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*Form Approved  
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<b>1. REPORT DATE (DD-MM-YYYY)</b> 07-05-2021	<b>2. REPORT TYPE</b> Master of Military Studies (MMS) thesis	<b>3. DATES COVERED (From - To)</b> AY 2020-2021
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<b>4. TITLE AND SUBTITLE</b> Industrial Mobilization during Great Power Conflict	<b>5a. CONTRACT NUMBER</b> N/A
	<b>5b. GRANT NUMBER</b> N/A
	<b>5c. PROGRAM ELEMENT NUMBER</b> N/A

<b>6. AUTHOR(S)</b> Hough, Daniel T. (Major)	<b>5d. PROJECT NUMBER</b> N/A
	<b>5e. TASK NUMBER</b> N/A
	<b>5f. WORK UNIT NUMBER</b> N/A

<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> USMC Command and Staff College Marine Corps University 2076 South Street Quantico, VA 22134-5068	<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b> N/A
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<b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> N/A	<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b>
	<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b> N/A

**12. DISTRIBUTION/AVAILABILITY STATEMENT**  
Approved for public release, distribution unlimited.

**13. SUPPLEMENTARY NOTES**

**14. ABSTRACT**  
The U.S.' success in industrial mobilization was due to three factors. First, successful industrial mobilization required a central controlling agency to smooth inter-service competition and inefficiency in procurement. Second, directing production is separate from procurement, and required a central controlling agency to synchronize military materiel needs with civilian industry capability and capacity. Third, directing the economy to meet military needs required a whole-of-government approach, and to be successful in the future, it should incorporate all appropriate cabinet-level agencies to protect, or de-conflict, all stakeholder interests to best accomplish the U.S.' mobilization goals.

**15. SUBJECT TERMS**  
Industrial mobilization; Industrial Mobilization Plans; National Defense Act; Council of National Defense; Great Power Conflict; Large Scale Conflict

<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>
<b>a. REPORT</b>	<b>b. ABSTRACT</b>	<b>c. THIS PAGE</b>			USMC Command and Staff College
Unclass	Unclass	Unclass	UU		<b>19b. TELEPHONE NUMBER (Include area code)</b> (703) 784-3330 (Admin Office)

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Quantico, Virginia 22134-5068

MASTER OF MILITARY STUDIES

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**Industrial Mobilization during Great Power Conflict**

SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF MILITARY STUDIES

**Major Daniel T. Hough USMC**

AY 2020-21

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## Executive Summary

**Title:** Industrial Mobilization during Great Power Conflict

**Author:** Maj Daniel T. Hough AY20-21

**Thesis:** Mobilization failures in WWI continuing through the U.S.' entry into WWII led to increased centralized control, or at least direction, of industrial mobilization through a balance of stakeholder interests, legislation and plans, and agency evolution. The current limitations of industrial mobilization, however, will hinder success in future great power conflict.

**Discussion:** The U.S.' mobilization experiences in both WWI and WWII highlighted the importance of industrial mobilization to meet the demands of large-scale, global war. Manpower mobilization was no longer the most complex aspect of mobilization, but instead synchronizing military materiel requirements with civilian industrial capabilities became the greatest challenge. Full mobilization meant mobilizing the economy as well as the military, and government agencies that were not vested with coercive power to synchronize government needs with industry capability proved ineffective. Between the world wars the United States planned to rely on joint Army-Navy industrial mobilization plans to direct an emergency mobilization if caught unprepared for large-scale global war. President Roosevelt scrapped these plans when war broke out in Europe in 1939 and focused on Executive agencies with compulsory powers to successfully mobilize. The U.S.' post-industrial economy today sustains a smaller, high-tech military through extensive research and development and procurement efforts, but its industrial capacity is degraded by a shrinking industrial base and critical raw material shortfalls. The U.S.' reliance on Executive emergency powers through legislation such as the Defense Production Act and the Defense Priorities and Allocation System are promising but unproven in a full mobilization effort.

**Conclusion:** The U.S.' success in industrial mobilization was due to three factors. First, successful industrial mobilization required a central controlling agency to smooth inter-service competition and inefficiency in procurement. Second, directing production is separate from procurement, and required a central controlling agency to synchronize military materiel needs with civilian industry capability and capacity. Third, directing the economy to meet military needs required a whole-of-government approach, and should incorporate all appropriate cabinet-level agencies to protect, or deconflict, all stakeholder interests to best accomplish the U.S.' mobilization goals.

Sweeping, even coercive, Executive Branch powers must be employed or delegated to a central controlling superagency to overcome critical industrial base weakness that are now emerging. These weaknesses include an increasing reliance on offshore industries, short-sighted focus on profits, tenuous supply chains, shortages of skilled labor, and weak coercive power codified in various statutes. The United States relies on extensive legislation to establish emergency powers for the Executive Branch to wield in a national emergency, but they remain largely untested.

## Table of Contents

<b>Executive Summary</b> .....	ii
<b>Table of Contents</b> .....	iii
<b>Preface and Acknowledgments</b> .....	iv
<b>Industrial Mobilization during Great Power Conflict</b> .....	1
Introduction.....	1
<b>Key Stakeholders Influenced Industrial Mobilization</b> .....	1
World War I.....	2
Interwar Period, 1919-1939 .....	6
World War II.....	10
Current Environment .....	12
<b>Legislation, Policies, and Plans Shaped the U.S. Industrial Base during Mobilization</b> .....	15
World War I.....	15
Interwar Period, 1919-1939 .....	17
World War II.....	20
Current Environment .....	23
<b>Committees, Organizations, and Boards Influenced Industrial Mobilization</b> .....	25
World War I.....	25
Interwar Period, 1919-1939 .....	28
World War II.....	30
Current Environment .....	33
Conclusion .....	34
Bibliography .....	40

## Preface and Acknowledgments

This paper analyzes the United States' posture for participation in emerging great power conflict from the perspective of two past industrial mobilizations when the United States engaged in a large-scale global war. The research focuses on three vital elements that shaped industrial mobilization efforts: key stakeholders; legislation, plans, and policies; and agency evolution. It is not intended to be all-inclusive or comprehensive, but instead an exploration of some common linkages and themes that show how the United States turned failure into success, while sometimes slow and painful, that would prove indispensable for the freedom of the world in the twentieth century. This research is also not a comprehensive examination of all the organizations, agencies, and even individuals that influenced eventual U.S. success in industrial mobilization. Instead, it focuses on the key players and elements that illustrate the need for a centralizing "superagency" vested with Executive Branch powers up to and including the power to coerce industry into meeting government production needs.

To gain a better understanding of historical U.S. mobilizations, this paper examines each of the three key elements of industrial mobilization in the context of WWI, the interwar period commonly understood as 1919-1939, and World War II, before turning to the present day. It explores the largely unsuccessful mobilization effort in WWI, how U.S. planners struggled to prepare for mobilization during the post-war malaise of the interwar period, and the slowly emerging success in mobilization that led to complete U.S. industrial dominance during WWII.

Research for this paper was conducted over a period of seven months. Searching scholarly databases revealed a plethora of primary and secondary sources addressing U.S. industrial mobilization. U.S. government websites and official publications also provided context of current U.S. posture for large-scale industrial mobilization. Preliminary research

revealed the problem this paper addresses, that of the need to centrally control and synchronize the economic and industrial effort to mobilize the nation for large-scale great power war.

Emerging themes were analyzed for their key linkages and influence on the eventual success of the United States during WWII mobilization. This paper concludes by exploring steps the United States should take to ensure success in future industrial mobilization for large-scale war.

Numerous professors and military advisors played important roles in this research and my professional education during this past academic year. I would like to thank Dr. Lon Strauss and LtCol Brian McLean for your close attention and guidance that shaped this work. Dr. Douglas Streusand, Dr. Paul Gelpi, and Dr. Nathan Packard, thank you for helping develop my analytical and communication skills, particularly through so many outstanding, intellectually stimulating seminars and informal discussions. LtCol Anthony Johnston, thank you for your personal mentorship and investment in me as a junior field-grade officer. LtCol Patrick Manson, we go back a long way together as engineers, and I thank you for yet again being a sounding board for my ideas, some of which ended up in this paper.

My family certainly deserves recognition for their recent and past contribution to this research. Mom and Dad, I cannot begin to say thanks for how much you invested in my pre-college education. To my father-in-law, Bill Dripps, we have been discussing topics related to this paper for more than a decade now, so I thank you for helping me begin some of this analysis before I ever conceived of this research. And to Michelle and Jonathan, thanks for your patience with me and your endurance through all the countless hours I shut myself in my office to work on this project this past year. I love you both so much! Also, Michelle, thank you for the thorough, critical review of this paper that helped me refine my final draft.

Lastly, I would like to thank God, for without His grace and direction in my life I do not know where I would be, but it certainly would not be here.

## **Industrial Mobilization during Great Power Conflict**

### **Introduction**

A prominent theory within the national security community is the reemergence of great power conflict. For the past seventy-five years, the United States has fought more limited conflicts, with limited objectives and application of U.S. military power. American society has largely lost focus on what might be required to prepare for and engage in a large-scale, global war. The United States was unprepared to support wartime mobilization in both twentieth century world wars and struggled with the difficult task of rapid mobilization. Regaining a wartime level of preparedness required a responsive and supportive relationship between government and industry to produce the required war materiel to compete with another great power.

