

Cold Computer Wars: Artificial Intelligence and the Rise of a Neo-Bipolar World

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Abstract

This paper examines the question of how technology in the Fourth Industrial Revolution, specifically Artificial Intelligence (AI), will impact geopolitics and the operational environment that the American military must compete within while protecting U.S. national interests. The nature of war is explained not only as an extension of politics but as an extension of economics. AI's strategic significance extends beyond current military applications, and AI is an economic engine which will displace labor markets, function as a threat multiplier, and ultimately bring about a neo-bipolar world order aligned under the U.S. and China via technological ententes. The methodology for the paper is described, followed by the treatment of AI as a strategic problem and viewed in terms of a strategic environment. A strategic way forward is provided via incorporation of AI as a threat multiplier in DoD weapon system planning, readiness and resourcing models, strategic guidance, COCOM plans, and strategic dialogue. The paper concludes that the U.S. government and military are currently unprepared to counter and exploit AI as a threat multiplier in a neo-bipolar world order. National security experts and economists are encouraged to continue exploring AI as an economic destabilizer and strategic threat multiplier.

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Introduction

Socioeconomic parity and unbalance comes in alternating waves with each epoch in human history contributing its own unique catalysts and decelerators to the transformation of society. As the world rides the crest of the Third Industrial Revolution, it is transitioning from exponential advancements in microprocessor technology and automation into an even more dizzying Fourth Industrial Revolution. If microchips were the pillar of the Third Industrial Revolution, then artificial intelligence (AI) promises to be the backbone of the next revolution, delivering a world where humanity serves as the fleshy interface within a seamless, cyber-physical system. Indeed, a telling paradox of the current wave of advanced technology and interconnectivity has been the ability to watch the computer-enhanced global alliances and economic systems of a post-Bretton Woods world unravel in real-time via news alerts and Twitter messages on the screens of our smartphones. This all begs the larger question of how technology in the Fourth Industrial Revolution, specifically AI, will impact geopolitics and the strategic environment that the American military must compete within while protecting U.S. national interests.

Despite information technology's contributions to unprecedented economic growth and efficiency—or, perhaps, in spite of those contributions—the financial crisis of 2008 and nearly sixteen years of protracted U.S. military engagement have fostered a worldwide rise in nationalist populism, resistance to the global economic order and significant questions into the role that increasingly autonomous technology will be allowed to play within the competitive arena of human affairs. When Clausewitz

proposed his antithetical statement on the nature of war as an extension of politics, he did not go far enough; politics is an extension of economics. This sentiment is echoed in President Trump's *2017 National Security Strategy* which has emphasized advancing America's economic interests around the globe through an intentional return to "America-first" realism and rivalry between nation states.¹ The United States military has taken these formal policy cues as an affirmation of its current approach to peer and near-peer competition. Within the spectrum of an anticipated challenges to the U.S. military's dominance, legitimate questions have been raised as to how the military will utilize advanced technologies like AI in an attempt to maximize the augmentation of humans and problem solving tools. Yet few have questioned how AI will affect the geopolitical environments that the military will be asked to operate in.

Strategic Significance

Within the military, the development of AI-centric strategy has generally been placed into two broad framework sets: AI as an enabler of self-directed weaponry and AI as an enabler of creative and hyper-rational decision making. Due to the obvious benefits that AI offers to weapon capabilities, most contemporary military strategists are focused on AI's enhancement of hard-power options. Corresponding ethical and legal questions regarding AI range in scope from the degree of independence that autonomous weapons will be allowed to have to the more esoteric questions of what will happen if AI brings what technologists call the singularity, that point in history when AI surpasses human intelligence and poses an unquantifiable threat to military objectives. This line of thinking has resulted in an unfortunate situation where military analysts and planners have failed to consider the wider, more immediate implications of AI outside of tactical applications and the military's operational domains.

The reality is that AI stands to have broader and more abrupt effects on redefining the way humanity views labor and the strategic relevance that traditional labor populations and demographics have on securing stable national economies and security conditions. Competition in AI technology differs from other technological competition (like missile technology) because AI has the potential to replace the human behind the trigger or keyboard. The current trend of AI development strongly foreshadows a world where the role of human labor is greatly diminished throughout the process of turning resources into products and services. Moreover, the unique barriers to AI development and the metadata that is needed to feed AI algorithms threaten to foster fierce international competition for producing superior AI technology and accessing AI which cannot be developed in-house. This paper will examine AI's role as a potential threat multiplier which will drive economic rivalry between nations and lead to global ententes that are aligned via access to the U.S. and China's derivative AI technology. Left unaddressed, the competition for AI technology and AI's displacement of traditional human labor has the potential to trigger intensifying zero sum competition between states – in the process driving U.S. military strategy to address increased global poverty, state fragility, economic instability, and strategic competition between major powers within a neo-bipolar world order.

Methodology

A. Description of thesis development, variables and testing method in support of hypothesis, development of an operational framework, and intended application of AI as a threat multiplier within strategic thought.

This paper desires to provide an entirely original approach to the idea of AI technology as a threat multiplier within a nebulous strategic world, a world that finds current U.S. military guidance confirming the explicit policy pivot to Asia and the

significance of China as the main competitor to the Trump Administration's America First strategy. In the *January 19, 2018 National Defense Strategy (NDS)*, both China and Russia were described as the main international challengers within an increasingly multipolar world system. However, China was singled out for its economic aggressions and continued militarization of the South and East China Seas.² This paper attempts to address a highly likely Sino-American contest by building on the recent call for creative strategic solutions that differ from the static group-think policies and stagnant planning that have encumbered strategic military thought for the last two decades.

