"TO CATCH HIGH LEVEL ATTENTION"

HOW INTELLIGENCE INFLUENCES PEACETIME FORCE DEVELOPMENT IN THE U.S.

MILITARY

by
Ray Sullivan

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Abstract

This research paper investigates how the United States has approached peacetime force development before a great power conflict. Specifically, this paper investigates intelligence support to capability development, also known as Institutional Intelligence and presents a simple question. Does knowledge of our competitors capabilities drive United States Force Development?

My paper finds that detecting a threat is far from preparing for it and even when serious vulnerabilities were identified by U.S. intelligence agencies, rarely was that enough to influences force development in a way that produced a deliberate capability. Instead this paper presents four different interactions that takes place between intelligence and force development.

a. **When intelligence influences a deliberate result:** In this scenario there is an interaction between intelligence and force development which produces deliberate change based upon correct intelligence. This is the goal of intelligence agencies and force developers but is the rarest of all interactions.

b. **When intelligence influences a happenstance result:** This where bad intelligence influences force development to produce a specific capability. Because the information was faulty, the product is the result of happenstance instead of a deliberate process and could result in either positive or negative outcomes.

c. **When intelligence is ignored**: In this scenario there seems to be no interaction between intelligence and force development. This results in a capability/strategy mismatch and could leave forces vulnerable to unknown deficiencies.

d. When intelligence is dismissed: This where there is an interaction between accurate intelligence and force development, but intelligence fails to influence positive change resulting in a vulnerability that could have been mitigated if the intelligence was utilized.

The results of this paper should come as a warning to current strategists and intelligence officials who believe that the danger lies only in detection of enemy capabilities. Intelligence must have the proper influence, not just accuracy to drive force development.

Official Readers: Dr. Bob Haffa, PhD. Dr. Sarah Clark, PhD.

Acknowledgements

I would like to dedicated this work to my wife Hillary, constant motivator, ruthless editor and eternal love of my life. "Maxime momenti quae facerent, cum nos semper nobis erit in muris patriae domi vel foris genita." As well as my boys, Miles and Henry for being 'reasonable' during the many months of research required for this paper.

And to John, reader of books.

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Introduction

This research paper investigates how the United States has approached peacetime force development before a great power conflict. Specifically, this paper investigates intelligence support to capability development, also known as Institutional Intelligence and presents a simple question. Does knowledge of our competitors capabilities drive United States Force Development?

While not a perfect lens for understanding our subject, Colonel Arthur Lykke's model of *'Ends, Ways and Mean'* provides a footing to begin framing the question. In his 1989 article in *Military Review* titled "*Defining Military Strategy*" Lykke presents us with two levels of strategy:

> There are two levels of military strategy: **operational and force development**. Strategies based on existing military capabilities are operational strategies and are used as a foundation for the formulation of specific plans for action in the short-range time period. This level of strategy has also been referred to as higher, or grand, tactics and operational art. **Longer-range strategies may be based on estimates of future threats, objectives and requirements, and are therefore not as constrained by current force structure. These longer-range strategies are more often global in nature and may require improvements in military capabilities**. Military strategies can be regional as well as global, concerning themselves with specific threat scenarios. (Lykke, 3, emphasis added)

While Lykke's definition of military strategy is still a hotly debated topic in military science, his concept of force development has received much less attention but is arguably more important. Lykke outlines why understanding force development is so imperative.

> …if we fail to consider military resources as an element of military strategy, **we may be faced with what has come to be called a strategy-capabilities mismatch**; in other words, inadequate military capabilities to implement the strategic concepts and to accomplish the objectives of a military strategy. This is the usual case when we are developing a long-range strategy requiring improved military force structure capabilities. (Lykke, 4, emphasis added)

So how does the United States approach developing a long-*range strategy requiring improved military force structure capabilities* and avoid a strategy-capability mismatch described by Lykke?

Background

1. Wartime vs. Peacetime Force Development

Force development takes place in two distinct periods: peace and war; with wartime development having several important advantages. First is that the political debate about investing in force development is more straightforward during war. Wartime leaders are more likely to account for, as well as invest in capability development than their peacetime counterparts. Second intelligence about enemy proficiencies is far more numerous and accurate during combat. It is one thing to read about enemy capabilities in an intelligence report it is another to see its results on one's own forces. Finally, choices about capability development receive real-time feedback during wartime. It is impossible to fully recreate the conditions of combat in peacetime. Until armies are tested in battle, force developers must wait for the final verdict on their efforts.

While wartime force development has many advantages, all of them come at the high cost of lives and capital. Worse, wartime force development requires conflicts of enough length to engage in battle adaptation. The armies of France undoubtedly had the motivation as well as the knowledge to enact meaningful force development changes after the German invasion of May 1940, however they never got the chance. Such risks mean that peacetime force development is always preferable to wartime, but as we shall see there is a strong debate about the ability of peacetime force development to meet the challenge.

1. The Institutional Level of War

This paper uses a theoretical framework called *'The Institutional Level of War'* which was developed by Army strategist Dan Sukman. In a 2016 article, Sukman presents his idea and defines it as *"The Level of War at which a nation's military services develop material and nonmaterial capabilities, to include technology and people to execute the tactical, operational, and strategic level of warfare."*[1]

Figure 1.1 – The Institutional Level of War[2]

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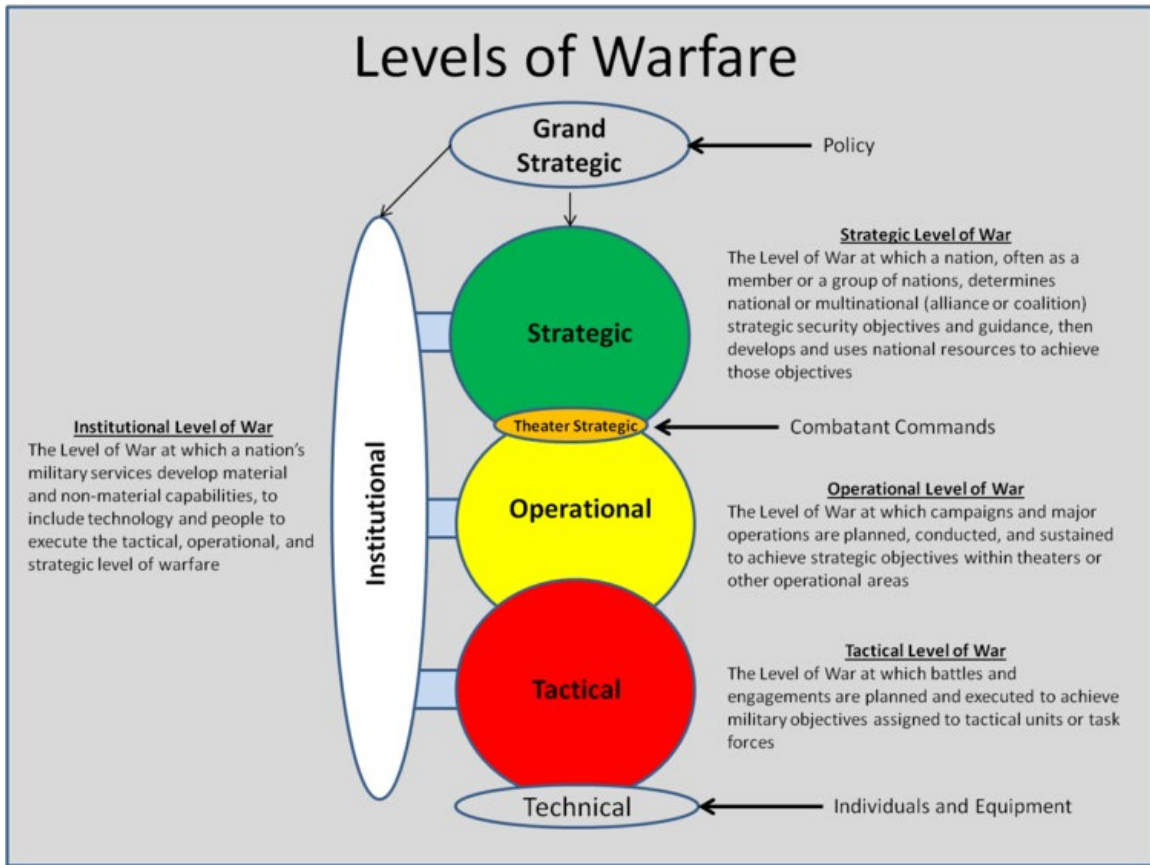
[1] Nathan K. Finney, On Strategy: A Primer (Fort Leavenworth, KA: Combat Studies Institute Press, US Army Combined Arms Center, 2020), 102.