Despite not engaging in a conventional, global war for the past seventy-five years, Americans experienced great power conflict and the vast mobilization effort that it required in the two world wars that dominated the first half of the twentieth century. Although the United States was on the victorious side in both wars, its mobilization efforts were far from flawless and, in fact, demonstrated a process of trial and error. Mobilization failures in WWI, continuing through the U.S.' entry into WWII, led to increased centralized control, or at least direction, of industrial mobilization through a balance of stakeholder interests, legislation and plans, and agency evolution. The current limitations of industrial mobilization, however, will hinder success in future great power conflict.

### **Key Stakeholders Influenced Industrial Mobilization**

## *World War I*

WWI was the United States' first large-scale global mobilization effort. After U.S. entry into WWI numerous stakeholders surfaced that influenced industrial mobilization. The popularity of the social reform movement, known as the Preparedness Movement, began several years before the outbreak of war. Historian Michael Pearlman writes that in the late 1800s and early 1900s the proponents of the Preparedness Movement felt that the immigration of non-protestants, drawn by expanded markets and industrial growth, threatened America's unique social fabric. The erosion of perceived American values and social disintegration led key proponents of preparedness, such as U.S. Army Major General Leonard Wood and Theodore Roosevelt, to propose universal military training as a form of discipline and shared hardship that they believed would restore American values and societal cohesion.<sup>1</sup> Wood and Roosevelt had served together in the Rough Riders during the Spanish American War, with Wood serving as the commanding officer. Their shared experience influenced their belief in the value of hardship, courage, and adventure to shape a man's character and, by extension, the fabric of American society.

While Theodore Roosevelt was the more recognizable figure, General Wood did more to advance the cause of universal military training and preparedness. In 1912, as the U.S. Army chief of staff, Wood promoted universal military training, drawn to this unconventional approach by his rather unconventional military background in medicine before his transfer to the fighting branch of the army.<sup>2</sup> Michael Pearlman describes how a combination of Wood's belief in the restoration of American virtues through universal military training, and his personal ambition, gave the Preparedness Movement its start. Wood's unconventional approach to both the military and the concept of universal military training put him at odds with many rank and file army

officers, who were swayed by the self-interest and parochialism that characterized professional soldiers in his day. Rather than fall in line with conventional army thought, Wood envisioned implementation of universal military training as a six-month course for civilians. Professional soldiers would run it and impart binding American values into a disciplined civilian guard force. Wood failed to bring the program to fruition, largely through army opposition, but when he circumvented army channels and appealed directly to the American people, it became both a political issue and a social cause.<sup>3</sup>

General Wood's failure to use the army for universal military training, and subsequent appeal to popular opinion did not mean that the idea of preparedness was ubiquitous. The outbreak of war in Europe in 1914 sparked debate in the United States between those desiring neutrality and those fearing the world might inevitably draw the United States into the conflict despite its efforts to remain uninvolved. Proponents of military and societal preparedness such as Wood and Roosevelt were joined by others advocating for preparedness such as former Secretaries of War Henry L. Stimson and Elihu Root, who encouraged an expanded military.<sup>4</sup> Despite their efforts, increased military readiness did not occur rapidly, and the U.S. entry into the war in 1917 found the military still vastly unprepared and not comprehending the massive mobilization requirements of global large-scale war.

Regardless of its genesis as a social reform movement, the Preparedness Movement served wartime aims by lending popular support to U.S. readiness for war, but in terms of manpower and leadership, not in industrial mobilization. Prominent advocates of a more robust military used it as a vessel to influence Congressional action. Noted figures such as former President Roosevelt used its popular sentiment to paint President Woodrow Wilson as too dovish in the defense of the nation once war broke out in Europe in 1914, particularly in the effort to

unseat him during the 1916 presidential election.<sup>5</sup> Nevertheless, public and political sentiment favoring U.S. participation in the war in Europe was never overwhelming up to 1917. Even if public sentiment had overwhelmingly supported a U.S. war declaration, mobilization required more than passion to prepare the United States for modern war on a global scale.

At the same time, organized labor sought a more prominent voice in policymaking during the Progressive Era, which it saw as government and corporate cooperation and excessive capitalism that hurt workers' interests. The American Federation of Labor (AFL) and its president Samuel Gompers saw support for the war effort as an opportunity to attain a voice within policymaking circles and advance the interests of its workers.<sup>6</sup> Although Gompers and the AFL did not represent all unions and were never able to overcome the internal discord that fractured organized labor during the mobilization for WWI, in general labor gained greater influence on policy. According to historian David M. Kennedy, labor achieved a greater level of democratization, lessening the gap between employer and worker after their noted contribution to the war effort, and encouraged the unions to reinvigorate confrontations with industry, particularly the industries of iron and steel.<sup>7</sup> President Wilson idealistically saw the potential for labor to contribute substantially to the war effort, not just advance the cause of their workers, and he set a precedent when he invited Samuel Gompers to sit as a member of the newly formed Advisory Commission to the Council of National Defense.<sup>8</sup> Labor ultimately positioned itself to influence future defense mobilization despite infighting and setbacks with industry.

The conflict that took place between labor and industry was vital to labor's role in industrial mobilization. Prior to wartime mobilization, business-minded industrialists as well as their backers in a conservative-leaning Congress, provided significant opposition to unions, part of the real or perceived hyper-capitalism that exploited workers. Manpower was already an issue

in the years leading up to the war. According to historian William Breen, poor pay and poor treatment of laborers resulted in high turnover rates in industries, which was only exacerbated further with the U.S.' entry into WWI and the manpower diverted for use in the armed forces. Enough laborers existed, but the high turnover, as high as 224 percent in 1917 and 1918 in some areas, created great employment volatility.<sup>9</sup>

The Department of Labor created the U.S. Employment Service (USES) to resolve these manpower issues before the additional pressure of wartime mobilization, but then conflict arose over whether the USES should be state or federally administered. Under the urgency of war, the pressure to centralize employment in an organization that would be dominated by government and business met opposition from organized labor. Labor demonstrated its growing influence when dealing with various proposals for federally controlled employment. Samuel Gompers and the AFL were notably effective in shaping legislation that they felt would roll back progress workers had made. At the peak of the AFL's strength during this period, Gompers succeeded in stalling the Robinson-Keating Bill in Congress that proposed a state-centered federal employment service.<sup>10</sup>

The outcome of Gompers' opposition to federally controlled employment services exposed the division within organized labor, rather than providing a more pro-union version of an employment service. Not only did the AFL not speak for all unions in a coherent message on union priorities for employment, but the AFL itself was internally divided, contributing to a stalemate on the issue of employment services.<sup>11</sup> Labor failed to present a unified message while simultaneously experiencing a resurgence of its long-standing tensions with industry and members of Congress. Historian David Montgomery argues that mobilizing for WWI helped enmesh government and business, and the high level of employment equipped workers with a

renewed sense of power. Coupled with the temporary ascendancy of the pro-union Democratic Party, the unions were poised to make substantial gains, but failed, largely because the growth of power was scattered across competing labor organizations and priorities.<sup>12</sup> Unionized labor played a key role in industrial mobilization during WWI, but competing internal interests curtailed its impact. Nevertheless, organized labor was firmly established as a key stakeholder in industrial mobilization, and it would resurface again in a key role the next time the United States mobilized.

President Woodrow Wilson's interactions with industry showed how these two stakeholders were influential elements in wartime mobilization. Measured restraint characterized Wilson's role in industrial mobilization. He desired to avoid war if possible, for as long as possible, but even once committed to war his relationship with industry remained conservative. He desired to avoid coercion, even when it was within his prerogative, preferring to inspire business cooperation from a sense of duty or patriotism.<sup>13</sup> For their part, industry sought profits and government contracts, but not government interference in business's affairs. Competing interests led to the clash between Wilson, along with key members of his cabinet, and industry, which will come up in later sections focusing on WWI legislation and the evolution of the War Industries Board.

### *Interwar Period, 1919-1939*

After WWI ended, a notable lack of concern for military readiness marked the interwar period, until the United States prepared to support as an "Arsenal of Democracy" and then participate in WWII. This societal malaise toward national defense was understandable. Americans wanted to return to a sense of normalcy. WWI was supposed to be the war that ended all wars, and the League of Nations gave reason to hope that international diplomacy would

resolve disputes before they became full-scale wars. In 1922, the Washington Naval Treaty limited the size of naval armaments and seemed to validate the faith placed in the new international order to keep peace without great military expenditures. Many stakeholders in the effort to industrially support large-scale war were remarkably unconcerned, for all those reasons. Other key stakeholders, most notably current and former civilian War Department officials, criticized what they perceived as the lack of institutional commitment to military readiness, particularly the requirement for industrial mobilization.

In a transcribed speech delivered to the Army Ordnance Association on October 23, 1922, Secretary of War John W. Weeks criticized what he saw as an indifference to the need to purposefully maintain a wartime capacity in the event the United States became embroiled in another conflict, particularly if that conflict was on the global scale of WWI. Weeks argued that this complacency stemmed from the belief that since the United States prevailed in the last war, then it would prevail in the next. He countered that mindset, stating that U.S. forces depended largely on European equipment due to the failure of U.S. industry to meet their own materiel requirements. Reflecting on the 1920 update to the National Defense Act (NDA), he stated that the NDA created provisions intended to maintain adequate military capacity, but that it was the responsibility of Congress to provide adequate appropriations to fund the effort.<sup>14</sup>

While Secretary Weeks had no power to compel Congress into properly funding the War Department, he intended for his remarks to serve as a bulwark against complete regression to pre-WWI levels of unpreparedness. Even Weeks did not comprehend the vast scope of the next mobilization effort, which far eclipsed the limited duties, and especially the authorities, prescribed in the 1920 NDA that he held up as the template for successfully directing industrial mobilization. Secretary of War Weeks certainly was motivated to advance the prerogatives of

the War Department, which would naturally clamor for better levels of military preparedness, and the associated funding that preparedness would require. This in no way invalidated his claim that the United States should maintain a greater level of preparedness than it had prior to WWI.