The genesis of this paper's thesis was developed using two known constants as guiding benchmarks: the further development and implementation of AI will cause an inevitable, seismic shift in macro and micro analysis of labor markets; and China will continue to invest heavily in AI technology as a means of competing (and beating) the U.S. in economics and the military. From this it was possible to conduct a literature review which confirmed the fact that the U.S. and China were already engaging in a pseudo "race to space" on AI technology even if the U.S. has not fully, or formally, recognized that it is involved in this competition. The U.S. military has shown specific interest in the use of AI both in decision making and in autonomous weapons, but it has fallen spectacularly short on recognizing the significant impacts that AI will have on socioeconomic triggers that have historically evoked our military's response.

The hypothesis of this paper is based on the assumption that the growing tensions between the U.S. and China will be categorized via an economic cold war instead of a nuclear cold war. Within this hypothetical framework, AI technology will emerge as the new, virtual warhead within a competitive neo-bipolar world order that is

based on economic allegiance to the world's dominant AI technology developers, the U.S. and China. Importantly, an entirely new international relations dynamic is introduced in the concept of technological ententes, or techno-ententes. The introduction of techno-ententes was not a forced concept. Rather, these techno-ententes are the natural conclusion of a neo-bipolar paradigm in which the U.S. and China maintain control over the best AI technology and those who wish to maintain relevance in a global economic system need access to their derivative AI technology.

In order to test this hypothesis, the author utilizes the more traditional strategic process used to develop actionable, operational end states. This paper first explores the operational problem of AI, specifically looking at how AI technology had originally been developed and how previous futurists and strategists had thought it would be implemented. This is contrasted with the reality of AI, its current limitations, and the application of weak AI within labor markets. The paper then proceeds to describe how AI is going to continue to cause major upheavals in labor markets if workers who are displaced by automation and more efficient technology are left unaddressed.

In the next section, AI is viewed within the context of an operational environment and its ability to both drive the world towards a neo-bipolar order and to function as a threat multiplier. Formal and strategic guidance are explored to see how current U.S. policies address AI, and the idea of techno-ententes aligned under U.S. and Chinese AI technology is discussed. This discussion includes the concept of technological scarcity, the idea of virtuous cycles in the development of AI, and the current status of competition between the U.S. and China's AI technology.

The paper then discusses how AI will function as threat multiplier within the neo-bipolar world that it helped to create. This section is of significant importance to military strategists because it provides a highly probable reality for how AI will aggravate socioeconomic conditions that will require a military response. Even if one were to reject the argument for the emergence of a neo-bipolar world and techno-ententes, there is little doubt that AI will combine with other accepted trends like climate change and megacities to increase the global risks and tensions which require a U.S. military response. Evidence for AI's propensity to increased threats to economic systems and civil unrest is examined in light of growing calls for a Universal Basic Income, and two historical vignettes are utilized to demonstrate the behavioral and environmental conditions that AI might have an adverse effect on.

In the final section of this paper, the author presents a way forward for military and national security strategists who might wish to start treating AI as a threat multiplier or who are interested in developing operational objectives for testing and evaluating the validity of AI's potential to foster a neo-bipolar world order. AI is viewed within the reality of limited resources and uncertainty in successfully increasing military wholeness and readiness levels to ensure dominance in peer and near-peer competition.

The results of this research are provided as a springboard for further exploration on the topic of AI and its treatment as a threat multiplier. Most importantly, the admitted shortcomings of this work should not be used to discredit the urgent and necessary inclusion of refocused AI discussions—namely, in the areas of economic competition, labor displacement, and competition with China—the military's dialogue with policy makers and COCOMs.

Strategic Problem

A. Background on the development of AI and the current trends in developing Weak and Strong AI.

In order to understand how AI functions as a threat multiplier within military strategy it is important to understand the fundamental nature of AI technology and how it exists as a strategic problem. This is best understood by exploring the trends in AI development and how AI presents a challenge to human labor displacement and economic tensions. A review of the literature surrounding AI reveals that there is no established standard when it comes to the classification of AI types and subtypes. This appears to be a result of the unique blend of philosophy, technology, and mathematics that AI straddles. Approaches to AI are often rooted in explicitly philosophical schools, with the ultimate question of consciousness and learning processes taking a lead role in determining whether or not a machine has become an intelligent or rational agent. In all of this, the human brain and the way with which neurons process sensory information and undergo cognitive problem-solving are depicted as a sort of *lapis philosophorum*, a mystical philosopher's stone by which decision-making mechanisms are transformed into sentient, rational beings.

Although there are no rigid classification systems for AI, there are two more popular trends that AI tends to be classified under: Weak AI and Strong AI. Weak AI is generally thought to address systems that meet or excel beyond the abilities of human intellect, but only within a very limited and narrow area.³ The adjective "weak" is a misnomer since AI's capability in many of these focused areas already far exceeds the abilities of the human mind. Among the many types of Weak AI that scientists attempt to describe, reactive systems form the most simplistic types of AI processes. As the name

implies, these systems do not form memories or rely on past experiential data to inform their decision process; rather, they simply react to direct perception of stimuli with no internal concepts of the world.⁴ Reactive systems face a unique conundrum based on the constriction of their tasking. By narrowing the focus of a reactive system's queries, the system is able to perform significantly better and with exponentially less computing power than a broad based system would. However, this same intentionally bound focus limits the system to very narrow tasks and makes it susceptible to being tricked.