[2] Daniel Sukman, "The Institutional Level of War," The Strategy Bridge (The Strategy Bridge, November 23, 2016), https://thestrategybridge.org/the-bridge/2016/5/5/the-institutional-level-of-war.

The institutional level of war is not defined by scope, but by *time*. Because there is an increasing length of time when "services move from concepts to capabilities,"[3] states will require a unique 'Institutional Strategy' that is concurrent, but distinct from operational strategy in order to be successful in modern war. Institutional Strategy forecasts both internal ends, ways and means, and places them against the estimated threat capability to create a strategy that drives capability development for *future conflicts.*

2.   Intelligence and it's Influences on Force Development

Just like every other level of war, the institutional level has an exclusive set of intelligence requirements. These requirements are defined by time and necessitate intelligence producers to "rely on assumptions" and "consider the future combat capabilities of foreign adversaries as well as the potential capabilities of our own, and allied nations."[4] In order to meet the requirements of institutional strategy the intelligence community must produce long range forecasts years into the future, a task they have been hesitant to embrace because of its traditionally high rate of failure and excessive labor costs.[5]

Success in forecasting the future battlefield does not spontaneously translate into military capabilities, rather it is a tool that can influence the force development process. As Dr. Peter Rosen puts it: "*A reasonable hypothesis would be that intelligence about the military plans and capabilities of potential enemies drives military planners to develop countermeasures in the form of new weapons and concepts of operations.*"[6] However, as we shall see this is not often the case and that only under certain circumstances does intelligence influence positive force development.

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[3] Nathan K. Finney, On Strategy: A Primer (Fort Leavenworth, KA: Combat Studies Institute Press, US Army Combined Arms Center, 2020, 105.
[4] Ibid, 105.
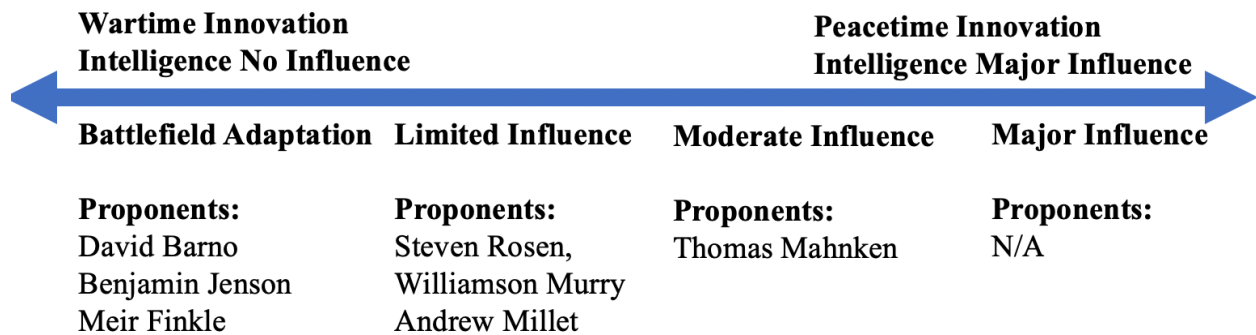[5] Harold Arnold, "Planning Our Military Forces," Foreign Affairs, January 1967, pp. 277-290, 279.
[6] Stephen Peter Rosen, Winning the Next War: Innovation and the Modern Military (Ithaca, NY: Cornell University Press, 1991), 60.

Literature Review

Scholarship about military innovation falls into three schools of thought based upon on their views of intelligence and its effects on force development. I have titled them the: the No Influence School, the Limited Influence School and the Moderate Influence School.

Figure 1.2 – Summary of Literature Review

Wartime Innovation
Intelligence No Influence

Peacetime Innovation
Intelligence Major Influence

Battlefield Adaptation	Limited Influence	Moderate Influence	Major Influence
Proponents: David Barno Benjamin Jenson Meir Finkle	**Proponents:** Steven Rosen, Williamson Murry Andrew Millet	**Proponents:** Thomas Mahnken	**Proponents:** N/A

1. Intelligence Has No Influence – Wartime Innovators

The first school of thought is the 'No Influence' cohort which believes that intelligence has no influence on positive force development and that peacetime innovation will always leave serious vulnerabilities that must be remedied in wartime. The United States Army has a long history of innovation on the battlefield, in large part because of its inability to field adequate capabilities before a conflict begins. This school believes that peacetime innovation fails to meet the mark because modern intelligence is unable to provide any real clarity to events outside the immediate future.[7] Recent authors such as General David Barno argue that it is impossible for the United States, or anyone else, to know what the future battlefield will hold. Barno summarizes his views of intelligence forecasting by saying: *"human ability to predict the future*

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[7] Meir Finkel and Moshe Tlamim, On Flexibility Recovery from Technological and Doctrinal Surprise on the Battlefield (Stanford, CA: Stanford Security Studies, 2011), 38.

will always remain limited. The future is simply too complicated, too dependent on unidentifiable causes, too subject to human frailties and emotions."[8]

Wartime innovators would say that our expectations of peacetime force development should be low due to our inability to forecast the future battlefield.[9] For solutions to the issue of uncertainty, this school of thought focuses on the need to reduce bureaucratic interference at the tactical and operational level in order to allow innovators the space necessary to overcome battlefield difficulties.[10] The key takeaway from this school of thought is its lack of faith in peacetime innovation as a means to prepare for the future battlefield. Wartime innovators accept that adaptation during combat is unavoidable in modern combat and flexibility should be the focus of force development efforts.

2.   Intelligence as a Limited Influence

The next school of thought is that intelligence can have positive effects in some narrow circumstances. Dr. Steven Rosen a professor at the University of Suffolk summarizes this view in his book *Wining the Next War,* which looks at peacetime innovation. Rosen remarks *"peacetime military innovation in the United States has, in fact, proceeded remarkably independent of intelligence about foreign military powers."*[11] He comes to the same conclusion when looking at foreign military innovation "*what the records reveal is a pattern of*

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[8] Barno, David, and Nora Bensahel. Adaptation under Fire: How Militaries Change in Wartime. Oxford, UK: Oxford University Press, 2020. 2

[9] Ernest May, Knowing One's Enemies: Intelligence Assessment before the Two World Wars (Princeton, NJ: Princeton University Press, 2014), 534.

[10] Benjamin M. Jensen, Forging the Sword: Doctrinal Change in the U.S. Army (Stanford, CA: Stanford University Press, 2016). Chapter 6 and Barno, David, and Nora Bensahel. Adaptation under Fire: How Militaries Change in Wartime. Oxford, UK: Oxford University Press, 2020. 280 - 287

[11] Stephen Peter Rosen, Winning the Next War: Innovation and the Modern Military (Ithaca, NY: Cornell University Press, 1991), 57.

organizational behavior in which the community, both in peacetime and in war, was surprisingly divorced from intelligence about enemy technology."[12]

The limited influence school of thought offers three major explanations about intelligence's inability to be the key driver of peacetime force development. First of all, no matter the state of the intelligence, the bureaucratic disputes inherent to large organizations make it unlikely that intelligence, right or wrong, would reach the right hands, let alone carry the influence necessary to shape capability development.[13] Secondly because of the insolation of bureaucratic systems, only major changes to the international system would be able to catch the attention of senior leaders and mobilize them towards positive action.[14] Third is that force development is in reality a "system of innovation" in which intelligence plays a smaller and sometimes indistinguishable part from the whole.[15]

Limited influence supporters differ from wartime innovators in their views about the influence of intelligence on capability development. Unlike wartime innovators, limited influence backers believe that in some specific cases intelligence can drive capability development.[16] Dr. Rosen presents two examples to show how positive intelligence relations are possible and why they are so rare. The first example of a positive relationship between intelligence forecasting and force development is the case study of Electronic Warfare (EW) during the interwar years. Rosen presents the EW case study by showing how competition between communication and jamming provided feedback as well an opportunity for intelligence exploitation through the monitoring of both voice communication as well as the scientific

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[12] Stephen Peter Rosen, Winning the Next War: Innovation and the Modern Military (Ithaca, NY: Cornell University Press, 1991), 187.
[13] Ibid, 217.
[14] Ibid, 75.
[15] Ibid, 186.
[16] Ibid, 253- 255.

signature of radio transmissions. This information provided U.S. force planners the opportunity to both mitigate vulnerabilities and create capability overmatch, which are the two primary goals of force development.[17]

These type of results are rare however because of the internal friction inherent to complex tasks and organizations. Rosen illustrates this point when discussing technical collection in Europe during the interwar years. He points out that only two officers were posted to Europe during this time who had the qualifications necessary to collect technical intelligence. In addition, after one of the officers was able to collect some information of value concerning German tank designs, his superiors disagreed with his assessment and decided not to forward the report on to Washington.[18] While the intelligence was collected it was useless because it was never able to overcome the bureaucracy.