Near the end of his tenure as the Assistant Secretary of War, J. Mayhew Wainwright also used the *Army Ordnance* publication as a medium to voice his concerns over the U.S.' return to pre-WWI unpreparedness. He addressed the need for reliable sources of raw material to support wartime industrial mobilization, pointing out that the United States needed either reliable supply chains or adequate stockpiles. Based on his observation of the United States and other belligerents in WWI, he believed it was the government's responsibility to ensure the supply of raw materials and not rely solely on private industry. He wrote that the overall coordination of industrial mobilization required a central controlling agency and suggested that the War Industries Board (WIB) or a similar organization be that agency.<sup>15</sup> He was only the second person to serve as Assistant Secretary of War since the 1920 NDA charged the Assistant Secretary to serve as the coordinator of industrial mobilization. His article gave evidence that he already began to understand how limited his authorities were and how inadequate they would prove when put to the test two decades later.

Wainwright's overarching point was both prescient and correct. The sources of raw materials remained a national security issue and required government involvement to accomplish what the market did not provide. However, the WIB or similar agency that Wainwright pointed to for centralized control proved to be a source of failure when the United States began to mobilize for WWII. At the time Wainwright authored his article, the WIB had been dissolved, but even when it was in existence it did not have the authority to force industry to do anything,

and determining the proper level of government coercion would be a central issue during the Franklin Delano Roosevelt Administration's efforts to mobilize for WWII.

Two months later, in the March-April 1923 issue of *Army Ordnance*, the former Assistant Secretary of War, who was then a newly elected Congressman from New York, wrote another article focusing on industrial mobilization. As a Congressman, Wainwright represented a small voice within the key stake-holding body of the legislature. In his article he painted a bleak, but realistic, picture of the lead time necessary to rebuild military capability if the United States did not maintain a practical wartime footing after WWI. Like his former superior, Secretary of War Weeks, Wainwright saw the direction Congress was taking following the sentiments of its constituents, and he believed that the only recourse for military officials was to counter it with efficient policies and procedures aimed at mitigating the impact of shrinking resources. For instance, he cited the inefficiency of the War Department during WWI and the years immediately following WWI, wherein multiple mobilization plans failed to provide definite planning factors with which the procurement branches provisioned the army.<sup>16</sup>

In less than a decade the Army and Navy jointly signed the first Industrial Mobilization Plan (IMP), which offered a solution to the failings of the disjointed planning effort that had eroded past procurement efforts. Wainwright also argued that the vast pendulum swing from unprepared to prepared was both costly and unstable, and that due to the unlikelihood that Congress would appropriate funds to maintain a high level of military readiness, it was more feasible to try to appropriate money to maintain the capability and capacity for munitions manufacturing.<sup>17</sup> The wisdom behind Wainwright's argument for adaptation, innovative, and the wise use of resources rather than convincing an unwilling Congress to fund surpluses is that it

promoted the skill and ability to produce munitions during time of need rather than maintain a surplus that would degrade in quality and technological edge over time.

Wainwright, however, underestimated the magnitude of the coordination effort in his emphasis on the Assistant Secretary of War serving as the coordinator of industrial mobilization as outlined in the NDA. It became obvious within two decades that the duties of centralized control of the industrial mobilization effort greatly exceeded the decision-making authority and resources of the Assistant Secretary of War.<sup>18</sup> An agency with more authority would be needed to fill the void.

### *World War II*

During WWII, labor and business again emerged as key stakeholders in the industrial mobilization effort, but this time the Executive Branch demonstrated more political adroitness and assertiveness than had the Wilson Administration. Even before the United States entered the war, Franklin Delano Roosevelt comprehended the threat the Axis Powers posed and the monumental struggle that defeating them would require. He navigated political pressure and public opinion and was willing to risk failure by experimenting with organizational configurations that would meet the demands of industrial mobilization. In one of his earliest moves he transferred the Army-Navy Munitions Board (ANMB) and the Joint Board into the Executive Office, which set the tone for his control of a series of war agencies by Executive Order.<sup>19</sup> At the risk of his labor and New Deal allies' displeasure, Roosevelt installed Edward Stettinius of the U.S. Steel Corporation to head one of his earliest war agencies, the War Resources Board.<sup>20</sup> Roosevelt favored executive action to control mobilization, and he experimented through his executive power to find out what boards and agencies best led industrial mobilization.

Ballooning defense requirements created a vast demand for workers, and labor experienced a resurgence as a stakeholder in industrial mobilization but also encountered numerous power struggles and internal divisions.<sup>21</sup> Massive defense expenditures helped to propel the United States out of economic depression, and organized labor seized the opportunity to once again gain leverage for unions across the country.<sup>22</sup> Not only did labor seek concessions from industry, but it sought to influence Roosevelt, thinking he was favorable toward unionized workers. After all, as part of Roosevelt's New Deal, Congress passed the Wagner Act that legalized unionization. Labor proved a powerful enough influence on Roosevelt that members of his own staff urged him to rein in labor rather than allow it to use the crisis of war to its own benefit.<sup>23</sup>

Roosevelt's logic in his persuasive stance toward labor was well thought out and indicative of his vast comprehension of the sensitive interconnectedness of stakeholders involved, along with the political implications. According to historian Eliot Janeway, some labor unions, such as the coal miners within John L. Lewis' United Mine Workers, benefited economically and with increased political clout from opposing the war effort, while the United Auto Workers (UAW) union under Walter Reuther seemed to suffer from their defense-minded position through unemployment while the government figured out the mass-production of wartime materiel. While some of Roosevelt's staff urged him to adopt more coercive measures to bring unions behind the war effort, he knew such actions taken against a recalcitrant union would likely alienate the more cooperative unions.<sup>24</sup> In rare instances Roosevelt authorized coercive measures such as military seizure of striking facilities, but his opening position in the early years of mobilization was to appeal to patriotic sensibilities, and induce cooperation through applications of soft power like obtaining "no-strike" pledges from unions. Infighting

lessened labor's effectiveness, and as historian Paul Koistinen writes, this limitation became even more pronounced once the United States entered the war and the emphasis on producing war materiel strengthened industry instead of labor.<sup>25</sup>

Organized labor made inroads with two other key stakeholders in industrial mobilization, the War and Navy Departments. Despite opposition from businesses, the Roosevelt Administration was amenable to certain union priorities that concerned working conditions, and this produced positive outcomes for laborers through the Administration's authority over the National Defense Advisory Commission (NDAC) and the War and Navy Departments. Ultimately, according to historian Keith Eiler, the NDAC proposed that defense contracting would proceed based on compliance with the forty-hour work week, paid overtime, safety regulations and workmen's compensation, and avoidance of discrimination, among other union-related priorities. The NDAC also promoted adherence to federal statutes such as the National Labor Relations Act and the Fair Labor Standards Act.<sup>26</sup> Implementation proved a challenge, marking the limit of union influence and the need for concurrence and advocacy from other key stakeholders. Congress did not codify the NDAC's proposal, and, therefore, procurement agencies in the military branches who were focused on efficiency and viewed elements of the NDAC's proposal as a needless waste of resources, resisted it.<sup>27</sup> Ultimately Under-Secretary of War Robert Patterson over-ruled the objections of the procurement branches and adopted the labor clauses as standard contracting policy in December, 1940, marking an early victory for organized labor against other key stakeholders in industrial mobilization.<sup>28</sup>

### *Current Environment*

The landscape of stakeholders has undergone significant change since the first half of the twentieth century, but the extent of stakeholder interconnection during that time provides

important insights into the present environment. The 1947 National Security Act created the Department of Defense (DoD) and marked the most significant stakeholder change in industrial mobilization, the consolidation of the War and Navy Departments. The formation of the DoD built upon early joint coordination, such as the Joint Army-Navy Board and the Army-Navy Munitions Board. Since its inception, the DoD has played a key role in the development of material solutions to meet warfighter requirements and is a consolidated stakeholder of all military branch interests in industrial mobilization.

The Executive Branch remains responsible for U.S. security and for promoting a vision and strategy for countering threats to U.S. interests. As the chief executive, the President, in concert with his National Security Council, establishes defense priorities and articulates them through the National Security Strategy. Although the President establishes the defense priorities and is equipped by statute with broad emergency powers in the event of a natural disaster or large-scale conflict, his power is checked in the normal execution of his priorities by Congress. The 116<sup>th</sup> Congress passed the FY21 National Defense Authorization Act over the President's veto in January 2021, which is a recent example of the Legislative Branch's constitutionally mandated check and balance to the President's power. Because of these constitutional balances of powers, in most normal circumstances the President must seek consensus when coordinating national defense measures, including industrial mobilization. The President must balance competing national defense interests, even for powers that fall within the Executive Branch's purview, as President Roosevelt so adroitly did to dramatically increase industrial outputs without incurring crippling opposition from organized labor.