Limited memory systems form another class of arguably higher-functioning Weak AI. This type of AI compares external observations against preprogrammed representations of the world. This does not take place as a purely reactive decision since it requires observations of specified targets over time. These observations are compared to preprogrammed criteria, and decisions are then made. However, the information that is stored is only temporary, and the simple pieces of information about the past are only temporary.⁵ The intentional limitations of both reactive and limited memory AI systems are the result of sober realizations of what it means to build a system that can develop full representations, remember experiences, and adapt to handle of new experiences. Indeed, all of the more well-known (and profitable) AI programs, like Google's Alexa and Apple's Siri, are actually versions of Weak AI as are the developments in self-driving car programs. As sophisticated and powerful as they are, these AI programs fall far-below the ambitions of those who have dreamed of and are currently pursuing Strong AI, where machines will build and reflect upon their own representations.

Strong AI, sometimes referred to as Artificial General Intelligence (AGI), represents the highest level of AI, and it has remained elusive as of yet. Strong AI engenders particular interest from top technologists, AI researchers, and philosophers because it represents an unprecedented potential for technology to cross the threshold into self-awareness and cognition. This type of AI is intended to mimic the broad spectrum of human intelligence, and so researchers approach development of AGI from various neurocognitive methods, depending on how they believe the human intellect is characterized and achieve a state of consciousness. Major efforts along these lines include the symbolic approach, the emergent approach, the hybrid approach, and the universal approach.⁶ While it is beyond the intent and scope of this paper to detail and discriminate between the various AI research applications of neuropsychology and cognitive neuroscience, it is sufficient to state that all of these Strong AI approaches are essentially an attempt create technology which can defragment concepts, embed memory, and recall embed events via association.⁷ Ultimately, advances in artificial intelligence and computing will continue to fuel the race for developing AGI, but the real-time impacts of currently available Weak AI technology will have more immediate impacts on human affairs and national security strategy.

B. Discussion on the trends for the implementation of AI within industrial models, the advent of the Fourth Industrial Revolution, and third wave concepts.

In essence, AI introduces risks to two major economic variables: human labor and technological resources. Both of these will discussed in greater detail, but it is important to first consider the underlying trends for developments in AI. Although theoretical AGI receives the most sensationalized attention and debate within the media, Weak AI receives the most funding. Results beget money, and Weak AI delivers

on practicality and immediate returns on investments.⁸ Indeed, the rapid development, publicity and profit that comes with Weak AI programs like Google's Alexa and Apple's Siri indicates that Weak AI will continue to garner the bulk of research investment dollars. This all means that Weak AI will most likely continue to present the more immediate threat to economic conditions, specifically human labor.

AI can be examined within industrialization models because it is being developed as a practical tool and not as a competing form of general intelligence. However, the pace at which it is developing is accelerating more rapidly than most traditional approaches to industrial models have accounted for. Until recently the most prevalent industrial models tended to be optimistic and indicate a sustained stabilization of geopolitics and globalism. These models were developed in response to the observations of the previous industrial revolutions which made work more efficient and ushered in complex, integrated supply and demand systems that were possible at the global level. Economists generally describe the First Industrial Revolution as a displacement of handmade goods by machines, and the Second Industrial Revolution is largely characterized by the introduction of the assembly line and modern technology. Within each of these industrial upheavals human labor was displaced but new markets for labor were introduced which allowed for a net expansion of goods, services, and growth in GDP. The current era is being labeled as the Third Industrial Revolution and is characterized by the use of digital, additive manufacturing and advanced manufacturing materials. Under the present model, labor costs are expected to continue diminishing due to the decrease in humans involved in making goods.⁹ Continued advances in digital manufacturing offers the promise of a return to localized manufacturing in the

United States, and it would seem to indicate that the Third Industrial Revolution is compatible with current U.S. national security policy which is, itself, based on the return of realism and global competition.

Other industrial trends look at the interface of mechanization and energy and point to a soon-to-be-realized Fourth Industrial Revolution's promise for creating a network of independent energy via the combination of Internet technology and renewable energies.¹⁰ The emergence of localized energy independence would seem to indicate compatibility with the current national security and military sustainability strategies. However, analysis of all previous models has been based on treating technology as an aid to human labor and increased independence, not as an irrevocable merger with—or replacement of—human labor markets. There is little argument that the previous industrial revolutions made certain jobs obsolete. However, any displacement of outdated labor is thought to have been offset with the addition of new, skilled labor that was exponentially more efficient. The rise of the Fourth Industrial Revolution and AI presents an unprecedented contrast to previous revolutions. AI will function as both the tool and competition to skilled labor and decision-making, presenting a dilemma in which undreamed of efficiency in supply-side economics will be achieved at the expense of massive displacement in human labor markets. In subsequent sections, it will be shown how the rate at which AI promises to displace both skilled and unskilled workers is predicted to outpace the pace at which labor markets can adapt and change.

The military's approach to AI as a potential threat multiplier, then, requires treating AI within an economic context that is more integrated than the more traditional,

basic industrial models. Alvin Toffler approaches such a structure in his description of historical wave theories, where agricultural, industry, and knowledge form the “waves” that shape business, economics, politics, religions, social relationships, and global events.¹¹ Using Toffler’s idea of historical waves, technologists have described a third wave of history in which humans are displaced by simulated, workerless workforces more rapidly than education and human ability can adapt to displacement rates.¹² With the advent of ever-increasing AI technology advancements and utilization, this theory of displacement is becoming an inevitable reality that is relevant to both politicians and security strategists. The speed that AI is integrated into the supply side of goods and services will give a strategic timeframe for operational designs which attempt to mitigate the effects of third wave displacement. A key strategic challenge will be defining the speed with which this displacement will take place and the corollary effects of displacement on global economics, the world order, and U.S. national security strategy.