Overall limited influence advocates leave us with a picture of force development that is a disorganized jumble where intelligence is not a required or even a sought-after input in capability development. The result is a force planning process which prioritizes internal information at the cost of a coherent institutional strategy. A strategy which would, in theory, identify specific threats and develop capability overmatch to beat those threats. Finally, we can see that under the right circumstances, accurate intelligence can drive the production of some remarkable capabilities.

3.   Intelligence as a Moderate Influence on Force Development

The final school of thought is that intelligence has a moderate influence on force development. Conceptionally this theory is straightforward as it acknowledges all of the

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[17] Stephen Peter Rosen, Winning the next War: Innovation and the Modern Military (Ithaca, NY: Cornell University Press, 1991), 190-200.
[18] Ibid, 188

concerns of the other schools of thought but simply advocates that intelligence drives force development more than the limited school would acknowledge.

Dr. Thomas Mahnken champions intelligence as a contributing factor to force development. He summarizes his findings in detail in his book *Uncovering the Ways of War: Military Innovation between 1918 and 1941*. Mahnken presents military intelligence organizations as faced with the challenge of uncovering 'New Ways of War' which is similar to a revolution in military affairs.[19] He presents his case by evaluating U.S. intelligence efforts in the Interwar Period. Mahnken assesses U.S. intelligence efforts against Great Britain, Japan and Germany and concludes that U.S. intelligence did in fact detect important doctrinal and technological changes.

So, what are the conditions that make some enemy capabilities known while others are missed? Mahnken's answer is that not all innovation efforts are equal. He presents three levels of innovation: theoretical, experimental and implementation. The higher a certain innovation moves on the scale, the more likely it will be detected the more opportunity the concept will have to influence U.S. force development.[20]

4. Conclusions

Between these three schools we have a wide variety of views concerning the influence of intelligence. What the scholarship conveys is that when intelligence is done correctly it can provide force developers with knowledge and insights about what capabilities are needed to win the next war. However, the scholarship vastly disagrees with the ability of intelligence to

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[19] Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 5.
[20] Ibid, 170.

complete this task. Instead of focusing on better intelligence, most scholars advocate for a 'hedging of bets' between forecasting and adaptation when it comes to capability development.

What current scholarship fails to present is a complete view of the whole force development process from the detection of a potential enemy capability to the fielding of a countermeasure to defeat that capability. Rather the scholarship focuses on accuracy of intelligence rather than its influence. We are left with the assumption that if intelligence can accurately predict the future battlefield the capabilities will follow.

Thesis and Hypothesis

Thesis: Even if institutional intelligence accurately forecasts the future battlefield it does not mean that the state will develop the necessary military forces to accomplish its political objectives. Only under certain conditions does intelligence have the influence necessary to drive institutional strategy and create positive changes in force development.

Hypothesis: I believe that intelligence has a limited influence on positive force development. This lack of influence results in threat overmatch and degrades the combat power of U.S. military forces.

Model

To test this hypothesis, I will use a model based on case studies of the United States Military between the First and the Second World Wars, known as the Interwar Period. While I run the risk of presenting outdated models and methods, the Interwar Period provides unique circumstances that come with preparing military forces for great power conflict during peacetime. These unique circumstances are:

- The ability to view institutional intelligence over a prolonged period of intelligence collection and analysis against a near peer threat.
- The opportunity to observe the complete force development process.
- The ability to assess combat performance of U.S. military capabilities in subsequent combat.

My goal is to identify intelligence at key junctions during the force development process, not to analyze the WWII procurement as a whole. By focusing on identifying intelligence verse specific processes I hope to keep the research more relevant to today's security environment.

Figure 1.3 – Summary of Model
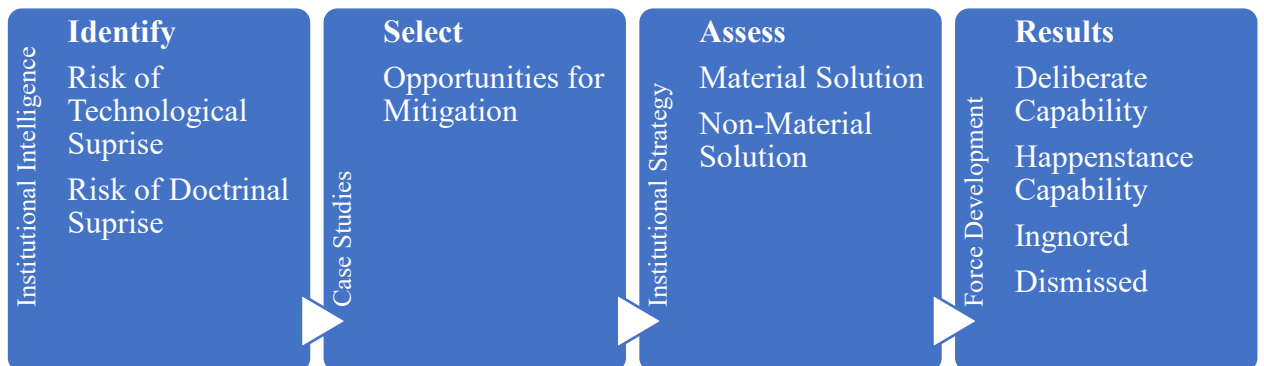
Step 1: Identify – Surprise at the Institutional Level

The modern role of intelligence is to prevent policy makers or organizations from being surprised by the outcome of events.[21] Institutional surprise, or inversely instructional intelligence failure comes from an enemy's ability to achieve doctrinal or technological surprise. Dr. Michael J. Handel, a renowned intelligence scholar defines doctrinal and technological surprise *as "the unilateral advantage gained by the introduction of a new weapon (or by the use of a known weapon in an innovative way) in war against an adversary who is either unaware of its existence or not ready with effective counter-measures, the development of which requires time."*[22]

The challenge for institutional intelligence is to identify the enemy's ways of war and then influence its own force development to take appropriate countermeasures to avoid doctrinal or technological surprise. In step one of the model I have reviewed U.S. military intelligence reports concerning Japanese and German capability development between 1932 and 1941. From my research I have identified four opportunities for institutional intelligence to avoid doctrinal and technological surprise. Examining these opportunities will allow me to see the potential influence of intelligence on force development.

Step 2: Select - Case Selection

After researching the available intelligence, I selected specific cases where enemy capabilities were clearly documented and known to U.S. intelligence organizations. By starting with the raw intelligence, I can better understand what potential mitigation was available to U.S. force planners and judge the actions that were taken against those that were possible.

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[21] Robert Jervis, Why Intelligence Fails: Lessons from the Iranian Revolution and the Iraq War (Ithaca, NY: Cornell University Press, 2012), 7.
[22] Michael Handel, War, Strategy and Intelligence (London, UK: Frank Cass, 1990), 133.

Step 3: Create - Institutional Strategy: Addressing the Threat Through Material and Non-Material Solutions

A key part of this study is that it looks at what was known *and* what forces were developed in response to that knowledge. Therefore, we need to have a precise understanding of what is meant by 'force development.' Because the definition of force development has changed between WWII and now I will present my own definition of force development which I believe satisfies the current view of the subject without distorting the historical understanding. My study defines force development as *The generation of Material or Non-Material Solutions to military problems*. Both Material and Non-material Solutions have specific meaning within the U.S. strategic community. A Material Solution is defined as *"correction of a deficiency, satisfaction of a capability gap, or incorporation of new technology that results in the development, acquisition, procurement, or fielding of a new item."*[23] While a Non-Material Solution is defined as "changes *in Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and facilities (DOTMLPF), or policy (including all human systems integrations domains) to satisfy identified functional capabilities."*[24]

Once we understand what force development is, we can then assess the influence of intelligence. This can be done by evaluating the choices that were made in response to the threats that were presented. I will use such questions such as:

- Did force developers take the threats that were identified seriously?
- Did force developers attempt to incorporate intelligence to prepare material and non-material solutions?
- What were the situations that made intelligence more or less likely to have influence?

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[23] "Glossary: Defense Acquisition Acronyms and Terms," Glossary: Defense acquisition acronyms and terms (2011), B-160.