In addition to being a check and balance on the Executive Branch, the Legislative Branch is also a stakeholder with the opportunity to proactively shape future industrial mobilization

efforts. In 2016 Congress expanded the U.S. National Technology and Industrial Base (NTIB) codified within Title 10, U.S. Code, §2500 to include the United Kingdom and Australia, joining Canada and the United States who were the original members when the NTIB was founded in 1994 for the purpose of improving integration of technological and industrial expertise.<sup>29</sup> Since the U.S.' method for dealing with future industrial mobilization is significantly based in legislation, it is imperative that this type of leadership displayed in expanding the NTIB is the norm, rather than the exception.

Industries manifest their stakeholder interests through a strong lobbying presence in Congress to influence spending priorities. While industry remains influential, a critical weakness has eroded its strength. According to a 2020 survey of defense industry health by the National Defense Industrial Association, the single most dangerous factor harming the defense industry is the loss of industrial security through extensive data breaches.<sup>30</sup> The resulting loss of confidence in industry erodes its ability to attract workers, weakens its position when negotiating contracts, and degrades the U.S.' technological edge. To address this critical weakness, industry will need to partner with other stakeholders. Just like organized labor could not advance its agenda in WWII without Executive Branch influence in the form of the NDAC contracting proposals and War Department policy implementation, industries' response to its security crisis may be best solved through involving other stakeholders. Lobbying Congress raises awareness of solutions and required funding, while DoD, interagency, and information technology stakeholders can help create more resilient firewalls to resist breaches.

Labor also remains a significant stakeholder. During the two world wars, labor focused on how it could influence the process of mobilization, but now the problem has shifted to the lack of skilled labor to support a surge in industry. The 2020 survey by the NDIA indicated that

between 2010 and 2016 defense industry employment dropped by 9.4 percent, due largely to the decline in defense spending as a percentage of gross domestic product.<sup>31</sup> The NDIA's survey outlined another weakness in the labor force: the number of science, technology, engineering, and math (STEM) -qualified members in the work force. Although the overall upward trend in undergraduates choosing STEM programs is contributing to the general increase in STEM workers, some technical fields still report a shortage of trained workers, and rapid advancements in technology make some STEM skillsets obsolete.<sup>32</sup> Not only is the shrinking labor force indicative of potentially decreased labor advocacy, but even more importantly it constitutes a national security threat should a great power conflict demand an immediate increase in industrial output.

### **Legislation, Policies, and Plans Shaped the U.S. Industrial Base during Mobilization**

#### *World War I*

During the lead-up to and involvement in WWI, the United States uncovered glaring deficiencies in its ability to coordinate industrial mobilization. Stakeholders' competing interests prevented a cohesive, focused effort to prepare for great power conflict. Legislative policies inadequately regulated the various competing interests, leading to the creation of new policies. The National Defense Act of 1916 was the first significant piece of new legislation attempting to address this. According to Marvin Kreidberg and Merton Henry's analysis of the NDA, while it addressed both manpower and industrial concerns, it was overwhelmingly oriented toward manpower. The NDA also gave the President authority to enforce compliance among industry to address wartime priorities, and the ability to seize factories for government use, if needed.<sup>33</sup> The 1916 NDA did not specify how the President was to enforce industry compliance in mobilizing the materiel resources for war, and this left the implementation of Executive Branch provisions

unclear. What was clear, however, was that the NDA marked the culmination of the previous years' preparedness sentiment, and the beginning of the mechanism that would direct economic mobilization. Congress established the Council of National Defense (CND) in August 1916 to direct the economic and industrial mobilization for large-scale conflict. This came as a rider to a subsequent Army appropriations bill instead of in the original language of the 1916 NDA.<sup>34</sup>

Congress passed two other important acts in the WWI period that specifically increased Executive Branch power to manipulate the market, with the intent to increase the ability for industry to support wartime mobilization. The first of these was the Lever Food and Fuel Act (Lever Act) that they passed in August 1917 that intended to increase defense production and control the price and distribution of certain food and fuel products.<sup>35</sup> The Lever Act did not relinquish Congressional power to the President. Rather, it created a power to regulate various mechanisms of the economy that the conservative-minded Congress would have normally left to the unseen forces of the market. According to Bernard Baruch, a successful financier famous for his service to the nation in both WWI and WWII, the Lever Act was emblematic of Congress' approach to price controls. Instead of giving the President blanket powers to control prices, Congress demonstrated its check on the Executive Branch by giving price control power based on specific individual commodities, in this case on food and fuel and things associated with these two commodities.<sup>36</sup>

The next year the Overman Act followed the Lever Act. It expanded the President's power to restructure executive agencies, and to create wholly new agencies, without the consent of Congress. David Kennedy writes that the conditions for expanded Presidential powers under the Overman Act stemmed from the appearance of severe weakness and ineptitude on the part of the Executive Branch in its conduct of the war, to the extent that Congress considered a separate

bill that would strip the President of his wartime powers and direct the conduct of the war through a separate war cabinet.<sup>37</sup> To counter this effort by his political foes, Wilson not only championed the passage of the Overman Act, but induced a fellow Democrat, Senator Lee Overman, to introduce the legislation that bore his name.<sup>38</sup> Unlike the Lever Act, the Overman Act directly ceded Congressional authority to the President, and by extension the various cabinet-level organizations within the Executive Branch. The Overman Act directly leveraged Congressional criticism of Wilson's ineffective and inefficient prosecution of the early war effort, but once it passed and Wilson flexed his new power within its parameters, it signaled the end of Wilson's willingness to wage war through Congressional statute.<sup>39</sup>

Both Acts required a chairman or cabinet-level leader with the grit and determination to enforce the President's wartime priorities to be employed effectively. Historian Robert Zieger writes that the Overman Act had not given the newly created War Industries Board, formed by the Council of National Defense, the authority to compel industry to follow their guidance. Instead, he claims that effective coordination occurred only after Wilson appointed a strong, energetic figure in Bernard Baruch to head the WIB.<sup>40</sup> Baruch's energy, skill, and forceful personality countered the lack of coercive authority the WIB had over industry. Despite their flaws, these WWI-era pieces of legislation played a crucial role in the evolution of industrial mobilization. They set the precedent for Executive Branch direction of the wartime economy through executive agencies. This would not make a significant impact on U.S. involvement in WWI but would be a decisive factor in the U.S.' execution of wartime policies in WWII.

#### *Interwar Period, 1919-1939*

During the interwar period, legislation, policies, and plans proved crucial in shaping the future of U.S. preparedness despite an apparent lack of concern from the public and its

representatives in Congress. Legislators continued to refine the National Defense Act, and the 1920 update was particularly remarkable. It assigned the role of coordinator of industrial mobilization to the Assistant Secretary of War, who in 1921 formed his own staff, the Procurement Branch, to assist in the duties of coordinating War Department priorities with industry.<sup>41</sup> The NDA authorized the chiefs of the procurement and supply branches within the Army to report directly to the Assistant Secretary of War on procurement-related matters.<sup>42</sup> The 1920 NDA did not resolve the problem of whether procurement would be a military or civilian responsibility.<sup>43</sup> The issue of an agency to direct industrial mobilization remained a problem for two more decades, and the creation of the Procurement Branch blurred the lines between civilian or military direction of industrial mobilization that would not be resolved until the creation of the War Production Board during WWII mobilization.

Throughout the 1930s, the War and Navy Departments published and revised the Industrial Mobilization Plan to create the emergency structure that would be activated by the President and Congress in the event of a sudden outbreak of large-scale war. First published in 1931, it was amended in 1933, 1936, and 1939. Industrial mobilization was truly a joint problem and the IMP constituted joint action on it. While the War Department had been at the forefront of industrial mobilization, it was also of vital interest to the Navy Department. The 1936 IMP specifically corrected the flaw in joint investment in industrial mobilization created when the NDA gave the Assistant Secretary of War responsibility for industrial mobilization and neglected to mention the Navy. The 1936 IMP specifically stated that it was the direct result of joint Army-Navy action, through the Army-Navy Munitions Board.<sup>44</sup> The 1936 IMP was also approved and signed jointly by the Acting Secretary of War and the Secretary of the Navy, further solidifying the now joint approach to industrial mobilization that had not been omitted

from the NDA. This early demonstration of joint-ness proved critical during WWII and may have contributed to the eventual consolidation of the armed services under a single Defense Department in the 1947 National Security Act.

The IMP was not all-prescriptive, but according to historian Keith Eiler, the purpose was to propose a generalized concept for how the government should approach an emergency mobilization of industry. A temporary superagency, called the War Resources Administration, organized around a particular wartime function that bypassed regular government agencies and departments, would implement the IMP's provisions as an emergency measure.<sup>45</sup> The IMP was invaluable in formulating a cohesive, joint plan, but it was built from the flawed hypothesis of a sudden, distinct emergency, which would activate the IMP's emergency organizational structure.<sup>46</sup> In the late 1930s, when the Army and Navy approved the final revision of the IMP, President Roosevelt faced a gradual escalation of hostilities in Europe and in Asia that prompted American mobilization. Those events did not constitute an emergency until December 7, 1941, though, at which point the U.S. mobilization was already underway.

Although the IMPs were shaped by those who had observed the U.S.' mobilization experiences in WWI, they were not structured to adequately meet the degree of total war that WWII required. Eiler explains this critical weakness of the IMPs as an assumption that a responsive home front would provide wartime manpower and required materials. Previous wars had been either limited in nature or less technology-centered, and therefore had not strained this assumption. WWII would reveal the need for reciprocity between government and the home front, wherein government would conduct extensive oversight into prioritization of competing claims for resources rather than relying on market-generated allocation of resources.<sup>47</sup> At the time of each IMP's publication, they demonstrated the best, most forward-thinking plan known

to their drafters to set the conditions for future industrial mobilization in the face of great power conflict, while simultaneously avoiding a serious affront to the capitalist proclivities of American businesses. WWII would demonstrate just how ineffective they were, however, both in terms of meeting the gradual movement to a wartime industrial footing and to the extent that they would need to infringe on the free market with measures such as price controls and restrictions on collective bargaining.