C. Explanation of AI’s current and future impacts on displacing human labor and targeted demographics for disrupted labor markets.

In order to establish the extent to which AI will displace human labor, it is helpful to turn to current research which addresses that very topic. One helpful reference point comes in the form of the McKinsey Global Institute’s analytical report on future work trends. The report, which was printed in late 2017, is a follow on to a previous report which attempted to capture the impact of automation to future work force trends. Ultimately, the results of the report demonstrate a startling validation of AI as a significant threat to global economics. The analysis of this McKinsey report indicates that globally approximately 375 million workers will be displaced by the year 2030 unless they are able to be retrained or switch into new occupations.¹³ However, it would

be a mistake to characterize this displacement as a linear slice across global socioeconomic lines which will only impact third world, developing countries.

There are, in fact, several factors that can be used to predict how automation will impact a particular country. Jobs that require creativity and artistry or careers that with uniquely human qualities such as caregiving and human-to-human interaction are actually predicted to increase in those markets which have not already been saturated. For instance, McKinsey estimates that artisans and entertainers will experience a 4 percent decrease in Japan and an 85 percent increase in China.¹⁴ Trend lines for displacement of workers and impacts to countries seems to follow patterns that differentiate between highly competitive, emerging economies like China and India and traditionally stable and robust economies like the U.S. India provides a strong juxtaposition to the U.S. in order to illustrate this point. According to the report, India will experience a 129 percent higher demand for technology professionals and a 242 percent increase in healthcare as compared to a 34 percent increase in technology and a 30 percent increase in healthcare for the U.S.¹⁵

All of this would seem to follow an expected, logical trend for assembly line type jobs and countries which are currently heavily involved in manufacturing global goods. China, for instance, has become a powerhouse for global manufacturing, overtaking the United States in 2011 as the world's largest producer of manufactured goods while doubling the country's GDP per capita over the last decade.¹⁶ The introduction of AI will result in a displacement of physical labor positions and a rise in the careers that have not historically been a notable part of the incentivized manufacturing labor base. In the U.S. manufacturing labor has already taken its displacement hit with a loss of 5 million

manufacturing jobs between January 2000 and December 2014 due to trade deficits in manufacturing products and the substantial breakdown of overall goods production.¹⁷ As a result, the shock of manufacturing labor displacement within the U.S. will not be as severe. This is not to say that the U.S. and other countries with strong labor forces in service industries, white collar jobs and IT will be completely immune to the displacement effects of AI. Displacement of U.S. labor across those fields is estimated to be around 20 percent.¹⁸ In the aggregate, politicians and security strategists should consider these figures within the normal context of projected labor statistics which can range dramatically. Displacement estimates for countries in the West ranges from 9 percent to 47 percent, and in China and India the estimates range from 25 percent to 69 percent.¹⁹ Still, even the lowest estimates represent a notable shift in the global strategic environment.

D. Critique of AI's displacement of human labor markets and rebuttal.

A major critique that needs to be raised when considering the U.S. military's approach to the strategic problem of AI-induced labor displacement is the question of whether or not new labor markets will emerge to offset the jobs that are lost to AI and automation. There is little doubt that previous versions of the industrial revolution brought about job displacement, but they also ushered in unprecedented economic growth, clearing a path for modernization of industry and rapid transportation of manufactured goods. In the U.S. alone, skilled labor and handcrafted goods by specialists gave way to factory jobs for millions of unskilled, immigrant masses, and the grandchildren of farmers eventually traded fieldwork on farms for air conditioned buildings in cubicle farms.²⁰ New jobs that are related to the AI industry are already being advertised in the normal job-seeker markets. Leading websites which attempt to

match potential employees with future employers are already posting jobs within the AI industry including data scientists, project managers, and software engineers who are skilled in AI.²¹ However, the creation of AI-related jobs will extend beyond traditional technology jobs. New jobs are expected to emerge in the realm of AI-related intellectual property and copywriters for the scripts and responses that AI algorithms use.²² The question remains as to whether the emergence of new jobs and AI-related industries will offset the number of jobs that are displaced?

Researchers at the MIT Sloan School of Management have indicated that the effects of automation, industrial robotics, and computer technology are already having a divergent effect on productivity and total employment in the U.S. Their data indicates that since World War II, increases in productivity tracked in parallel to increases in employment.²³ The trend lines begin to diverge in 2000, and productivity begins to outpace employment. The researchers blame falling median incomes and fewer jobs on what they label the “great decoupling”, or the point of divergence between technologically-induced productivity and employment markets.²⁴ This decoupling forms a central tenet of the argument for considering AI as a threat multiplier in national security.

Even if new technology, specifically in the form of AI, continues to increase productivity and foster national wealth, it is advancing at an exponential rate that makes it difficult for skills, business organizations, and labor markets to keep pace with. Perhaps more startling, the research seems to support the previous assertion that the obvious fields of manufacturing, retail and clerical jobs are not the only sectors that AI will continue to impact. Data reinforces the idea that professionals who already being

impacted by AI—doctors, lawyers, and financial experts—will continue to see an increase in potential job displacement as AI becomes more advanced and adopted within those career fields.²⁵ Taken in its entirety the previous discussion validates AI as a real and credible strategic threat to global labor markets and economics. What remains to be described is how AI functions as a threat multiplier ultimately forcing the military to operate in a strategic environment that is defined by a neo-bipolar world order led by the U.S. and China.