[24] Glossary: Defense Acquisition Acronyms and Terms," Glossary: Defense acquisition acronyms and terms (2011), B-172.

Using these questions, we can focus specifically on why intelligence is or is not influential. This will help us separate our hypothesis from other issues we have seen in the literature review such as accuracy or adaptation.

Step 4: Assess – Force Development in Action

Finally, I will assess the influence of intelligence on force development through the evaluation of combat performance, after-action reports, captured documents and historical accounts of battles/campaigns. I will look for the performance of force development based upon the capabilities that we detected in our study of intelligence sources. This will help us define what was 'positive force development' is i.e. did the capability perform well against the vulnerability detected by intelligence.

Summary of Model

In this section I present a four-step model that will allow us to observe the complete force development process and assess the influence of intelligence within that process. This model starts with institutional intelligence which supports the development of capabilities by preventing doctrinal and technical surprise. Institutional intelligence feeds institutional strategy which is *"the process that military services develop material and nonmaterial capabilities, to include technology and people to execute the tactical, operational, and strategic level of warfare."*[25] Institutional intelligence along with institutional strategy creates force development which is 'the generation of material or non-material solution to military problems.'

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[25] Nathan K. Finney, On Strategy: A Primer (Fort Leavenworth, KA: Combat Studies Institute Press, US Army Combined Arms Center, 2020), 108.

Case Studies

Case Study 01– Amphibious Warfare: When Intelligence Influences Deliberate Capabilities

Our first case study presents a successful institutional strategy, when intelligence influences force development to produce a deliberate capability. In this case study I present two approaches to the same problem, the U.S. Army's and the U.S. Marine/Navy's. The problem of amphibious warfare is a joint operation, which leads to an interest from both the land and the sea services. Because the Marine Corps has responsibility in both land and sea domains it is not surprising that it showed the most interest in the development of amphibious capabilities and, with the use of intelligence, was more successful at peacetime force development.

1. Intelligence Concerning Japanese Amphibious Operations

a. Military Intelligence Division (MID)

The 1930s provided many opportunities for the United States Army to observe Japanese amphibious operations. This included several contested landings during the first Sino-Japanese War, as well as numerous maneuvers that were demonstrated throughout the decade.[26] Unfortunately, the stereotypes that prevailed at MID prevented the information from being utilized. One army attaché who was present for a 1932 Japanese amphibious maneuver concluded his report with the statement "I feel confident that American armies facing Japanese armies under approximately equal conditions need have no fear of the consequences of battle."[27] This line was typical of the record and captures MID's opinion concerning Japanese abilities.

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[26] Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 32.
[27] "Sino-Japanese Military Operations in the Vicinity of Shanghai." Washington D.C. Accessed March 1, 2022. https://hv-proquest-com.proxy1.library.jhu.edu/historyvault/docview.jsp?folder P 18.

The Army's official views regarding Japanese amphibious capabilities were compiled in a January 1941 assessment by the head of Army Intelligence (G2) titled "Japanese Landing Operations" While the title sounds intriguing and the report opens with an appraisal of Japanese tactics as being "trained and tested in war"[28] what follows is seven pages of non-descript 'drawings' of Japanese landing craft and four pages of vague assessments. The overall evaluation is wanting and leaves the reader with the sense that only under perfect conductions would the Japanese try to conduct amphibious operations.[29]

This assessment is noteworthy for two reasons. One is its wide distribution, Ralph C. Smith, the acting G2 (who later in his career led the 27th infantry division at Saipan) requested that the findings be disseminated to all major commands. The archival record has receipts showing that the document was sent to the Philippines, Hawaii and Alaska. Secondly is the inclusion of descriptions and dimensions of Japanese landing craft. It is obvious from the assessment that the purpose of the diagrams is as an identification guide more than a learning tool. No mention is made of its potential qualities or weakness of Japanese Amphibious operations. The craft themselves are left unevaluated.[30]

b.   Office of Naval Intelligence

The Office of Naval Intelligence (ONI) and in particular their Marine attachés were more unprejudiced in assessing Japanese amphibious capabilities. Officers from the 4th Marines stationed in Shanghai risked their lives to observe first hand tactical engagements and

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[28] Japanese Naval Landing Operation and Ship Construction." Washington D.C. . Accessed March 1, 2022. https://hv-proquest-com.proxy1.library.jhu.edu/historyvault/docview.jsp?folderId=003011-026-0808. P 34.
[29] "Japanese Naval Landing Operation and Ship Construction." Washington D.C. . Accessed March 1, 2022. https://hv-proquest-com.proxy1.library.jhu.edu/historyvault/docview.jsp?folderId=003011-026-0808. P 34.
[30] "Japanese Naval Landing Operation and Ship Construction." Washington D.C. . Accessed March 1, 2022. https://hv-proquest-com.proxy1.library.jhu.edu/historyvault/docview.jsp?folderId=003011-026-0808. P 34.

amphibious operations during the opening months of the Second Sino-Japanese War.[31] Despite increased restrictions imposed on American military attachés by Japanese authorities, ONI officers cultivated contacts within Japanese society and took photos of Japanese naval ships in port. Marine officers were also present to observe the August 17th, 1937 Imperial Japanese Army (IJA) amphibious landings at Liuho and Woosung. The experience left the American observers with the view that a revolution in amphibious operations was taking place in Asia, and it was led by the Japanese.[32]

In March 1939 ONI published *Japanese Landing Operations in the Current Sino-Japanese Conflict*. Instead of a 10-page document of limited value such as the one produced by MID, ONI produced a 30-page assessment of Japanese capabilities and theories of warfare. It discussed the different types of landing craft and most importantly recognized the Japanese *Shinshu-Maru* class vessel (which was the world's first amphibious assault ship) as a significant development in naval history.[33]

2. Force Development

a. Army Force Development in Response to Japanese's Capabilities

While the Marines focused on amphibious invasions, the Army concentrated on retention of U.S territories overseas.[34] This defensive mindset resulted in an increase in the number of static Coast Artillery Regiments. Army offensive force development was limited, which was in line with MIDs intelligence assessments that forecasted a limited Japanese threat.

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[31] Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 51
[32] Ibid, 51
[33] Ibid, 56
[34] Steven T. Ross, American War Plans: 1919-1941 (New York, NY: Garland, 1992), 164-165.

Doctrinally, inter-service amphibious operations were covered by the field manual "Joint Overseas Expeditions" of 1933 and the "Joint Action of the Army and the Navy" in 1935."[35] These publications were vague and only covered basic concepts at the operational level. By the summer 1940 the Army turned to the Navy and Marine Corps for usable tactical doctrine.[36] For material solutions, again the Army looked to defense instead of offense. What limited Army resources that were spent in the Pacific went to improving fortifications in Hawaii, Alaska, the Philippines and the Canal Zone.[37]

b. Marine Force Development in Response the Japanese

The Marines applied their observations of Japanese maneuvers which resulted in one of the most critical material solutions of the war, the Landing Craft Vehicle Personnel or LCVP. Key observations made by Marine Lieutenant Victor Kulak during his tour in China in 1938 left him convinced that the Japanese were "lightyears ahead" in landing craft design.[38]

During his assignment in Japan Kulak took detailed notes, sketches and photographs of the designs which he then brought back to the states in 1938. Kulak took the designs to Marine Corps Headquarters where he was able to meet with Brigadier General Holland O. Smith, the premier expert on amphibious operations within the United States. Smith then presented the designs to Marine Corps Commandant General Thomas Holcomb, who then in turn presented them to Secretary of the Navy Claude Swanson. Swanson directed the marines to send Kulak to meet directly with Andrew Higgins, a boat maker who was at the time in stalled negotiations with the Navy over designing and fielding a version of his company's 'Higgins Boat.' The

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[35] John T. Greenwood, "The U.S. Army and Amphibious Warfare during World War II," Army History PB-20 (July 1, 1993): pp. 1-14, 2.

[36] Ibid, 3.

[37] Steven T. Ross, American War Plans: 1919-1941 (New York, NY: Garland, 1992), 164.

[38] Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 54

pictures and descriptions provided by Kulak helped Higgins produce the iconic, and highly effective LCVP landing craft with its drop-down ramp.[39] The LCVP was fielded in time to be ready for the first naval landings of the war at Guadalcanal in August 1942 and was present at every subsequent D-Day of the Pacific.

The Marines also took non-material solutions from their experience with the Japanese. Most important was the understanding that the "Gallipoli Mentality".[40] was no longer applicable and that with the right equipment amphibious forces could prevail in contested beach landings. In short, the Marines became the aggressive force that it is known as today. Leaders such as Kulak helped forge the doctrine necessary for the Marines to not just be aggressive, but successful at conducing amphibious operations in WWII.

