁷⁹ *Ibid.*, 76.

¹⁸⁰ Hindenburg, *Out of My Life*, 99.

¹⁸¹ *Ibid.*

Army.¹⁸² The operation against the 1st Njemen Army is outside the focus of this monograph. However, the effort against Rennenkampf was the final phase of the campaign in Eastern Prussia.

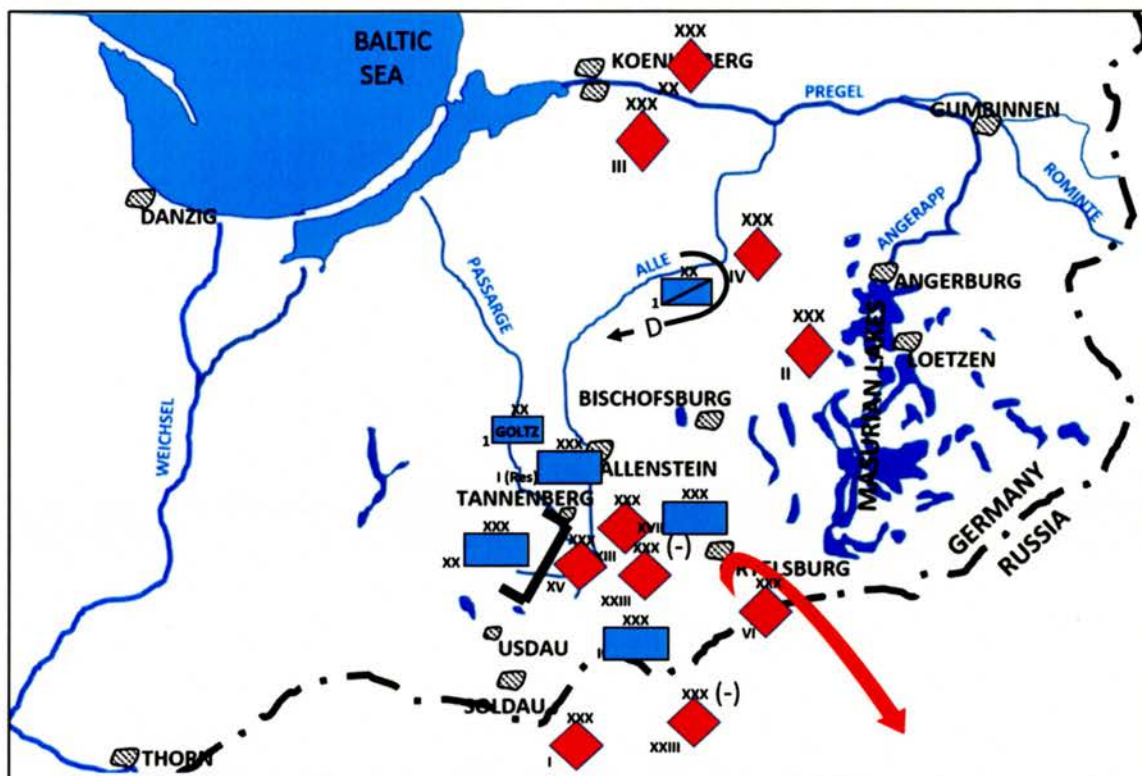


Figure 7. Operations August 28-31.

Source: Figure created by author using information from von Mantey, *Kartenbild des Sommerfeldzuges 1914 im Osten*, map 4, map 5, and map 6.

On September 5, 1914 Hindenburg ordered the now reinforced 8th Army to attack against 1st Njemen Army in order to clear Eastern Prussia from the remaining Russian forces.¹⁸³ The 8th Army employed their forces along three lines of operation. In the north four corps advanced against the main formations of 1st Njemen Army between the Masurian Lakes and

¹⁸² Hindenburg, *Out of My Life*, 100.

¹⁸³ *Ibid.*, 104.

Koenigsberg.¹⁸⁴ In the center, two corps attacked through the Masurian Lakes region to threaten the Russian left flank. South of the Masurian Lakes, 3rd (Res) Division attacked to disrupt Rennenkampf's lines of communications.¹⁸⁵ 1st and 8th CavDiv were held as army reserve.¹⁸⁶ The German operation on the northern line of operation did not achieve decisive success. The central and southern forces were able to advance with more tempo in relation to the north, but were not able to deny the withdrawal of Rennenkampf's Army into Russian territory. Through his approach Hindenburg was able to clear Eastern Prussia, but not to defeat 1st Njemen Army.¹⁸⁷ At the operational level the campaign in Eastern Prussia met its objective - Eastern Prussia was defended against Russia.