Strategic Environment

A. Discussion of current U.S. guidance and policy which acknowledges AI as a potential socioeconomic threat.

Having discussed the fundamental factors behind AI development and its potential economic impacts on labor markets, it is possible to make the case for AI as a major catalyst in the development of a neo-bipolar world order that is aligned under an entirely new concept in international relations, technological ententes, or techno-ententes. Any attempt to objectively argue for the possibility of such a novel and unorthodox operational environment requires framing AI within current policy guidance, either formal or informal. The most recent formal guidance is found in the Obama Administration's 2016 report on AI. While the report did acknowledge AI's potential to displace some jobs, the topic of labor displaced was minimized in favor of a broader discussion on workplace diversity, and the economic implications were passed to a separate work group to explore. In terms of defense, the report recommended that the DoD look at the implications and ethical imperatives that would come with AI being used in cybersecurity and autonomous weapons. The report acknowledged that the U.S. was a leader in AI research and development and that it should continue to play a key role in

global research coordination through government-to-government dialogues and partnerships.

The report admonished AI developers and users to ensure that AI-systems are “governable; that they are open, transparent, and understandable; that they can work effectively with people; and that their operation will remain consistent with human values and aspirations.”²⁶ Tellingly, it was the State Department who raised the most pointed international concerns in the report. They noted potential privacy concerns, concerns on safety of autonomous vehicles and anxiety associated with AI’s impact on long-term employment trends in the international sphere.²⁷ The State Department’s acknowledgement of AI’s impact on employment trends provides the DoD with an opportunity for the future collaboration on developing AI-centric strategy and theater security cooperation.

As of the date of this paper’s publishing, there is no formal guidance on AI from the Trump administration. However, there is a revealing interview with (then-campaign candidate) Donald Trump that was conducted in 2015, and it could provide a glimpse into the logic which might form the basis for formal or informal executive guidance that may still come from the Trump administration. In the interview, President Trump explains that he has “...always been concerned about the social breakdown of our culture caused by technology.... As for artificial intelligence, again it can either be a scalpel or a chainsaw. Creators and users alike should always consider the ethical and moral consequences of all activities. If we lose our way morally, we are doomed as a society.”²⁸ This statement, although seemingly innocuous, might indicate a receptive

window of opportunity for the U.S.'s presentation of a coherent, preemptive strategy approach to AI and its potential to impact socioeconomics and the world order.

In addition to the lack of clear formal and informal guidance on how to treat AI within the global environment, a brief analysis of the DIME model indicates that the U.S. has committed no known strategic means with respect to safeguarding against AI's potential negative effects. Under the Trump administration, budget cuts for FY18 and FY19 were implemented across science agencies, especially in the areas of research.²⁹ This lack of investment in research should be considered in terms of the international competition for developing AI technology as will be later explained in greater detail. Despite the relative lack of U.S. policy and resources that have been formerly committed to AI, there is a sense of urgency for the U.S. military to take a proactive posture in assessing the strategic challenges AI may pose to the U.S. national security and the AI-specific environment the military will have to operate in.

B. Introduction of technological ententes as a novel international relations concept and discussion of technological scarcity and virtuous AI cycles as a center of gravity for conflict.

This paper predicts that AI will foster a tendency in the global environment that leans towards international destabilization, realignment of the world order, and long-term conflict between countries that are aligned under AI technology that comes from either the U.S. or from China. This will be spurred by China's desire to maintain regional, and then global, hegemony via the influence of derivative AI technology, specifically targeting developing third world countries. China's development of AI technology will pose a challenge to the U.S. and its desire to maintain an equally influential relevance to those countries that are aligned under its own AI technology. While most international relation experts point to explicit treaties and alliances as the

basis of geopolitical tension, this paper argues that AI will usher in a new international relationship concept called technological ententes.

These technological ententes, or techno-ententes, will be characterized by informal alliances between states that are reliant on AI technology which is derived from either China or the U.S. Competition between techno-ententes and the desire to gain access to better AI technology will be the basis for regional and global friction within a strategic operational environment, especially affecting those countries with population demographics that suggest severe impacts from a labor displacement. Admittedly, a major counterargument to the idea of techno-ententes is the current willingness and collaboration that exist among AI technology developers around the globe.³⁰ Another argument is the horrible record that the U.S. has in protecting its existing military and industrial technology. However, China's push for dominance in AI will most likely result in a U.S. response—in fact, this paper argues that the U.S. *must* respond—by treating AI as a bedrock of national strategic importance and a center of gravity for global competition and conflict.

In order to understand the tendency of AI to function as a center of gravity for conflict between techno-ententes, it is necessary to discuss AI in terms of technological scarcity. The development of AI is similar in concept to virtuous cycles—contemporary examples would include virtuous ecological cycles—where each factor within an iteration of a cycle positively reinforces the previous cycle, ultimately carrying the system onward in positive direction until something stops the upward trajectory of the cycles.³¹ Two major factors contribute to the advancement of technology within AI virtuous cycles: powerful algorithms and massive data. As each factor is improved, it

feeds back into the AI system and makes the overall product that much more effective and efficient. A developer who is starting from ground zero on AI technology development will have to compete with every successful cycle of algorithms and data that a competitor has already developed and improved upon. As long as the competitor has already developed a better cycle of data and algorithms—and assuming the competitor is not willing to share their technology—they will always remain ahead of newcomers.