3. Results of Force Development

The failure to learn the lessons of Japanese warfare left the Army open to doctrinal and technical surprise. Choosing to ignore War Plan Orange General MacArthur, Commander of U.S. Forces in the Philippines was convinced he could destroy the Japanese "at the water's edge."[41] If he would have read ONI assessments of Japanese's Amphibious Operations, he would have known the proclivity of the Japanese to choose landing sites of least resistance.[42] This fatal oversight started a series of errors that led to the destruction of General MacArthur's Army as the Japanese bypassed his scattered forces and destroyed them before they could

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[39] Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 54 and Kenneth J. Clifford, Progress and Purpose: A Developmental History of the United States Marine Corps, 1900-1970 (Washington, D.C.: History and Museum Divsion, USMC, 1973), 50.
[40] Ibid, 49 and 55.
[41] John C. McManus, Fire and Fortitude: The US Army in the Pacific War, 1941-1943 (New York, NY: Dutton Books, 2020), 64.
[42] John C. McManus, Fire and Fortitude: The US Army in the Pacific War, 1941-1943 (New York, NY: Dutton Books, 2020), 64. and Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 49

concentrate.[43] The loss of the Philippines also marked the death of the outdated Coast Artillery Corps which the Army had so heavily invested in before the war.[44]

At an institutional level, the Army was saved from the potential setbacks because the Marines had invested in both the technological as well as doctrinal solutions to amphibious warfare. While there were many issues that needed to be worked out including command and control at the operational level, these problems never led to serious setbacks on the battlefield.

For the Marines they started their first offensive less than a year after Pearl Harbor and never lost the initiative. While lacking in other areas such as small arms, the Marines never faced overmatch in landing troops and equipment on contested shores. Even after the truly opposed Marine landings at the Battle of Makin, the changes that followed the battle were more modifications of the existing system rather than sweeping reforms. The Marines started the war with the basic foundation they needed to win by incorporating the material and non-material solutions the Japanese developed throughout the 1930s.

Case Study 02 – The 50,000 Aircraft Air Force: When Intelligence Influences Happenstance Capabilities.

My second case study looks at the question of large the U.S. Army Air Corps (USAAC) needed to be in order to deter and later defeat Germany in WWII. Intelligence reporting between 1935 and 1941 varied greatly and was on the whole, largely inaccurate. This left room for interpretation by the various national security interests within the United States during the Interwar Period, most notably the Roosevelt Administration. By 1938 it was clear that the President had a preferred policy based upon poor intelligence which influenced his decision about force development and put him at odds with his military chiefs.

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[43] Ibid, 78-82.
[44] Ibid, 154.

# 1.	U.S. Intelligence Concerning German Air Capabilities

While the United States lacked intelligence in all domains during the interwar period, its knowledge of air matters was by far the worst.[45] This was due to the new and technical nature of avionics itself. To properly assess the capabilities of foreign air forces, military attachés required expertise in both air tactics, to assess air doctrine as well as aeronautics to evaluate technical capabilities.[46]

Intelligence collection on foreign military aircraft was limited to the conflicts of the period along with some scripted air demonstrations. Both sources provided a narrow and controlled perspective. When observations were incomplete, which was often, U.S. attaches tended to fill in the gaps with their own bias, creating distortions in the understanding of German capabilities and doctrine.[47] What *was* known was scant and often wrong. Colonel Raymond Lee, the Army attaché stationed in the United Kingdom in 1935 lamented his sources were limited to "bits of information picked up from odd conversations."[48] Captain Theodore Korging, the USAAC assistant attaché posted in Germany reported later that same year he was unable to get anything close to an accurate order of battle because the situation was "constantly changing."[49]

In one important case a military attaché used the lack of accurate information to pursue a policy preference within the War Department. The German attaché office, at the behest of the visiting celebrity Charles Lindbergh produced "General Estimate as of November 1937" an inaccurate and politicized report that overhyped the state of the Luftwaffe. Major Truman Smith,

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[45] Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 165.
[46] Ibid, 33.
[47] Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 128-129.
[48] John F. Kreis, Piercing the Fog: Intelligence and Army Air Forces Operations in World War II (Bolling AFB, ,D.C. : Air Force History and Museums Program, 1996), 32.
[49] Ibid, 34-35.

the chief attaché who was normally known for his accurate and cool-headed assessments later described the report as being written "in a dramatic style to catch high level attention."[50]

Estimates about capability and quality of German aircraft lacked consistency. The Navy said that Germany could produce 1,800 to 2,000 aircraft a day in February 1940. The Germans averaged 900 aircraft a month in in 1940.[51] MID provided estimates to the White House that the Luftwaffe was 8,000 aircraft strong in July of 1939[52] when in reality it was closer to 5,000.[53] However, these number are nothing compared to the 29,000-combat aircraft that the President Roosevelt's handpicked intelligence czar, William Donavan provided in December of 1941.[54] In reality combat loses had kept the Luftwaffe to around it's 8,000 aircraft mark in July 1939.[55]

2.   United States Force Development in Response to Air Intelligence

Between the German Invasion of Poland in September 1939 and the Attack on Pearl Harbor in December 1941 the United States entered into a rapid period of peacetime force development. This rearmament was possible because of a windfall of funding that was allocated by Congress at the encouragement of the Roosevelt Administration. With funding came the question of what to do with the money?

It is clear that most of the President's senior advisors were influenced by the intelligence on the strength of the Luftwaffe. Joseph P. Kennedy Ambassador to England from 1938 - 1940

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[50] Ibid, 34.

[51] Ernist May, Knowing One's Enemies: Intelligence Assessment before the Two World Wars (Princeton, NJ: Princeton University Press, 2014), 492.

[52] Irving Briton Holley, Buying Aircraft: Material Procurement for the Army Air Forces (Washington, D.C.: Office of the chief of military history - Department of the Army, 1964), 194.

[53] R. J. Overy, "German Air Strength 1933 to 1939: A Note," The Historical Journal 27, no. 2 (1984): pp. 465-471, https://doi.org/10.1017/s0018246x00017908, 468.

[54] John Patrick Finnegan and Romana Danysh, Military Intelligence (Washington, D.C.: Center of Military History, United States Army, 1998), 57. and Ernist May, Knowing One's Enemies: Intelligence Assessment before the Two World Wars (Princeton, NJ: Princeton University Press, 2014), 493. Note: Finnegan and Romana credit William Donovan as gving the estmte and cite Kahn. Kahn only mentions that the estamte was prepaied by Donovan's staff.

[55] R. J. Overy, "German Air Strength 1933 to 1939: A Note," The Historical Journal 27, no. 2 (1984): pp. 465-471, https://doi.org/10.1017/s0018246x00017908, 468.

wrote that *"Germany's air strength is greater than all other European countries combined and that her margin of leadership is constantly being increased."*[56] William C Bulliet, Roosevelts ambassador in France echoed this sentiment and concluded that only U.S. aircraft production could save Europe from the Luftwaffe.[57]

These sentiments were shared by the President. In November 1938 Roosevelt gathered his senior national security advisors and announced his plans for rearmament. He started the meeting by proclaiming that Germany had a "two-to-one air superiority" and that he was going to ask Congress for the funding of 10,000 aircraft because they were "the only weapons that stood a chance of deterring Hitler's territorial ambitions, he contended, were warplanes, not ground forces."[58]

This was against the advice of all of his senior military advisors, most notably the new Chief of Staff, General George Marshall. When President Roosevelt got the word of Frances defeat on May 15th he called for a joint session of Congress the next day and presented a plan not for 10,000 aircraft but for a 50,000.[59] The best estimates at the time have German air strength at 8,000 total aircraft.[60]

3.   Results of Force Development on Aircraft Production

In this case study the results were decisive, if not deliberate. USAAC, which was the most technically complex of any of the services, in terms of development as well as manufacturing was well ahead of its naval and land force peers when war broke out in December 1941. The

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[56] David Enderton Johnson, Fast Tanks and Heavy Bombers: Innovation in the US Army, 1917-1945 (Ithaca, NY: Cornell Univ. Press, 1998), 167.

[57] Ibid, 167.

[58] David L. Roll, George Marshall: Defender of the Republic (New York, NY: Caliber, 2020) P.111.

[59] Ibid, Chapers 6 and 7 cover the debate over aircraft production.