Assumed risks, trust in capabilities and morale, and consequent synchronization of efforts and movements led to the success of the 8th Army. Hindenburg had assumed significant risk to the strategic goal in Eastern Prussia by developing an operational approach, which employed very few forces against a whole enemy Army, while he concentrated the majority of forces against the 2nd Narew Army. The complexity of the required movements and mutually supporting efforts was a risk at operational level itself. The leadership of the German Forces in Eastern Prussia understood the strategic context of its operation and accepted the unfavorable force ratio to avoid a weakening of the strategic effort of Germany against France. Mitigating this risk were three elements. First, deception; the delay of 1st CavDiv against 1st Njemen Army in the north, which deceived the enemy by indicating that the 1st Njemen Army was facing stronger German forces in the north. The second mitigating factor was situational awareness. The available German air and signal intelligence provided a clear and accurate picture of enemy disposition and intent. Finally,

¹⁸⁴ Hindenburg, *Out of my Life*, 104.

¹⁸⁵ Ibid.

¹⁸⁶ Ibid.

¹⁸⁷ Ibid., 108.

the quality of troops made a key difference. The reliability, morale and motivation of German forces allowed movements and actions outside the doctrinal framework of that time. This last element was the basis for the deep trust of the commander in his troops and the troops into each other.

Trust during the battles at Tannenberg enabled the operations at all levels. The OHL assigned a task to the 8th Army, which had significant value in two dimensions. First, the military importance of the task was obvious. The campaign against the Russian forces was not the strategic main effort, but it sat as a supporting effort the conditions for decisive operations against France in the west. Only if German forces were able to defend the eastern borders against Russian forces, the OHL would be able to execute its strategic approach in the west. The fact that the 8th Army had an unfavorable force ratio for this task indicates that the OHL trusted in the capabilities of Hindenburg and Ludendorff. The fact that after the initial battle at Gumbinnen solely the commander was replaced while the force posture was maintained supports this interpretation. Trust among the members of the staff and in their capabilities facilitated planning and reduced frictions during the planning. Hindenburg's trust in the motivation and capabilities of the employed forces is especially obvious when his numerically inferior forces (XX Corps) opposed the 2nd Narew Army initially. Hindenburg's and Ludendorff's belief in the capabilities of their forces and headquarters is also implied in the fact that the developed operational approach was not simple in the execution and required synchronization.

The synchronization of complex movements and actions orientated on conditions assured the successful execution for the operation. The 8th Army executed movements of corps and division-sized elements by rail and by road. The coordination of these movements based on the enemy situation and the status of his own forces in combat led to a synchronized effort against 2nd Narew Army and later on against 1st Njemen Army. The coordinated attack of XX Corps and I

corps commenced only after the combat power of I Corps was sufficiently built up. However, the complexity of parallel and mutually supporting actions did not prevent flexibility. Hindenburg and Ludendorff adapted the movements of their maneuver elements to exploit opportunities. The 8th Army tasked the XVII Corps and I (Res) Corps to attack the Russian IV Corps when the enemy situation informed the German leadership of this opportunity. Nevertheless, Hindenburg did not neglect the overall effort and approach in favor of tactical success. He understood his role in the strategic effort and the operational goal in relation to the tactical fights.

This section indicated how the military situation at operational and strategic level was characterized by risk and trust. Limited German means at strategic and operational level demanded for risk in the ways to achieve the intended goal. The battles at Tannenberg were successful and contributed to the strategic goal. The leadership of the 8th Army employed a way of operating, which indicated the characteristics of today's US Army's operational art. However, the level of risk accepted in the planning and execution of the battles was high and risked the strategic level, too. The acceptance of this quality of risk differentiated from today's US Army's risk acceptance. While US Army planners and leaders accept risk to create opportunity, the German military of 1914 understood risk as necessity for successful operations in numerical inferiority. German planning and execution were facilitated and based on trust. The execution demanded significant synchronization at operational level and permanent cognitive synchronization with the strategic level. The analysis of this section showed the similarities of the German battles at Tannenberg with the current US Army operational art through the lens of risk, trust, and synchronization.

Section 4: Conclusion: German Way of Operating at Tannenberg 1914 and Today's US Operational Art – Similar but not the Same

Army commanders have to employ their actions in a way, which ensures that the intents of High Army Command are executed and directed towards the same common goal. The improvement in firepower made a successful [attack] more challenging; but the discipline and the high level of training of our army as well as the fact that the military leader is used to act by himself, justify us to count on a successful solution even to challenging missions.¹⁸⁸

— *Grundzuege der hoheren Truppenfuehrung*, 1910.

[Operational art is] the pursuit of strategic objectives, in whole or in part, through the arrangement of tactical actions in time, space, and purpose.¹⁸⁹

— US Army Doctrine Publication 3-0, 2012.