In cases where each cycle results in exponential improvements, or where AI starts assisting in perfecting its own algorithms, it will become almost impossible to enter into AI competition without figuring out a way to either break the momentum of a competitor's AI cycle or steal the competitor's AI technology. Virtuous cycles in AI technology are not the only reasons for conflict among techno-ententes. Experts suggest that implementation of AI technology is just as important as development of the technology, itself.³² Development of AI needs to be matched by a willingness of the state to create the right incentives and socioeconomic conditions for implementing AI technology. If this all holds true, then is it possible to provide a strategic baseline for where the U.S. currently stands in terms of global competition between AI development and willingness to implement AI technology?

C. Explanation of the high-stakes competition between the U.S. and China's development and implementation of AI.

By most technology experts' estimations, the United States maintains a slight advantage in AI, specifically in terms of existing AI software that has been developed in Silicon Valley. Paul Scharre, a researcher at the Center for a New American Security, characterizes Google Brain, OpenAI, and DeepMind as U.S. based centers where the

most pioneering AI research is being conducted³³ The tremendous commercial success (profits) and worldwide use of products from Google and Facebook ensures that research funding is readily sustainable and meta data sets are not simply limited to users located in the U.S. However, China has developed an aggressive AI campaign which is intended to rival U.S. technology in AI. In 2016, China reportedly published more journal articles on deep learning than the US and AI-related patents in China increased 200 percent over the last few years.³⁴ Other indicators point to the fact that the government of China is treating competition in the field of AI as a national objective.

In July of 2016, China's State Council released a paper entitled, "Next Generation Artificial Intelligence Development Plan," which explicitly stated Chinese policy to have AI be "the fundamental driver for the Chinese economy by 2025 and dominate AI technology by 2030."³⁵ While most strategists and economists are currently applying a trade deficit lens to the question of Chinese-U.S. competition, China is overtly stating that it will use AI to become the world's economic leader. China is backing this policy up through concerted, laser-focused action. Collaboration between independent AI firms, government and universities in China is openly encouraged.³⁶ Moreover, China has the necessary willpower and means to achieve AI dominance through an ironically large and vulnerable citizenry.

AI algorithms which attempt to make rational decisions on human behavior and cognition require massive amounts of data within those very realms and that data can only be produced by tracking humans. China has an organic resource for human data via its large, indigenous population, and its permissive intrusion into the personal data of citizens allows China to plunder that data mine at will. Without the restrictions or

enforcement of privacy laws the Chinese government has nearly unlimited access to the data of approximately 1.4 billion citizens. As a counterargument, U.S.-based companies like Google and Facebook have over 2 billion global user providing an arguably more diverse and powerful data base with which to develop AI. However, privacy laws and U.S. restrictions will continue to hamper the data that U.S.-based companies can access, and this may throttle the development of competitive AI technology. Breaches in security and data-mining by Facebook may be an indication that competition is already driving U.S. based companies to push against their current limitations in the race to gain an advantage. As the development of an AI-based world economic order begins to take a more concrete shape, U.S. national security strategists will continue to be faced with a growing challenge in balancing access to personal data and the will of the American people to resist incursions into Constitutionally protected privacy laws.

D. Evidence for a shift towards a neo-bipolar world order and future *conflict*

There is strong evidence to suggest that China's proactive position on AI demonstrates a more robust understanding of the role that AI will play in the near-future of the world's economic environment especially as a means of competition with the U.S. Is there, however, evidence to suggest that competition in AI technology will actually result in a neo-bipolar world order that is based on techno-ententes aligned under U.S. and China AI technology? As previously discussed, current policy and national security guidance does not seem to refute the idea of a shift from international liberalism to one of global competition. With the collapse of the Soviet Union in 1991, the U.S. experienced a transition from a bipolar world order into a U.S.-led hegemony that was aligned under globalization and trade.³⁷ U.S. policy followed an economic paradigm in which the U.S. was allowed to operate freely and uncontested. As a natural extension of

this policy, U.S. national security strategy was developed to reflect an unmatched military that was allowed to operate freely and uncontested both in peace and in conflict. Still, the concept of a sustained era of globalization was based on faulty assumptions that U.S.-styled democracy and a unipolar world system would be attractive enough to prevent competitors from emerging or desiring a different world order.

Following the end of the Cold War, it was supposed that China and Russia would finally be able to embrace a democratic system and share in the prosperity that came with capitalism. In fact, an examination of the past two decades seems to suggest that both countries have experienced a sort of growth in terms of capitalism, even if that capitalism is increasingly controlled by the state.³⁸ Nevertheless, U.S. military strategists who looked to a new era of international liberalism failed to address China and Russia in terms of the classical lessons on war that had been rediscovered during the post-Vietnam War era; namely, wars were fought for fear, honor, and interest.³⁹ The answer to those national questions has resulted in a direct challenge to U.S. power.

In the post-Cold War years both countries were forced to reinvent themselves in a unipolar system that no longer looked to them as key players in the balanced of global power. As such, each country sought to incorporate a unique pull-push relationship with the U.S. and capitalism. It could be argued that China has played the long-game better, tempering much of its rhetoric on the U.S. and taking a mostly peaceful stance until recently when it has been able solidified a seat as the main economic competitor to the U.S.⁴⁰ Until recently most research has attempted to treat China and Russia as a single alliance on the world scene, often citing China's desire for multipolarity based on the loose alliances that China and Russia fostered in early years following the end of the

Cold War. But President's Xi's recent consolidation of power and China's Belt and Road Initiative (BRI) seem to be signaling an intentional shift away from any desire to share world power with Russia. China's completion of the BRI would encompass 4.4 billion people, and by generating a GDP of over \$21 trillion, China would have the economic means to challenge the U.S.⁴¹ This sets the world stage for a showdown between two world powers, the U.S. and China.