[60] R. J. Overy, "German Air Strength 1933 to 1939: A Note," The Historical Journal 27, no. 2 (1984): pp. 465-471, https://doi.org/10.1017/s0018246x00017908, 468.

advanced position provided by the quality and quantity of U.S. aircraft had critical effects on the conduct of the war as a whole. The United States was in a position to support Great Britain with aircraft which allowed it to survive the Battle of Britain throughout 1940. Even after eighteen months of Lend-Lease the United States still retained enough combat aircraft to conduct offensive air operations within six months of entering the war. In June 1942 the USAAC conducted its first independent raid over the oil fields of Romania while in the Pacific, naval aviation fought the decisive Battle of Midway. It would take the Army/Navy until August to be in position to support the Marines at Guadalcanal and well until November 1942 before Operation Torch had enough forces to invade North Africa.

Case Study 03 – Japanese Night Fighting Doctrine: Intelligence and Force Development on Different Paths

My third case study looks at what happens when intelligence does not interact with force development in any discernable way. To understand this phenomenon, I will examine the U.S. failure to prepare its ground forces for night combat, a key feature of the Pacific Campaign during WWII. It is clear from the historical record that American intelligence observed, analyzed and published accurate assessments throughout the 1930s regarding the likelihood of Japanese forces to engage in night attacks. Japanese night operations were dangerous because they created asymmetrical advantages on the battlefield which countered key U.S. strengths, mainly indirect fire superiority.

1.   Intelligence on Japanese Night Fighting from 1932 - 1942

Japan was more aware of its own military limitations than any other combatant in the Second World War.[61] While the Japanese Military steadily made progress in developing technological capability it relied on creative ways of war to develop asymmetrical advantages against its enemies, most notability surprise. It was the surprise attack at Port Arthur in 1904 that vaulted Japan to superpower status in the world and the Japanese continued to rely on doctrinal surprise and physical strength throughout WWII to create overmatch where it was vulnerable to technological capabilities.[62]

One area that the Japanese continued to excel was in was night operations. Starting in 1932 a U.S. observer noted the particular attention that the Japanese place on nighttime operations. In a reported summary of an acquired 1932 Imperial Japanese Army (IJA) engineers manual, First Lieutenant Joseph Twittey emphasized the Japanese view of night operations and noted how the Japanese Army modified tactical tasks specifically to be done at night. One report reads: *"Engineers have especially practiced at night for movements of certain work. Therefore, they must master the ability to move as if really quietly working out a plan by correct methods to all circumstances by frequent night training as army units."*[63]

Not only were Japanese combat units expected to perform nighttime operations but all units, including support units were to be ready to conduct a coordinated attack at night to instill fear and confusion into the enemy.

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[61] Douglas Ford, "Dismantling the 'Lesser Men' and 'Supermen' Myths: US Intelligence on the Imperial Japanese Army after the Fall of the Philippines, Winter 1942 to Spring 1943," Intelligence and National Security 24, no. 4 (2009): pp. 542-573, https://doi.org/10.1080/02684520903069496, 545.

[62] Divisions-Armament and Equipment: Infantry, Report." Washington D.C. Accessed March 2, 2022. https://congressional.proquest.com/histvault?q=003011-024-0208&accountid=11752, P, 22.

[63] "Japanese Military Training and Spending." Washington D.C. Accessed March 2, 2022. https://congressional.proquest.com/histvault?q=003011-023-0556&accountid=11752. P, 4/5.

Bayonets are fixed at a suitable time after the attack has progressed near enough to the enemy. Then in order to throw his soldiers into a hand to hand combat the platoon commander gives the order for the charge; at this command the leading troops leap up and violently rush into the enemy position. On this occasion the bugler blows charge continuously. At night on instructions from the commanding officer, soldiers let out wild cries. (Japanese Military Training and Spending. P. 23)

This report was just the first to come from MID throughout the 1930s and early 1940s. A 1935 report of IJA's Table of Organization and Strength for Infantry and Calvary Divisions assesses division tactics as well as allotted training time.

Figure 1.4 – Japanese Monthly Training [64]

7. Combat Training.	Co. & Plat. Problems.	3	
	Bn. Problems, Miscellaneous	12	
	" " with other troops.	12	
	Close Co-op with F. A.	6	
	" " " " Tanks	24	
	Position Warfare	54	
	River crossing.	21	
	Night Action.	12	
	(Command and Map Problems)	(72)	
TOTAL		154	17 %

It is worth noting that division night attack training is given an equal amount of time as company and battalion field problems and is *double* the time allotted to working in coordination with artillery. The author goes on to assess the effects of this training by saying that soldiers *"... are especially trained to act at night and in smoke with confidence and efficiency."* [65] The author then concludes with a prospective view of how the Japanese viewed defensive operations. *"The Japanese tend to stake all on one action. They would rather all be killed in one night of a grand attack, however hopeless, than to gradually be pounded to pieces in a long defensive engagement."* [66]

[64] "Divisions-Armament and Equipment: Infantry, Report." Washington D.C. Accessed March 2, 2022. https://congressional.proquest.com/histvault?q=003011-024-0208&accountid=11752. P. 249.
[65] Ibid, P. 139.
[66] Ibid, P. 307.

MID compiled these assessments into a summary of 'Japanese Tactics' dated April 1st 1939. It is thorough in its appraisal of Japanese tactics and devotes five pages to presenting Japanese views of offensive night operations. Its findings could have as easily been applied to 1945 as to 1939. The report states that the Japanese have a "strong partiality" for this type of attack and concludes with the summary *"any enemy facing the Japanese Army may expect to receive frequent attacks at night, at least until this form of combat proves definitely unprofitable."*[67]

2.   Intelligence's Influence on U.S. Force Development

A material solution for night fighting was still decades away as the soldiers of Korea and Vietnam would lament. Therefore, it was left to non-material solutions to mitigate the risk. The Field Manual (FM) 7-0 Series from 1940.[68] and it successor in 1942.[69] both include a section on night operations or night fighting, however its contents are less than inspiring. The U.S. documents emphasize the limitations of night fighting in comparison to the Japanese manuals which viewed night fighting as an opportunity.

The official history of U.S. Army Ground Forces did not include specific times allotted to U.S. night training, however it does note *"that night training, chemical warfare instruction, safeguarding of military information, and individual tactics were all emphasized more strongly in revisions of the training programs made during 1942."*[70]

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[67] "Tactical Doctrine of the Japanese Army." Washington D.C. Accessed March 2, 2022. https://congressional.proquest.com/histvault?q=003011-025-0755&accountid=11752. P .45.

[68] "Infantry Field Manual: Organization and Tactics of Infantry: The Rifle Battalion," Infantry Field Manual: Organization and Tactics of Infantry: The Rifle Battalion (1940), https://cdm16040.contentdm.oclc.org/digital/collection/p4013coll9/id/741/rec/2.

[69] "Infantry Field Manual 7-5: Organization and Tactics of Infantry: The Rifle Regiment," Infantry Field Manual 7-5: Organization and Tactics of Infantry: The Rifle Regiment (1942), https://cgsc.contentdm.oclc.org/digital/collection/p4013coll9/id/760/rec/1.

[70] Robert R. Palmer, Bell I. Wiley, and William R. Keast, The Army Ground Forces: The Procurement and Training of Ground Combat Troops (Washington, D.C.: Center for Military History, 1968), 386.

The emphasis was not enough. Brigadier General John M. Lentz, G-3, Army Ground Forces advised initial entry training camps that "'*after all, [replacements] are supposed to go straight into battle. Cables from overseas state they are not ready.' He singled out combat firing, transition firing, night patrolling, and field work as subjects in which individual replacements were especially weak.*'[71] From 1940 onward, many of the field evaluations of U.S. Ground Forces Training include a recommendation to increase instruction on night time operations, but it seems that those recommendations were never implemented.