The comparison of German operational thought in 1914 with today's US Army's operational art and the analysis of the German battles at Tannenberg in 1914 indicates that the German 8th Army applied operational art as US Army doctrine understands it today. However, while the functionality of these two concepts indicates similarity, the qualitative difference can only be understood if the circumstances of German politics, society, and military are also considered.

German military doctrine and thought of the early 20th century demanded synchronized military actions at and in between all levels of war. The two quotations at the beginning of this sections are separated by 100 years. However, the message remains constant. Military actions need to be nested to the higher level of war and synchronized in the execution. This is the core of operational art and reflected in the battles of Tannenberg.

¹⁸⁸ D.V.E. Nr. 53, 16 (translated by the author).

¹⁸⁹ ADP 3-0, 9.

The elaborations on the German society and political influences in section 2 highlighted that the German situation demanded action due to the geographical position of Germany and its political isolation. The numerical inferiority of military forces was mitigated through acceptance of higher risks at all levels of war. Patriotism and cohesion in the society supported this approach. The military educational system created cognitive cohesion and mutual trust in capabilities and procedures. Further, the common military education and training created shared understanding in procedures. The trust in military capabilities led to higher risk acceptance. While identified risk in today's US Army's operational art encourages mitigation where possible, the German operational thought cognitively mitigated risk. In Germany, risk was present before planning and execution commenced; the political and geographical constellation created a risk heavy environment. Trust in the German military's capabilities and military entities had mitigating effect. Today's US Army's operational art applies risk acceptance to create opportunity. German operational thought saw risk as common element of operational planning and execution.

Hindenburg and Ludendorff operated in this risk heavy environment. The 8th Army executed its operation by synchronizing their actions in time, space, and purpose permanently orientated at conditions and nested in the strategic goal. Hindenburg cognitively synchronized his operations with the OHL's intent and physically synchronized the maneuvers of his corps on the battlefield.

The aspect of synchronization in today's operational environment has gained complexity through additional actors, asymmetry, and air operations. Current synchronization of military planning and execution of operations has lost flexibility – it demands more technical synchronization to achieve 'deconfliction' of air, land, sea and civilian domains. This monograph has identified the role of synchronization on a contemporary battlefield as a possible aspect for

further analysis. Particularly the tension between mission command with its intent to enable flexibility, versus synchronization with its constraining effect of time driven coordination

The German 8th Army at Tannenberg 1914 applied operational art as US Army doctrine understands it today. However, the difference between Germany operating at Tannenberg in relation to risk and US Army operational art is obvious and based on the German political and social environment in the early 20th century.

Bibliography

Primary Sources

- Hoffmann, Max. *Tannenberg wie es wirklich war*. Berlin, Germany: Verlag fuer Kulturpolitik, 1926.
- Von Francois, Hermann Bruno. *Gehorsam und Verantwortungspflicht: Erlaeutert an den Befehlsreihungen waehrend der Schlacht bei Tannenberg*. Berlin Germany: Wachtfeuerverlag, GmbH, 1932.
- Von Giehrl, Hermann. *Tannenberg*. Berlin, Germany: E.S. Mittler & Sohn, 1923.
- Von Hindenburg, Paul. *Out of my Life*. Translated by F. A. Holt. London: Cassell, 1920.
- Von Ludendorff, Erich. *Meine Kriegserinnerungen 1914-1918*. Berlin, Germany: Ernst Siegfried Mittler und Sohn, 1921.

Governmental sources

- Von Schaefer, Theobald. *Tannenberg: In Schlachten des Weltkrieges*. Reichsarchiv, Vol. 19. Berlin, Germany: Druck und Verlag von Gerhard Stalling, 1927.
- US Joint Chief of Staff. *Joint Publication (JP) 3-0. Joint Operations*. Washington, DC: GPO, August 2011.
- _____. *Joint Publication (JP) 5-0. Joint Operation Planning*. Washington, DC: GPO, August 2011.
- _____. *Joint Publication (JP) 1-02. Department of Defense Dictionary of Military and associated Terms*. Washington, DC: GPO, August 2014.
- US Department of the Army. *Army Doctrine Publication 3-0: Unified Land Operations*. Washington, DC: GPO, October 2011.
- _____. *Army Doctrine Publication 5-0: The Operations Process*. Washington, DC: GPO, May 2012.
- _____. *Army Doctrine Publication 6-0, Mission Command*. Washington, DC: GPO, May 2012.
- _____. *Army Doctrine Reference Publication 3-0: Unified Land Operations*. Washington, DC: GPO, May 2012.
- _____. *Army Doctrine Reference Publication 5-0: The Operations Process*. Washington, DC: GPO, May 2012.
- _____. *Army Techniques Publication 5-19: Risk Management*. Washington, DC: GPO, April 2014.