### *World War II*

President Franklin D. Roosevelt relied on executive power in his leadership of industrial mobilization to meet the demands of U.S. participation in WWII. Roosevelt understood the limitations of both the NDA and the IMP. First, the NDA, in establishing the Assistant Secretary of War as the principal agent for coordinating the industrial mobilization effort, had created a solution that was simply not up to the task. Roosevelt recognized the NDA's limitations in providing the needed authority for, if necessary, coercing industry into meeting wartime priorities. In Roosevelt's mind, even the IMP was inadequate for what he saw emerging, the need for a more gradual, but massive, mobilization. Since the United States remained neutral in the early years of WWII, while still supporting the Allies in the war effort through the provisions of the Lend-Lease Act, it was essential for U.S. industries to respond to this requirement for greatly increased production well before the declaration of war constituted a national emergency.

Legislation played a major role during WWII by targeting what the military branches and the defense industry perceived as a substantial barrier to achieving the necessary industrial output once full-scale mobilization began. As the tempo of industrial mobilization picked up in 1940 and 1941, the number of work stoppages due to strikes dramatically increased. Two hundred forty-one potential strikes in the last six months of 1940, with conciliatory efforts from

the NDAC's Labor Division preventing all but two of them, had turned into 4,200 strikes in 1941.<sup>48</sup> For the entirety of the U.S.'s declared participation in WWII, from December 8, 1941 to August 14, 1945, there were 14,731 strikes that involved 6,744,000 workers and over 36 million man-days of labor lost, according to a U.S. Department of Labor analysis published in May 1946.<sup>49</sup> Although those numbers seemed large, the Department of Labor's analysis put it in context, stating that the loss of man-days amounted to slightly more than one tenth of one percent, and, although they were large in number, individually they were small and quickly resolved.<sup>50</sup>

President Roosevelt considered the possible impact strikes would have on the war effort, and he procured "no-strike" pledges from national labor union leaders shortly after the United States formally entered the war. This resulted in fewer strikes that labor leadership sanctioned as well as obtaining labor leaders' help in resolving strikes when they did occur.<sup>51</sup> Even before the United States entered the war, Roosevelt, the military, and industry were concerned with the extent of work stoppages due to strikes in the defense industry. The concentration of key military capabilities within certain corporations linked strikes to an immediate degradation of military readiness and lethality, prompting heightened attention to strikes despite the fraction of their overall impact on production. For example, in 1941 alone, 4,200 strikes occurred that resulted in 23,000,000 lost man-days of work, which affected eight key defense industries including shipbuilding, steel production, and coal mining.<sup>52</sup> Observing this, the War and Navy Departments, along with defense industrialists and those in Roosevelt's evolving sequence of industrial mobilization agencies continuously clamored for action on curbing union activity. In keeping with his proclivity for executive action, in June 1941, President Roosevelt ordered the military seizure of an aviation company with a defense contract that striking workers had

incapacitated.<sup>53</sup> An agreement between government and labor to pursue mediation narrowly avoided a threatened military takeover of all coal mines following a series of walkouts in the latter half of 1941, resolving the dispute, and reopening the mines through persuasion rather than coercion.<sup>54</sup>

As the war progressed, patriotic furor turned public opinion against striking unions when strike-related work stoppages were perceived as a blow to the war effort rather than as advancing the legitimate concerns of workers. Koistinen claims that the armed services' anti-union publicity campaign targeting strikes shaped public opinion against strikes.<sup>55</sup> The combined momentum against striking unions contributed to the passage of the War Labor Disputes Act in 1943.

The War Labor Disputes Act, also called the Smith-Connally Act after its Congressional sponsors, was the culmination of anti-union measures taken in the early years of the war, spurred on by the escalation in strikes that occurred in 1943. The number of strikes increased from 2,968 in 1942 to 3,752 in 1943, with 69 percent of the man-days lost in 1943 being attributed to striking coal miners.<sup>56</sup> Steel production depended on coal and was a necessary component of so many critical war materials, such as weapons, ships, and ammunition. According to historians Keith Eiler and Paul Koistinen in separate works on WWII mobilization, the Smith-Connally Act required a 30-day cool-down after filing a formal declaration of intent to strike along with a list of grievances that caused worker dissatisfaction before a strike could begin.<sup>57</sup> These requirements targeted the more spontaneous wildcat strikes that had no official union sanction and were in violation of the "no-strike" pledge and general spirit of cooperation among most unions in support of the war effort.

Congress passed the Smith-Connally Act over President Roosevelt's veto on June 25, 1943. The Act reinforced Roosevelt's executive power over war mobilization. Like the powers Congress granted Woodrow Wilson under the Overman Act, the Smith-Connally Act codified greater power to Executive Branch agencies by giving the President the authority to take over any business in which a strike posed a threat to execution of an existing defense contract deemed critical to the war effort.<sup>58</sup> Even though he vetoed the Smith-Connally Act, Roosevelt did not approve of strikes during wartime mobilization, so much so that he proposed to draft striking workers into the armed forces as a deterrent. However, he argued that the impact of strikes was overstated and that the cool-down period legitimized strikes that should have been prevented by the no-strike pledge.<sup>59</sup> In practice, the Smith-Connally Act was used infrequently to break strikes, being first invoked in August 1944 to break a strike in Philadelphia opposing the decision to employ black Americans in other than menial jobs in the local transportation system.<sup>60</sup>

The sparing use of the Smith-Connally Act acknowledged the freedom to organize unions, the importance of union advocacy for legitimate worker concerns, and that even under the duress of global war the U.S. government was reluctant to intrude upon civilian sector matters. Nevertheless, the Smith-Connally Act established the wartime precedent that the Executive Branch would retain emergency authority to direct and even coerce industrial production when in the national interest, a precedent that applies today under statutory laws in the United States Code and the Code of Federal Regulations for national emergencies including, but not limited to, war.

### *Current Environment*

Based on the precedents established during the two world wars of the twentieth century, proper legislation and policies are necessary for the U.S.' mobilization capability and capacity.

Congress reauthorized the Defense Production Act (DPA) of September 1950 again in 2018. According to the Council on Foreign Relations, the DPA gives the President broad authority to require industries to prioritize federal government orders for national defense purposes.<sup>61</sup> The President may use executive orders to assign which government departments can invoke the DPA in the event of a national security threat, emergency, or natural disaster. Both President Trump in 2020 and President Biden in 2021 invoked the DPA during the COVID-19 pandemic to address a shortage of medical supplies and accelerate vaccine production, which highlighted its use and wide applicability, although not necessarily indicative of its effectiveness.<sup>62</sup>

Under the Code of Federal Regulations (CFR), Title 15, Part 700, the Defense Priorities and Allocations System (DPAS) derives its authority from the Defense Production Act to establish priorities and emergency preparedness levels. Title 15 CFR states that the administration of DPAS resides in the Department of Commerce, lists currently established priorities for industry, and defines allocations and compliance.<sup>63</sup> Industry capabilities are the only immediate constraint on effectively invoking DPAS and DPA. The reason for this constraint is simple: if an industry has lost, or never had, a particular capability, redirected priorities under DPAS may not produce any immediate results. For this purpose, the United States today must not rely exclusively on policies but must maintain a running assessment of industrial capabilities to make the policies for jump-starting industrial mobilization relevant.

Title 50, U.S. Code, currently classifies the President's powers to establish production priorities, fine violators of government-mandated production orders, and strengthen domestic capability through incentives. The President is specifically restrained from controlling prices and wages and from rationing fuel without Congressional approval.<sup>64</sup> The limitation of these provisions is that they seem to target small businesses. The fine mentioned as a coercive

instrument is only \$10,000, which is not likely to persuade a large corporation to comply if it is incentivized to pursue its own private agenda.<sup>65</sup> In order to be an effective instrument in the hand of the Executive Branch to drive industry to follow government-established priorities, the coercive nature of Title 50 will need to be drastically increased.

Title 50, U.S. Code, also gives the President authority to expand production capacity. Under this provision, the President can authorize purchases to create, maintain, or restore production capabilities critical to national defense and secure vital materials and technologies.<sup>66</sup> This addresses a crucial requirement regarding U.S. raw material shortages and industrial limitations. However, like the previous provisions in Title 50, these measures lack definitive coercive powers. Finally, in a dated chapter, the U.S. Code still considers the Council of National Defense an asset for coordinating resources and industry for national security purposes.<sup>67</sup> President Roosevelt deemed the CND outmoded when he sought an agency to mobilize industry during WWII. There is no indication that it would be more suited to the task in the current environment.

### **Committees, Organizations, and Boards Influenced Industrial Mobilization**

#### *World War I*

The critical flaw in the committees, boards, and organizations prior to and during the U.S.' involvement in WWI was that they lacked credible authority to direct mobilization. The Naval Consulting Board, a non-governmental organization, countered the Preparedness Movement's view that the Wilson Administration was weak on military readiness. Instead, it showed that Wilson was focused on advancing naval technology, the U.S.' first line of defense, rather than expensive increases in traditional armaments.<sup>68</sup> The Industrial Preparedness Committee emerged from the Naval Consulting Board. It was a largely private endeavor that

produced detailed surveys of U.S. industrial capacity, and according to Edward Coffman, it served to normalize in American society the role that industry would play in waging modern warfare.<sup>69</sup> The influence of these two organizations helped to shape the government's committee approach to industrial preparedness in its creation of the Council of National Defense in 1916, but neither had any authority due to their non-governmental nature.