3.   Combat Results of Japanese Night Fighting vs. U.S. Doctrine

If the U.S. developed doctrine to address the issue of night fighting, no one seems to have read it. John McManus, a military historian who has extensively covered the Pacific Campaign highlights the issue of night fighting against the Japanese

> Colonel Evans Ames, commander of the Marine 21st Regiment, and an observer during the New Georgia operation. Ames was a typical product of the American military system, one that seemingly envisioned a tidy nine-to-five war, perhaps reflecting the routinized nature of work patterns in American society as well as a legacy of American frontier history. 'We are daytime fighters,' Ira Wolfert, a war correspondent, wrote from the Solomons. "And when twilight comes, we revert to our Indian-fighting past and build old-fashioned squares of defense around each separate automatic weapon. (McManus, Fire and Fortitude, P.407)

The failure to account for and confront the Japanese at night was a serious defect in American tactics, and came with high costs. Yet even when junior leaders showed ingenuity they were forbidden from risking a night engagement.[72] McManus sheds some light on this mentality:

> Instead of training soldiers and their commanders to attack and maintain operational initiative at night, the perimeter mentality predominated. Decrying the effectiveness of Japanese harassment against static American fixed positions in the darkness, one 43rd Division commander reported that 'our initial plan had been adopted on the advice of other units experienced in jungle warfare. It called for complete immobility at night, with

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[71] Robert R. Palmer, Bell I. Wiley, and William R. Keast, The Army Ground Forces: The Procurement and Training of Ground Combat Troops (Washington, D.C.: Center for Military History, 1968), 390.
[72] Charles R. Anderson, Guadalcanal (Washington D.C.: U.S. Army Center of Military History, 2004), 275.

grenades and bayonets as the only defense weapons. (McManus, Fire and Fortitude, 407-408)

This unwillingness to conduct night operations did not go unnoticed. A captured Japanese assessment of American forces on Guadalcanal are laconic in its description of American night fighting tactics. The section heading "American offensive - night attacks," includes only a single line "*Although they [American] fire, infantry forces do not engage in night attacks.*"[73] The lack of interdiction allowed the Japanese to snipe and grenade soldiers as they pleased and led to many friendly fire incidents, but most importantly it allowed the Japanese to organize offensives unmolested.

Case Study 04 – German Armor Warfare and the Case of Intelligence Dismissed

My last case study is the most common interaction between intelligence and force development, a failure of intelligence to adequately influence capability development. To study this phenomenon, I will look at how the U.S. Military responded to the German Revolution in Military Affairs (RMA) between 1935 and 1942. This case study shows that United States had good intelligence about potential doctrinal and technological surprise but instead chose to dismiss these warnings as they proceeded with developing an armor force between 1940 and 1942. The results of rejecting intelligence during force development produced a severe undermatch for U.S. forces at the Battle of the Kasserine Pass and beyond.

1. Intelligence on German Armor Doctrine and Technology

It is not an understatement to say the MID recognized and understood the importance of the German Panzer Division in the evolution of military affairs more than any other intelligence

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[73] Charles R. Anderson, Guadalcanal (Washington D.C.: U.S. Army Center of Military History, 2004), 366.

organization in the world before May 1940.[74] This is in part to close relationships that were built during the occupation duty with the German Army during the 1920s as well as its position as a great power outside Europe which enabled access to information other allied powers simply were not privy to.[75]

Since the 1920s the United States had noticed German interest in mechanized warfare as it had been a critical development that had led to their downfall in the First World War.[76] MID along with other foreign intelligence services watched German experiments with mock armor forces (Germany was forbidden from possessing tanks under the Versailles Treaty) during the Weimar Republic with interest.

MID assessments identified two critical aspects of German warfare that would change the face of battle. First, MID recognized the German view of the tank as a true revolution in military affairs. Additionally, MID identified the organization of the Panzer Division as the agent of the coming change. MID was also able to accurately assess German capability. Between 1935 and 1940 MID provided detailed assessments of the Panzer Division's composition as well as the doctrines that would govern its employment.

2.   U.S. Technical Intelligence on German Tank/Anti-Tank Capabilities

U.S. technical intelligence possessed a solid understanding of the capabilities of German armor forces which created the opportunity for technical exploitation in the development of future U.S. armor forces. The high level of technical intelligence comes from two technical experts from the War Department in Europe, one in London and the other in Moscow. The London based expert, Captain Rene R. Struddle frequently traveled to Berlin and worked

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[74] Thomas G. Mahnken, Uncovering Ways of War: U.S. Intelligence and Foreign Military Innovation, 1918-1941 (Ithaca, NY: Cornell University Press, 2002), 129-131.
[75] Ibid, 130.
[76] Ibid, 93-103.

diligently to gain insights up until October 1940, when such efforts became impossible due to restrictions imposed by the Nazi Government.[77]

One particular issue was an increase in the caliber and number of anti-tank guns deployed by German military formations. A report from February 1940 noted *"there has been a remarkable increase in antiaircraft and antitank strength, both in number and in size - 37-mm. increased to 47-mm. and 50-mm."*[78] Another assessment from MID dated March 16th, 1940 stated that German divisions were increasing the size of the 47 mm anti-tank units from battalions to regiments within each division, doubling the number of 47 mm or higher anti-tank guns available for employment. Reports continued to come in throughout 1940 and 1941 about the strength, size and caliber of German tank and anti-tank guns.

3.   U.S. Force Developed in Response to German Doctrinal Breakthroughs

The Armor Branch was created after the poor performance of U.S. Mechanized Forces in the summer maneuvers of 1940.[79] Before this reorganization, mechanized assets had been allocated piecemeal to infantry and cavalry units. Unfortunately, the creation of the Armor Branch did not improve the theories, doctrine or training of armor capabilities before the war. While Germany was looking to use its Panzer Divisions to breakout of weak spots using medium and heavy armor, the United States chose to invest in a "mechanized force, utilizing existing light tanks."[80] What resulted was not the combined arms of the Panzer Division but a unit that operated independently on the battlefield and focused on maneuverability almost to the point of

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[77] Constance McLaughlin Green, Harry C. Thomson, and Peter C. Roots, The Ordnance Department: Planning Munitions for War (Washington,, D.C.: Office of the Chief of Military History, Dept. of the Army, 1990), 260.
[78]. "Germany Army Armored Panzer Division." Washington D.C. Accessed March 2, 2022. https://congressional.proquest.com/histvault?q=002931-005-0320&accountid=11752. FOLDER: 002931-005-0320, p. 102.
[79] Mark T. Calhoun (U.S. Army Command and General Staff College, 2003), pp. 1-104, 33.
[80] Ibid, 33

obsession. The objective of this new armor force was to conduct "offensive operations against hostile rear areas"[81] even if that meant operating without infantry or artillery support. To accomplish this task the armor force was divided into three capabilities: light tanks, medium tanks and tank destroyers. Each in reality were sub-branches unto themselves.

The core of this new formation would be the light tank that would maneuver around hardened positions to attack exposed rear areas. If this became impossible the Ordnance Department was developing a limited corps of medium tanks specifically to reduce fortified emplacements. The fatal flaw was that no one in the Armor Branch had conceived of tank on tank combat, which turned out to be the critical capability provided by all armor forces in WWII.[82] In response the Army unsystematically decided a year after creating the Armor Branch to include a "tank destroyer" core to counter enemy tanks. The history of the Tank Destroyer corps reflects its haphazard origins when it pointedly states *"The tank destroyer was born without an established doctrine or adequate equipment."*[83]

Working to support the doctrine of the light tank the Ordnance Department continued to push for the procurement of the M3 and M5 Stuart variants as well as the Grant/Lee medium tank. The Ordnance Department was out of step with reality in terms of armor and gun caliber. The 47 MM tank guns proliferation has been well documented and the L/48 gun on the Panzer IV 4 could penetrate 69 mm of armor at 1,500 meters, 3X the Stewarts max effective range.[84] The decision to put 38 mm of armor on the Stuart and 51 on the Grant/Sherman seems almost

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[81] Mark T. Calhoun (U.S. Army Command and General Staff College, 2003), pp. 1-104, 34.

[82] Ibid, 35

[83] Rob Haldeman, "Seek, Strike, and Destroy: U.S. Army Tank Destroyer Doctrine in World War II," accessed March 2, 2022, https://tankdestroyer.net/things/articles/166-seek-strike-and-destroy-us-army-tank-destroyer-doctrine-in-world-war-ii, 19.

[84] Christian Ankerstjerne, "Panzerworld - Armor Penetration Chart ," Panzerworld, accessed March 1, 2022, https://panzerworld.com/armor-penetration-table#50-mm-guns.

suicidal in retrospect. A modern observer assessed the combat performance of the Stuart against German armor:

> Its 37-millimeter cannon was totally ineffective against a panzer's frontal armor, and Stuarts could only hope to damage a panzer if they attacked from the side or rear, at a range of about 500 meters or less. The gasoline powered Stuarts almost always "brewed up" (caught fire) when hit, and even near misses sheared off the Stuart's rivet heads, which became bullet-like projectiles ricocheting throughout the tank's interior. Their narrow tracks afforded very poor flotation resulting in Stuarts bogging in situations wider-tracked tanks could handle with ease. Because the antiaircraft machine gun was mounted on the rear of the turret, it could only be manned by a soldier seated on top of the tank who was fully exposed to enemy fire. It vibrated excessively; causing it to jam so often it was useless (Calhoun, P 39.)