- Bromba, Werner. *Die Schlacht bei Tannenberg im August 1914: Informationsueberlegenheit eroeffnet Initiative und Handlungsfreiheit*. IN: *Grundsaeetze der Truppenfuehrung im Lichte der Operationsgeschichte von vier Jahrhunderten*. Hamburg, Germany: Arbeitsgruppe Joint und Combined Operations (JACOP), 1999.
- Kriegsministerium. *Grundzuege der hoeheren Truppenfuehrung (D.V.E. Nr.53)*. Berlin, Germany, Reichsdruckerei, 01 January 1910.

Secondary sources

- Citino, Robert. *The German Way of War*. Lawrence, KS: University Press Kansas, 2005.
- Driftmann, Hans H. *Grundzuege des militaerischen Erziehungs- und Bildungswesens in der Zeit 1871-1939*. Regensburg, Germany: Walhalla u. Praetoria Verlag, 1980.
- Dolman, Everet Carl. *Pure Strategy: Power and principle in the space and information age*. New York: Frank Cass, 2005.
- Dupuy, Trevor N. *Der Genius des Krieges: Das deutsche Heer und der Generalstab 1807-1945*. Graz, Austria: Ares Verlag, 2009.
- Gross, Gerhard P. *Mythos und Wirklichkeit: Geschichte des operative Denkens im deutschen Heer von Moltke d.Ae. bis Heusinger*. Paderborn, Germany: Ferdinand Schoeningh, 2012.
- Heuser, Beatrice. *Den Krieg denken: Die Entwicklung der Strategie seit der Antike*. Paderborn, Germany: Ferdinand Schoeningh, 2010.
- Hughes, Daniel J., ed. *Moltke on the Art of War, Selected Writings*. Translated by Daniel J. Hughes and Harry Bell. New York: Random House, 1993.
- MacDonogh, Giles. *Die 50 bedeutensten Schlachten: Von Austerlitz bis Waterloo*. Hamburg, Germany: National Geographic Deutschland, 2001.
- Paret, Peter, ed. *Makers of Modern Strategy: from Machiavelli to the Nuclear Age*. Princeton: Princeton University Press, 1986.
- Parker, Geoffrey. *Illustrated History: Warfare*. New York: Cambridge University Press, 1995.
- Pierck, Perry. *Tannenberg: Erich Ludendorff and the Defense of Eastern German Border in 1914*. Soesterberg, Netherlands: Uitgeverij Aspekt, 2004.
- Schneider, James J. *Vulcan's Anvil: The American Civil War and the Foundation of the Operational Art*. Theoretical Paper, No. 4. Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2004.
- Showalter, Dennis E. *Tannenberg Clash of Empires 1914*. Washington, DC: Brassey's, 2004.
- Swain, Richard M. "Filling the Void: The Operational Art and the U.S. Army," in *Operational Art: Developments in the Theory of War*. Eds B.J.B. McKercher and Michael Hennessey. Westport, CT: Praeger, 1996.
- Uhle-Wettler, Franz. *Hoehe- und Wendepunkte deutscher Militaergeschichte*. Hamburg, Germany: E.S. Mittler und Sohn, 2000.
- Van Creveld, Martin and John A. Olsen. *The Evolution of Operational Art: From Napoleon to the Present*. New York: Oxford University Press, 2011.
- Von Clausewitz, Carl. *On War*. Edited and translated by Michael Howard and Peter Paret. Princeton: Princeton University Press, 1989.

Manuscripts/Articles

- Jackson, Fredericke E. *Tannenberg: The First use of Signal Intelligence in Modern Warfare*. Strategy Research Project. Carlisle Barracks, PA: US Army War College, 2002.
- Kahn, David. "Codebreaking in World Wars I and II: The Major Successes and Failures, Their Causes and Their Effects." *The Historical Journal* 23, No. 3 (September 1980): 617-639.
- Kearsy, A. *A Study of the Strategy and Tactics of the East Prussian Campaign 1914: Illustrating the Principles of War - Battles described*. London: Sifton, 1931.
- Showalter, Dennis E. "Army and Society in Imperial Germany: The Pains of Modernization." *Journal of Contemporary History* 18, No. 4, Military History (October 1983): 583-618.
- Stone, Norman. "Moltke-Conrad: Relations between the Austro-Hungarian and the German General Staff 1909-14." *The Historical Journal* 9, No. 2 (1966): 201-228.

Maps

- Von Mantey, Oberst a.D. *Kartenbild des Sommerfeldzuges 1914 im Osten*. Berlin: E.S. Mittler & Sohn, 1930.