In all of this, AI provides the perfect economic and technological platform that China can use to compete with the U.S. on its own terms. During the Cold War, a bipolar geopolitical order emerged from the ideological war between the U.S. and Russia and was expressed by competition in military and technological superiority and regional influence.⁴² Within the emerging war between the U.S. and China, AI represents an uncharted frontier that is similar to the great race for space between the U.S. and Russia. As the objectives for this race in AI become clearer to U.S. strategists, the rules for the rivalry will drive the U.S. and China into fierce competition resulting in the consolidation and safeguarding of AI technology. The rate at which this competition takes place will define the rate at which a neo-bipolar world order emerges.

E. Examination of AI as a potential threat multiplier in the context of resource scarcity, climate change models, and strategic interest in threat multipliers.

Just as the examination of China's rise to economic power has revealed evidence for a return to a bipolar world order, a brief exploration of resource scarcity models can be used to forecast how AI will function as a threat multiplier within such a world order model and how military planners should respond. These models may aid military planners and strategists in exploring the possible tensions and end states that might be involved when considering AI as part of national security strategy. As the

competition between U.S. and Chinese AI technology become more defined over the next few years, AI technology may be combined with tariffs and closed markets as a major means for maintaining a competitive economic edge. The most competitive and powerful forms of AI technology will be sponsored and utilized by governments, and implementation of AI will require necessary ethical and legal guidelines. As such, AI technology will become a more closely regulated industry, and this regulation will drive technological scarcity.

While not completely analogous to natural resources, the eventual scarcity and competition for superior AI technology can be placed within sustainability models which attempt to assist security strategists on defining and responding to the implications of resource sustainability and resource scarcity. Interestingly, the acceleration of climate change has emerged to coincide with the acceleration of AI technology. Strategic planners have faced similar challenges in trying to determine what types of threats and risks are associated with climate change and scarcity of resources like water. Most models treat climate change as a threat multiplier, acknowledging its ability to amplify tensions across all other traditional structural causes with the possibility of being a proximate cause to global and regional conflict. The United Nations Intergovernmental Panel on Climate Change (IPCC)'s 5th Assessment Report in 2014 echoed the difficulty in quantifying the effects of threat multipliers like climate change and other scarce resources while also concluding that these types of threat multipliers could "...increase risks of violent conflicts in the form of civil war and inter-group violence by amplifying well-documented drivers of these conflicts such as poverty and economic shocks..."⁴³ Similar conclusions have been reached on natural resources like water which is thought

to be an increasingly scarce threat multiplier, both globally and regionally. In security studies which attempt to quantify the risks associated with water scarcity, water is seen to be a resource that can be exploited by non-state actors and violent extremist organizations, with a propensity to causing destabilizing secondary effects and conflict.⁴⁴ The eventual competition and limited access to newer, more powerful AI technology may result in similar destabilizing effects.

The risks from threat multipliers like climate change and resource scarcity are not merely the fanciful subject of climatologists, the UN and non-governmental organizations. The U.S. government has taken a keen interest in what these threat multipliers mean for national security and combatant commanders. A recent government report was developed in 2015 in response to a Congressional inquiry on the national security implications of climate-related risks.⁴⁵ This report illustrates significant lessons for those who attempt to consider AI as a threat multiplier within strategic models. The report was requested by the Senate Committee on Appropriations in preparations of adjustments to fiscal year adjustments and demonstrates a clear congressional demand signal on threat multipliers. If AI is to be considered as a threat multiplier, it should be considered as a risk in competition for resources within the scarce DoD budgets.

The current administration has dropped climate change as a national security priority, and the current DoD budget proposal looks healthier than it has in years. Still, the military will benefit by taking a preemptive look at newly identified threat multipliers like AI. There is a strong likelihood that the eventual destabilizing effect of AI on domestic and global economies will trigger an urgent congressional inquiry and a desire

for readily available analysis. In addition to preparing for congressional dialogue, the military should begin to identify ways that Combatant Commands can integrate risk from threat multipliers like AI into their planning processes, specifically in the areas of humanitarian disaster relief, security cooperation and building partner capacity.⁴⁶ A well-rounded strategic response to AI will look beyond the operational environment and look to partner with external stakeholders like the State Department, the Department of Commerce, the Bureau of Industry and Security as well as regional actors within effected Theater Security Cooperation strategies.

F. Discussion of evidence for economic and political responses to the threat of AI on displaced labor, especially with respect to a Universal Basic Income.

Having reviewed the legitimacy of models related to resource scarcity and threat multipliers, it is possible to inspect the specific ways AI might function as a threat multiplier, particularly in the search for evidence that AI is already beginning to have an impact on global economics systems. The main thesis of this paper assumes that AI will cause a mass displacement of labor at such a rapid rate that large labor populations will not have time to be retrained in new, relevant skills. Another assumption of this paper is that increased competition in AI technology between China and the U.S. will limit the collaboration and sharing of advanced AI technology ushering in techno-ententes which are aligned under the derivative technology of the U.S. and China. In such a scenario, economic models which have relied on population growth to replace the general labor force will be inverted, normal labor curves will become a liability to national wealth, and governments will be looking to implement social programs which offset these abandoned labor markets. To be sure, aging populations in industrialized countries and reduced fertility rates may provide a moderate (or significant) offset to labor market

displacement. But advanced medicine and limited savings have caused those same aging populations to continue working far beyond the retirement age of previous generations and poorer countries with bulging youth populations and limited industrial means are already struggling to find employment solutions. Combined with these factors, the rapid rate of worker displacement will be the main difference between the Fourth Industrial Revolution and previous iterations of labor displacement. If these assumptions are valid, is there discrete evidence of an economic response or solution that is being proposed to counter the effects of AI-induced labor displacement? The current introduction of the Universal Basic Income (UBI) experiments could be a strong indication that preparations are already being made in anticipation of displaced labor populations.