The Stuarts poor performance along with a doctrine that played to its weaknesses instead of its strengths led to disaster at the first engagement between German and American armor units at the Battle of the Kasserine Pass.

4.   Combat Results – The Battle of the Kassrine Pass

The Battle of the Kasserine Pass that took place in February 1943 is considered to be the worst U.S. defeat of the war. It is an incrimination of the United States peacetime force development and set back the allied efforts by six months or more. The Americans lost 183 tanks, 104 half-tracks, 208 guns and 512 trucks and motor vehicles with 300 killed, 3,000 wounded, and 3,000 missing. The Germans lost 20 tanks 67 vehicles and 14 guns with 50 killed, 200 wounded and 250 missing.[85] Poor doctrine put many armor units in impossible positions against technically overmatched German tanks. The prerequisite for U.S. armor to dive into German rear areas without combined arms isolated many units which were then destroyed.

Many historians have glossed over the opportunity the United States had to prevent much of the technological and doctrinal surprise by blaming green troops combating a veteran German

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[85] Mark T. Calhoun (U.S. Army Command and General Staff College, 2003), pp. 1-104, 20.

army as well as poor leadership. These flaws are undoubtedly the core contributors to loss, but the difference between a loss and a disaster can be found in the level of failure of U.S. doctrine and equipment.

Discussion

In this research paper I have observed an independent variable (intelligence) interactions with a dependent variable (force development). After reviewing the case studies, I was able to assess my hypotheses as well as observe four themes that were common between intelligence and peacetime force development.

1.   Assessment of Hypothesis

The cases provided in this study can be divided into two groups. The first group are those that showed no discernable effect from intelligence on force development. That was Case Study 03, which looked at U.S. mitigation of Japanese Night Fighting Doctrine and Case Study 04 Which looked at the U.S. response to German Revolution in Armor Warfare. These cases support the hypotheses because they show that Intelligence did not produce a large positive effect on force development.

The second group are those where intelligence was shown to have influenced force development. This was found in Case Study 01 which looked at how ground forces dealt with amphibious warfare in the Pacific and Case Study 02 which looked at the factors that went into aircraft development at the start of WWII. Between these two case studies only one would fit the criteria as a positive influence of Force Development, that was Case Study 01. While Case Study 02 showed a positive gain in the short term, I believe that it presents a greater danger to positive force development *as a system* by masking the true nature of potential threats.

Based upon the data within the presented case studies, I can accept the hypotheses that Institutional Intelligence has a limited role to play in positive force development based upon evidence of three of my four case studies.

2.   Observed Trends Within the Case Studies

a.   When Intelligence Influences A Deliberate Result

In this section there is an interaction between intelligence and force development which produces positive change based upon accurate intelligence. This is what was presented in the amphibious warfare case study. The U.S. Army's failure to heed Japanese innovations in both doctrine and technology left them with a considerable capability gap at the start of the Pacific Campaign. Because of the unique force structure of the U.S. Military the Marines, independent of the Army, developed the capabilities necessary to be successful during the Pacific War and beyond. These capabilities started with different assessments of the threat.

b.   When Intelligence Influences as Happenstance Result

This is where faulty intelligence influences force development. Because the information was flawed, the product is the result of happenstance instead of a deliberate process and could result in either a capability or vulnerability. This was the case with U.S. peacetime Air Force development which was largely based on a flawed understanding of German air capabilities provided by intelligence services. This flawed understanding influenced the creation of happenstance overmatch.

Although beneficial in nature in this case study, with hindsight it should be noted that if similar development had occurred in other areas such as battleship construction, American Forces would not have been as fortuitous. Another instance of happenstance advantage includes the technological and doctrinal overmatch produced in the Cold War which was the foundation

that led to victory in Gulf War. While effective, this is not a circumstance to be desired. Success

in war reduces the likelihood of self-analysis, the key ingredient of sound institutional strategy.

Just as the Cold War was responsible for the victory over Saddam Hussein, it was also the

starting point for the failures of Iraq and Afghanistan a decade and a half later.[86] Happenstance

advantage is the precursor of capability undermatch.

c. When Intelligence is Ignored

This situation occurs when there is no interaction between intelligence and force

development as was the case with Japanese night tactics and U.S. mitigation efforts. The official

position of MID on Japanese night attacks was clear. Night fighting was a core doctrine of the

Japanese Army should be expected in any engagement. U.S. efforts to mitigate this vulnerability

were limited to minor adjustments in training and doctrine. In the field however, this adjustment

never seemed to be implemented, most notably by American commanders that knowingly

allowed Japanese units to mass in their front unopposed.

What is strange about this proclivity is that this behavior was shown at every level of

command. Even when higher-level commanders were aware of such dangers they never pushed

subordinates to interdict night time buildups. General Holland Smith later blamed the 27th

Infantry Division for not be prepared for the July 6th 1943 assault.[87] If General Smith was aware

of a developing Japanese offensive, why did he not ordered a spoiling attack to break up the

Japanese's attack?

We may never know the answers to these questions, but what we do know is that

American force planners had years to develop a nighttime fighting doctrine and failed to do so. It

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[86] Barno, David, and Nora Bensahel. Adaptation under Fire: How Militaries Change in Wartime. Oxford, UK: Oxford University Press, 2020. 232-233.

[87] John C. McManus, Island Infernos: The US Army's Pacific War Odyssey, 1944 (New York, NY: Dutton Caliber, an imprint of Penguin Random House LLC, 2021), P 392.

is as if the intelligence section never interacted with the field of tactics. My research supports this conclusion. The failure to incorporate intelligence into force development allowed the Japanese created a *happenstance vulnerability.*

Instead of intelligence driving force development other factors such as culture and time were allowed to dictate combat doctrine instead of actual risk. This is often the case when intelligence is not sought after by force planners or is poorly distributed by intelligence agencies. Force development is a time intensive process and the failure to incorporate intelligence can create vulnerabilities that planners do not even know exist.

d. When Intelligence is Dismissed

This where there is an interaction between intelligence and force development but it fails to influence positive changes in force development. This was the case with U.S. force development in response to the German revolution in armored warfare. What makes this case study worth exploring is that that the strength of German armaments was well known to the Ordnance Department. Captain Struddle had examined the ballistics of the 47 MM gun and forwarded detailed observations to the Ordnance Department in August 1937. While not enough to build a working 47 MM gun of their own,[88] the warning was more than enough to pause current development or expedite further research and development. At the very least it should have pushed leaders in Armor Branch to change tactics because of the danger imposed by Germany's technological overmatch. It did not. Stuarts were instructed to 'dive in' on German tanks and were destroyed well before they had a chance in the open deserts of North Africa.[89]

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[88] Constance McLaughlin Green, Harry C. Thomson, and Peter C. Roots, The Ordnance Department: Planning Munitions for War (Washington,, D.C.: Office of the Chief of Military History, Dept. of the Army, 1990), 210.
[89] Ibid, 266.

U.S. Intelligence provided warning of the dangers from both technical and doctrinal surprise. These warnings however were not enough to influence force development to ensure that the United States was ready to conduct successful combat operations when hostilities commenced. The failure to apply the intelligence produced an undermatch for U.S. forces in their first ground engagement with Germany. These failures can be attributed to internal culture and the cumbersome process of large bureaucratic organizations that inadvertently fail to put the proper weight on intelligence.

Conclusion

Most scholarship views The Interwar Period as a time when intelligence was not up to the task of supporting force development. That is not the full story. This paper has presented several cases where intelligence was able to identify clear threats to U.S. forces. Peacetime force developers then had the challenge to develop solutions. They largely failed at that task and left the bulk of force develop to wartime innovators who struggled to learn what intelligence already knew.

The current Chairman of the Joint Chiefs of Staff, General Mark Miley has commented that today's operating environment is most like the Interwar Period.[90] While the United States has completely revolutionized it's intelligence and force development process since the Interwar Period, it still critical that U.S. policy makers ask the question 'Does seeing translate into capability?' Unless institutional strategists take extraordinary measures to incorporate intelligence into force development we are likely preparing for wartime adaptation more than peacetime innovation.

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[90] Meredith Roaten, 'Milley compares urgency of modernization to interwar period' (National Defense, August 2, 2021), https://www.nationaldefensemagazine.org/articles/2021/8/2/milley-compares-urgency-of-modernization-to-interwar-period.

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CV

Raymond J. Sullivan is an Active Duty Army Strategic Intelligence Officer. He has served in a variety of command and staff positions from platoon all the way to division. His professional focus is on institutional strategy.