In 1916, the CND was the first attempt to create an organizational body to carry out the President's mobilization plans as the war in Europe threatened U.S. neutrality. Instead of being created by the 1916 NDA, a rider to an Army appropriations bill in August 1916 created the CND, two months after passage of the NDA.<sup>70</sup> The CND and its Advisory Commission, also referred to as the National Defense Advisory Commission, consisted of inter-departmental membership intended to bring a whole-of-government approach to mobilization problems. Nevertheless, both the CND and the NDAC lacked the clout to make decisions regarding the fate of industry, due in large part to the absence of governmental will to usurp a function of private businesses and markets. Congress created the CND and the NDAC in the early stages of WWI mobilization, when the U.S. had yet to fully comprehend the scope of mobilization efforts needed to win in modern warfare on a global scale. Furthermore, because the war ended while the United States was still mobilizing, it failed to provide the complete problem set from which the War and Navy Departments, Executive and Legislative Branches, and even industry, could conduct analysis and take appropriate measures for the future.

The General Munitions Board (GMB) was also one of the early agencies concerned with large-scale industrial mobilization, though it did not last long. The CND created it in April 1916 just before the United States entered the war. The War Industries Board then replaced the GMB in July 1917 after its unsatisfactory performance.<sup>71</sup> According to Bernard Baruch, the GMB was

intended to deconflict unhealthy competition between the Army and Navy Departments and their various purchasing agencies by supervising government orders.<sup>72</sup> However, it lacked a capability to coordinate with industry to meet wartime demands, making it wholly inadequate for what lay ahead. Industry shortages, quickly followed by price increases, exposed the vulnerabilities of the GMB. The NDAC formed committees of advisors from across industry to provide accurate information on supply and provide industry a more accurate assessment of government needs to correct the GMB's problems. Despite the apparent abundance of patriotic goodwill among those involved, the emerging confusion over jurisdiction and the misconception of the motivations of those seeming to serve simultaneously the interests of both buyer and seller undermined the committees' effectiveness.<sup>73</sup>

Prior to the WIB, the Army and Navy pursued procurement independently, according to each services' requirements. As Paul Koistinen states in his doctoral dissertation, the WIB was created to synchronize these independent procurement activities across the two military services and with the business community. It was designed with minimal authority over businesses, simply stating the government requirements and allowing businesses to provide them.<sup>74</sup> Instead of scrapping the WIB when these flaws of limited authority became apparent, President Wilson and the NDAC sought ways of improving it. Wilson appointed Bernard Baruch as chairman of the WIB on March 4, 1918, and empowered him to make decisions and order actions, not merely to advise.<sup>75</sup> Baruch was more than willing to do so. Even with Baruch at the helm, who used a combination of persuasion, mildly coercive pressure, and a reliance on patriotism and threats to get businesses to agree to WIB proposals, the WIB was primarily successful with businesses who were too fragmented to put up coordinated opposition.<sup>76</sup>

President Wilson desired to curb profits in industry without using coercion. The WIB negotiated a uniform price with U.S. Steel that curbed skyrocketing profits by threatening a corporate takeover through a piece of legislation that gave the Executive Branch just such powers. In the end both the WIB and U.S. Steel compromised and claimed victory. U.S. Steel retained control of its company and still made substantial, though somewhat curtailed, profits.<sup>77</sup> Since the proposed legislation allowing a takeover was not passed, the WIB was ultimately powerless to coerce. While their blend of bluff, public pressure, and willingness to compromise was often successful, it still underscored the limitations of their authority.

WWI ended well before industry in the United States reached its full production capacity, as well as before the effectiveness of the NDAC and WIB were truly tested to allow for conclusive analysis. Lack of coercive authority was a glaring flaw, but WIB successes were later, although not initially, emulated in WWII mobilization agencies, such as the War Production Board. For instance, price controls and prioritization were both features of the WIB that would eventually be reincorporated within WWII mobilization, and the recognition of the importance of fostering goodwill with the unions found in WIB's labor division also reappeared during WWII.<sup>78</sup> The knowledge and experience gained during WWI was lost in the following interwar period, however, only to be relearned slowly during mobilization for the next global war.

#### *Interwar Period, 1919-1939*

Development of industrial readiness during the interwar period relied largely on the work of committees, boards, and organizations to overcome the stagnation affecting military readiness. The Council of National Defense and its Advisory Commission remained nominally the foremost organization concerned with matters of industrial mobilization. Since the United States was no

longer at war, the WIB was deemed unnecessary, and it was scuttled. The CND used its interdepartmental structure to address national interests within industry and national resources. It was also responsible for nominating the Advisory Commission to the President.<sup>79</sup> The CND and the NDAC retained enough potential throughout the interwar period that Roosevelt briefly assigned them as his lead agencies for coordinating industrial mobilization after WWII had commenced in Europe.

According to Kreidberg and Henry, three other organizations played instrumental roles in the interwar period. The Planning Branch, that the Assistant Secretary of War created, carried out the bulk of the planning that went into the IMP. The Army Industrial College, established in 1924, aided the Planning Branch in acquiring qualified, motivated officers. Finally, the Army and Navy Munitions Board, the brainchild of Assistant Secretary of War J. Mayhew Wainwright, proved critical in the early 1930s for coordinating Army and Navy interests into a cohesive message in the IMP.<sup>80</sup> As effective as they were at performing the detailed planning and joint coordination that went into producing the IMP, they still lacked authority to execute or direct policies. Their focus was internal, like that of the WWI-era GMB, which had been scrapped in 1917 for ineffectively conveying synchronized requirements or government priorities to industry. The iterations of the IMPs in the 1930s show that U.S. planners abandoned the lessons learned in the establishment of the WIB and returned the responsibility for industrial mobilization to the individual services under the guise of procurement.

On July 1, 1939, two months before the German invasion of Poland, President Roosevelt moved the ANMB under the Executive Branch, an attempt to free it from interference from the War and Navy Departments.<sup>81</sup> This was not an evolution in industrial mobilization organizations but a move by Roosevelt to use agencies so he could direct the mobilization effort. His desire to

work with existing agencies was logical for two reasons. First, it avoided the political accusation that his Administration was going to involve the United States in a foreign war. Second, it stemmed from Roosevelt's belief that existing agencies only needed more direct Executive Branch guidance to be successful. The emerging global conflict would require direct Executive Branch control through a centralized planning agency for successful prosecution of U.S. war aims if the United States were drawn into the war.

### *World War II*

Despite more than two decades of work spent addressing the issues identified with industrial mobilization, the United States was again unprepared when the war began in Europe. The twenty-seven months that elapsed between the German invasion of Poland and the attack on Pearl Harbor gave the United States time to begin mobilization. During this mobilization effort, President Roosevelt placed far more emphasis on the use of agencies than on legislation to control the industrial mobilization. Roosevelt implemented mobilization agencies and policies while astutely negotiating the political pressures of various interest groups and the timing of election cycles.

After bridging the interwar period and commencement of WWII with the Army-Navy Munitions Board, the Roosevelt Administration started a rapid-fire sequence of superagencies to direct the wartime mobilization effort. In September 1939, Roosevelt created the War Resources Board (WRB), the first major agency change since the outbreak of war in Europe. He intended the WRB to review the latest 1939 edition of the IMP, but quickly disbanded it after facing heavy criticism from his usual political allies for appearing to industrialize a defense agency, because some members of the WRB were noted industry leaders.<sup>82</sup> Learning from this failure, and with the threat of an upcoming election year, Roosevelt reinstated the Council of National

Defense and its Advisory Commission. The NDAC, an existing government body, could address the industrial mobilization problem without accusations that Roosevelt created a bellicose organization that sped up the U.S.' march to war.<sup>83</sup>

The NDAC was also short-lived. Roosevelt replaced it with the Office of Production Management in late 1940 because the NDAC was poorly organized and lacked meaningful authority.<sup>84</sup> According to Koistinen, OPM was vested with more power than the NDAC for not merely managing production, but specifically with increasing and accelerating production, building production facilities, and regulating needed wartime materials. More importantly, it was armed to accomplish this with the delegated Presidential powers of assigning compulsory orders when needed.<sup>85</sup>

However, OPM failed to significantly improve over the NDAC. It did not take enough control of priorities from the individual armed services. Bernard Baruch criticized what he viewed as throwing out the lessons learned in WWI that demonstrated the necessity of a central controlling agency for prices, priorities, allocations and consumption across both defense and civilian production for success.<sup>86</sup> A critical failure of OPM was leaving priorities at the service level, within the ANMB, and ceding its coordination authority to the Army and Navy.<sup>87</sup> OPM did bring industry and the military closer together, although it was far from perfect. Roosevelt transitioned to the War Production Board (WPB) because of the U.S. entry into the war rather than because of the failures of OPM. According to John D. Millett, the WPB combined the power vested in both OPM and the Supply Priorities and Allocations Board to determine general policies and procedures for procurement and production tasks such as contracting; requisitioning; expanding, converting, or constructing production facilities; and purchasing.<sup>88</sup>

The WPB proved a resilient and effective agency in coordinating industrial mobilization. It grew in complexity and responsibility, and came to encompass the complete system of production, with its various divisions controlling ship building, aircraft production, general production, wartime materials, sensitive technologies, utilities, production manpower and labor, and a complex administrative bureaucracy.<sup>89</sup> It was not, however, all powerful and in complete control of all aspects of the economy. The WPB was never given control of prices, which remained with the Office of Price Administrations, nor was the WPB given control over manpower and labor issues.<sup>90</sup>

Though complex, riven with infighting and staff turnover, the WPB achieved the President's intended goal of meeting the need for massive stocks of war material for both U.S. forces and allies. It was ostensibly in charge of both production and procurement, which meant that it could strip away the power of procurement from the military departments, but in the interest of a moderate approach that focused on the end-state of well-supplied forces, it opted not to exercise its full power.<sup>91</sup> After much infighting, a compromise established that the Army and Navy would state their procurement needs and goals, while the WPB reviewed and adjudicated their requirements and determined the execution of the actual production schedule.<sup>92</sup> The broad responsibilities of the WPB exceeded its abilities, and the Office of War Mobilization (OWM) was formed to adjudicate disputes between agencies, while leaving the WPB to continue to drive industrial production.<sup>93</sup>

This agency construct lasted, with both the WPB and OWM leading the reconversion effort that transitioned from a wartime economy back to a peacetime economy. Their reconversion roles were delineated appropriately, with the OWM, which eventually became the Office of War Mobilization and Reconversion (OWMR) in October 1944, creating reconversion

policy and the WPB implementing those policies.<sup>94</sup> Eventually, however, both the OWMR and WPB were no longer needed, after the war was won and reconversion was well underway, and both were terminated. The United States had also terminated the WIB after the armistice in 1918, severely degrading its military readiness in the interwar period, begging the question how the United States postured itself to respond to the next urgent need for industrial mobilization?

### *Current Environment*

At present the United States emphasizes legislation over a committee or organizational approach to industrial mobilization. The CND is still retained by statute to supervise industrial mobilization, despite being deemed inadequate by the U.S. Presidents in both prior mobilizations. If the President chooses to delegate his Executive authority under the DPA and DPAS to the CND, it may be a viable superagency for centralizing control of industrial mobilization, but this is conceptual and has never been put into practice.

The National Defense Technology and Industrial Base Council (NDTIBC), consisting chiefly of the Secretaries of Energy, Commerce, and Labor, and chaired by the Secretary of Defense, synergizes government efforts to ensure that the technological and industrial bases support national defense needs.<sup>95</sup> It is an attempt at a whole-of-government approach to ensuring the U.S. industrial base is in step with the technological advances needed to maintain U.S. military primacy, and ensure labor is represented – a lesson learned from industrial mobilization efforts in the two world wars. The NDTIBC is limited in scope and is not intended to be a coercive organization that drives the over-all industrial mobilization effort like the WPB did during WWII, but it may be an organization the President can transfer coercive powers to compel key production during a national emergency. It represents the current U.S. procurement

tendency toward limited production of technologically advanced weapons platforms rather than the massive and rapid production that characterized WWII.

The U.S.' focus on procurement is driven by the post-1945 environment characterized by wars with limited objectives and no need for mass scale industrial mobilization. Nuclear warfare capabilities also incentivize smaller, more technologically advanced conventional forces. These permissive time and scale constraints, coupled with high-tech warfighting capabilities, work well with the current U.S. procurement model focused on research and development, and leaves procurement within the scope of joint and service-level acquisitions agencies without the need for a central controlling superagency.

WWII gives an example of what current or future U.S. Administrations must address in an industrial mobilization crisis: delegating a high level of authority, central control to minimize interagency friction, and a whole-of-government construct in forming a superagency that can successfully drive industrial mobilization. The President has broad powers to set the industrial mobilization juggernaut in motion based on these criteria. The United States had more than two years to mobilize for WWII but cannot rely on such generous lead time in the future. While the United States currently maintains military supremacy, it does not possess the same latent production advantage compared to potential adversaries that it enjoyed in the 1930s and 40s. The President, in concert with his National Security Council, should carefully review the U.S.' position relative to future competitors and adversaries and determine if the right agency exists, or if one needs to be created, to prepare the United States for a large-scale mobilization.

#### Conclusion

The United States is not postured for a complete, rapid mobilization if a global great power conflict suddenly emerged. While some tools are in place through legislation and broad

presidential powers, these remain unproven, although the U.S.' response to the coronavirus pandemic implemented some of these emergency measures. The United States lacks assured access to raw materials and has weaknesses in its industrial base which degrade its competitive advantage and poses a national security risk, especially when compared to China, the U.S.' most likely competitor. Joint doctrine has examined different mobilization concepts to develop a common understanding of what mobilization might entail. It identified actions by departments and agencies, such as the Defense Logistics Agency, to accelerate production from current sources of supply. Joint doctrine also identified the need to expand the industrial base, and actions that should be taken under the Defense Production and Allocations System to ensure this happens, like streamlining the acquisition process, exercising DPAS authorities to increase the production capacity of industry, and activating government facilities currently on standby.<sup>96</sup> This is tantamount to an admission in joint doctrine that this issue is beyond the services' control if a military action requires complete mobilization. This is a cabinet-level issue, at a minimum, and probably best addressed by the creation of a special superagency with cabinet-level representation.

Another critical weakness is the loss of U.S. industrial capacity to surge the production of wartime materials. The United States has become a post-industrial society. Competition has pushed U.S. industries to move more of their operations offshore, and the United States imports much of what it formerly produced. When industries move offshore, industrial and technical expertise, design skills, and innovation go with them. The United States now relies on its main competitor, China, as the sole supplier of many dual-use technologies, such as hardware. A potential adversary, such as China, embedded in the supply chain, rises to the level of a critical national security risk.<sup>97</sup> These supply chain issues also apply to critical raw materials, not

simply imported products. If the United States does not have reliable natural resources, or if supply chains are disrupted by a competitor, this is a national security risk which demands immediate correction.

To correct these national security risks, the United States must do two things: first, it must apply the appropriate instruments of national power in a wholistic and comprehensive plan, in concert with allies, for securing the vulnerable resources that make up its industrial capability and capacity. Second, the United States must overcome its innate capitalist bent on short-sighted profit-seeking and develop policies focused on production and a vibrant private sector that can respond rapidly to any industrial mobilization contingency.<sup>98</sup>

The President will require a superagency to coordinate the various inter-governmental and private entities essential to the next industrial mobilization effort. No agency like this currently exists, and although the political landscape has changed a great deal since 1945, it is an ideal solution to manage this complex problem. The Council of National Defense and its Advisory Commission is still an option to serve in this capacity, according to statute, but it proved inadequate to the task in the twentieth century and should not be relied on in the future. Regardless of its origins, this superagency must be vested with centralized authority to act on the President's behalf, with coercive powers to overcome competing stakeholder interests that will degrade complete mobilization.

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- <sup>1</sup> Michael Pearlman, *To Make Democracy Safe for America* (Chicago: University of Illinois, 1984), 3-6.
- <sup>2</sup> Pearlman, *Making Democracy Safe for America*, 36-37.
- <sup>3</sup> Pearlman, *Making Democracy Safe for America*, 41-44.
- <sup>4</sup> Robert H. Zieger, *America's Great War: World War I and the American Experience* (Lanham, MD: Rowman & Littlefield Publishers, 2000), 53-54.
- <sup>5</sup> Edward M. Coffman, *The War to End All Wars* (Wisconsin: The University of Wisconsin Press, 1986), 14.
- <sup>6</sup> David M. Kennedy, *Over Here* (New York: Oxford University Press, 1980), 27-28.
- <sup>7</sup> Kennedy, *Over Here*, 270-271.
- <sup>8</sup> Kennedy, *Over Here*, 27-28.
- <sup>9</sup> William J. Breen, *Labor Market Politics and the Great War: The Department of Labor, the States, and the First U.S. Employment Service, 1907-1933* (Kent, OH: Kent State University Press, 1997), 6.
- <sup>10</sup> Breen, *Labor Market Politics*, 30.
- <sup>11</sup> Breen, *Labor Market Politics*, 31.
- <sup>12</sup> David Montgomery, *The Fall of the House of Labor: The Workplace, the State, and American Labor Activism, 1865-1925* (Cambridge, UK: Cambridge University Press, 1987), 6.
- <sup>13</sup> Robert D. Cuff and Melvin I. Urofsky, "The Steel Industry and Price-fixing During World War I," *The Business History Review* 44, no. 3 (Fall, 1970), 294.
- <sup>14</sup> John W. Weeks, "Industrial Mobilization" *Army Ordnance* 3, no. 15 (November-December 1922), 131-133.
- <sup>15</sup> J. Mayhew Wainwright, "Industrial Preparedness," *Army Ordnance* 3, no. 16 (January-February 1923), 189.
- <sup>16</sup> J. Mayhew Wainwright, "Mass Procurement," *Army Ordnance* 3, no. 17 (March-April 1923), 244.
- <sup>17</sup> Wainwright, "Mass Procurement," 244-246.
- <sup>18</sup> Harold W. Thatcher, *Planning for Industrial Mobilization, 1920-1940* (Washington, DC: General Administrative Services Division, Office of the Quartermaster General, 1948), 13.
- <sup>19</sup> Eliot Janeway, *The Struggle for Survival* (New York: Weybright and Talley, 1951), 41.
- <sup>20</sup> Janeway, *The Struggle for Survival*, 45-46.
- <sup>21</sup> Janeway, *The Struggle for Survival*, 172.
- <sup>22</sup> Keith E. Eiler, *Mobilizing America: Robert P. Patterson and the War Effort, 1940-1945* (Ithaca, NY: Cornell University Press, 1997), 154.
- <sup>23</sup> Janeway, *The Struggle for Survival*, 198.
- <sup>24</sup> Janeway, *The Struggle for Survival*, 196-199.
- <sup>25</sup> Paul A. C. Koistinen, *Arsenal of World War II* (Kansas: University Press, 2004), 163.
- <sup>26</sup> Eiler, *Mobilizing America*, 154-155.
- <sup>27</sup> Eiler, *Mobilizing America*, 156-157.
- <sup>28</sup> Eiler, *Mobilizing America*, 159.
- <sup>29</sup> William Greenwalt, *Leveraging the National Technology Industrial Base to Address Great Power Competition: The Imperative to Integrate Industrial Capabilities of Close Allies* (Atlantic Council, Scowcroft Center for Strategy and Security, April 2019), 2, [https://www.atlanticcouncil.org/wp-content/uploads/2019/04/Leveraging\\_the\\_National\\_Technology\\_Industrial\\_Base\\_to\\_Address\\_Great-Power\\_Competition.pdf](https://www.atlanticcouncil.org/wp-content/uploads/2019/04/Leveraging_the_National_Technology_Industrial_Base_to_Address_Great-Power_Competition.pdf).
- <sup>30</sup> National Defense Industrial Association, *Vital Signs 2020: The Health and Readiness of the Defense Industrial Base* (National Defense Industrial Association, 2020), 6.
- <sup>31</sup> National Defense Industrial Association, *Vital Signs 2020*, 23.
- <sup>32</sup> National Defense Industrial Association, *Vital Signs 2020*, 25.
- <sup>33</sup> Marvin A. Kreidberg and Merton G. Henry, *History of Military Mobilization in the United States Army, 1775-1945* (Washington, DC: Department of the Army, June 1955), 193-196; Coffman, *The War to End All Wars*, 17.
- <sup>34</sup> Kreidberg and Henry, *History of Military Mobilization in the United States Army*, 196.
- <sup>35</sup> Kennedy, *Over Here*, 123.
- <sup>36</sup> Bernard Baruch, *American Industry in the War: A Report of the War Industries Board* (New York: Prentice-Hall, Inc, 1941), 75-76.
- <sup>37</sup> Kennedy, *Over Here*, 123-125.
- <sup>38</sup> Kennedy, *Over Here*, 125; Coffman, *The War to End All Wars*, 161.
- <sup>39</sup> Kennedy, *Over Here*, 125.
- <sup>40</sup> Zieger, *America's Great War*, 91.
- <sup>41</sup> Thatcher, *Planning for Industrial Mobilization*, 15-16.

- <sup>42</sup> House Committee on Military Affairs, *The National Defense Act, as Amended to Augst 26, 1935, Inclusive*, 74<sup>th</sup> Cong., 1935, 11. Note: page II of the NDA provides the key for reading the NDA, which is inclusive of the NDA amendments through 1935. The bold face type designates the NDA as approved on June 4, 1920.
- <sup>43</sup> John D. Millett, *The Organization and Role of the Army Service Forces* (Washington, DC: Center of Military History, United States Army, 1987), 15.
- <sup>44</sup> US War Office and US Navy Department, *Industrial Mobilization Plan, Revised 1933* (Washington, DC: Government Printing Office, 1935), V; US War Office and US Navy Department, *Industrial Mobilization Plan, Revised 1936* (Washington, DC: Government Printing Office, 1936), V.
- <sup>45</sup> Eiler, *Mobilizing America*, 3.
- <sup>46</sup> Eiler, *Mobilizing America*, 4.
- <sup>47</sup> Eiler, *Mobilizing America*, 4.
- <sup>48</sup> Koistinen, *Arsenal of World War II*, 161, 406.
- <sup>49</sup> US Department of Labor, *Work Stoppages Caused by Labor-Management Disputes in 1945* (Washington, DC: Department of Labor, May 1946), 6.
- <sup>50</sup> Department of Labor, *Work Stoppages*, 6.
- <sup>51</sup> Department of Labor, *Work Stoppages*, 6.
- <sup>52</sup> Paul A. C. Koistinen, “The Hammer and the Sword: Labor, the Military, and Industrial Mobilization, 1920-1945” (doctoral dissertation, University of California, Berkley, 1964), 104.
- <sup>53</sup> Koistinen, *Arsenal of World War II*, 161.
- <sup>54</sup> Koistinen, *Arsenal of World War II*, 408-409; Eiler, *Mobilizing America*, 173-174.
- <sup>55</sup> Koistinen, *Arsenal of World War II*, 414.
- <sup>56</sup> Koistinen, “The Hammer and the Sword,” 257-258.
- <sup>57</sup> Eiler, *Mobilizing America*, 375; Koistinen, “The Hammer and the Sword,” 296.
- <sup>58</sup> Koistinen, “The Hammer and the Sword,” 296.
- <sup>59</sup> Andrew R. McCloskey, “Seasons Past: Wildcat Strikes and the Smith-Connally Act During World War II” (master’s thesis, West Virginia University, 2020), 71-72.
- <sup>60</sup> Doris K. Goodwin, *No Ordinary Time: Franklin and Eleanor Roosevelt: The Home Front in WWII* (New York: Simon & Schuster Paperbacks, 1994), 539.
- <sup>61</sup> Anshu Siripurapu, “What is the Defense Production Act?” Council on Foreign Relations, last updated January 26, 2021, <https://www.cfr.org/in-brief/what-defense-production-act>.
- <sup>62</sup> Siripurapu, “What is the Defense Production Act?”
- <sup>63</sup> Defense Priorities and Allocations System, 15 C.F.R § 700 (2021) <https://www.ecfr.gov/cgi-bin/text-idx?SID=345ef03d59b38148588291447223220a&node=15:2.1.3.2.1&rgn=div5#sp15.2.700.a>.
- <sup>64</sup> War and National Defense, 50 U.S.C. §§ 4511-4518 (2020) <https://www.law.cornell.edu/uscode/text/50/chapter-55/subchapter-I>.
- <sup>65</sup> War and National Defense, 50 U.S.C. §§ 4511-4518.
- <sup>66</sup> War and National Defense, 50 U.S.C. §§ 4531-4534 (2020) <https://www.law.cornell.edu/uscode/text/50/chapter-55/subchapter-II>.
- <sup>67</sup> War and National Defense, 50 U.S.C. §§ 1-6 (2020) <https://www.law.cornell.edu/uscode/text/50/chapter-1>.
- <sup>68</sup> Zieger, *America’s Great War*, 87.
- <sup>69</sup> Coffman, *The War to End All Wars*, 15.
- <sup>70</sup> Kreidberg and Henry, *History of Military Mobilization in the United States Army*, 196.
- <sup>71</sup> Coffman, *The War to End All Wars*, 164.
- <sup>72</sup> Baruch, *American Industry in the War*, 19-20.
- <sup>73</sup> Baruch, *American Industry in the War*, 20.
- <sup>74</sup> Koistinen, “The Hammer and the Sword,” 3.
- <sup>75</sup> Coffman, *The War to End All Wars*, 163-164.
- <sup>76</sup> Zieger, *America’s Great War*, 91-92.
- <sup>77</sup> Cuff and Urofsky, “The Steel Industry and Price-fixing During World War I,” 295-299.
- <sup>78</sup> Baruch, *American Industry in the War*, 21-22.
- <sup>79</sup> Special Committee Investigating the Munitions Industry, *Minutes of the Advisory Commission of the Council of National Defense and Minutes of the Munitions Standards Board*, 74<sup>th</sup> Cong., 1936. Committee Print 8, 1.
- <sup>80</sup> Kreidberg and Henry, *History of Military Mobilization in the United States Army*, 496-501.
- <sup>81</sup> Kreidberg and Henry, *History of Military Mobilization in the United States Army*, 501.
- <sup>82</sup> Koistinen, “The Hammer and the Sword,” 558-559.
- <sup>83</sup> Koistinen, “The Hammer and the Sword,” 560-561.

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- <sup>84</sup> Koistinen, *Arsenal of World War II*, 73.
- <sup>85</sup> Koistinen, “The Hammer and the Sword,” 572-573.
- <sup>86</sup> Eiler, *Mobilizing America*, 82-83.
- <sup>87</sup> Eiler, *Mobilizing America*, 84-85; Koistinen, “The Hammer and the Sword,” 577.
- <sup>88</sup> Millett, *Organization and Role of the Army Service Forces*, 189.
- <sup>89</sup> Koistinen, *Arsenal of World War II*, 212.
- <sup>90</sup> David M. Kennedy, *Freedom from Fear: The American People in Depression and War, 1929-1945* (New York: Oxford University Press, 2001), 620-621.
- <sup>91</sup> Eiler, *Mobilizing America*, 327.
- <sup>92</sup> Koistinen, “The Hammer and the Sword,” 659.
- <sup>93</sup> Eiler, *Mobilizing America*, 367.
- <sup>94</sup> Koistinen, *Arsenal of World War II*, 448-449.
- <sup>95</sup> Armed Forces, 10 U.S.C. § 2502 (1997).
- <sup>96</sup> Joint Chiefs of Staff, *Joint Mobilization Planning*, JP 4-05 (Washington, DC: Headquarters Joint Staff, February 21, 2014), IV-19.
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