The basic concept of a UBI is nothing new. It has, in fact, been proposed in various forms over the last few centuries by various statesmen, economists and philosophers. Thomas More, the famed British lawyer, first introduced the idea of a basic living allowance in 1516 through his novel, *Utopia*, and similar welfare systems have been suggested by more modern figures like Milton Friedman and Martin Luther King, Jr.⁴⁷ UBI experiments were even conducted in the U.S. during the presidency of Richard Nixon and executed by Dick Cheney and Donald Rumsfeld, two men who would later have prominent roles in economic and national security development under subsequent Bush administrations.⁴⁸ The concept of a UBI is not uniquely American although it does seem to be contained to Western economic thought. There does seem another common theme behind the timing of proposals for a UBI or similar welfare systems throughout history; namely, a UBI has consistently been introduced as a

potential solution or safeguard against a real or perceived threats to the targeted economic system and labor markets.

International and national governmental bodies have thus far rejected the explicit classification of automation and AI as a threat to human workers, economic markets and national security. Most policy research into a UBI has been conducted under the guise of searching for alternatives to the unsustainable growth in other welfare programs and their drain on resources for economic growth and national defense.⁴⁹ Credible think tanks like the Brookings Institute cite the distribution of national income as one of the primary reasons for a labor market and the dangers of rapidly displacing those markets.⁵⁰ If a country's labor markets are displaced faster than they can be reintegrated, the concept of UBI may move from the fringes of economic solutions to more conventional economic application.

The most convincing evidence is found in the growing anxiety among technological and some political leaders who view a UBI as the “social vaccine” against AI's inevitable economic and social threats.⁵¹ Silicon Valley, which has been the main engine behind AI development, is also the ironic frontrunner in developing responses to the social and psychological repercussions that their own AI technology may have on the world. Y Combinator, the largest and most prestigious startup accelerator in Silicon Valley, will be implementing a UBI trial with 3,000 people as they work with state and local governments to assess the effects that a UBI has on “mental and physical health, and social networks.”⁵² The more important takeaway from the desire to conduct this experiment is that many of Y Combinator's top competitors also view a UBI as a feasible and valid response to the inevitable social unrest and displacement of labor that

their AI technology will initiate. There is early evidence to suggest that a UBI may be a feasible economic response to labor displacement for those nations who have the means to shift current welfare costs into a UBI system. But there are significant questions as to the psychological and social impacts of introducing a wide scale system which unravels the deep-rooted cultural impacts of human work and work status. National security strategists should rightly consider the implications of UBI systems within regional and global environments, and the role the military would play in response to AI's impact on those systems.

G. Review of Calhoun's "Rat Utopia" experiments for identification of potential behavioral responses to AI impacts and conditions requiring military intervention.

Although it is beyond the scope of this paper's intent to qualify all of the potential ways that AI may incite civil unrest around the world, two domestic vignettes exist which may be of particular instructional note for security strategists who desire to frame AI's labor displacement within the context of UBI and concentrated populations. For the first example, one can look to crowding population studies, specifically the studies conducted by John B. Calhoun throughout the middle of the 20th century. Calhoun was interested in the behavioral aspects of environments in which populations were provided with everything they needed to survive. He developed manmade environments that provided the test subjects—predominantly, rats—with all necessary living goods, but space was intentionally constrained.⁵³ In this sense, Calhoun's studies provide a relevant correlation between AI-induced labor displacement, UBI, and the megacity studies that are already being conducting by strategists and researchers within the military. In one prominent study conducted in 2014 by a Chief of Staff of the Army strategic studies group, the researchers concluded that the trend of urbanization and

massive population shifts to megacities will likely define the strategic key terrain for any future conflicts which requires U.S. military intervention.⁵⁴

By combining the idea of displaced labor populations being sustained by localized or nationalized subsidization programs with the concept of megacities and concentrated populations, the implications of Calhoun's rat studies becomes a sobering reality for military planners who are attempting to forecast AI's impact on operational environments and risks. Specifically, Calhoun noted that throughout all successive replications of his rat and mice "utopia" studies, alarming behavioral trends would emerge. Initially, the supply of free food, nesting material and sufficient shelter would result in a population explosion. This population growth was accelerated by the lack of disease and natural predators.⁵⁵ However, the intentionally limited living space of Calhoun's test environments, combined with the rapidly growing populations and increasingly small territorial buffers, led to macabre behavioral patterns which ultimately resulted in self-inflicted death for all the experimental populations. As the territorial space was reduced, males became increasingly aggressive with some rodents breaking off to form gang-like units which attacked females and young pups.⁵⁶ Females in these populations were not immune to the effects of crowding. They would fail to develop proper nests for the young, first abandoning and then even attacking their infants.⁵⁷

As these behavioral patterns continued to spiral downwards, the very sexuality of the populations would start to become irregular. Certain rats became "exclusively homosexual while others became pansexual and hypersexual, attempting to mount any rat they encountered."⁵⁸ This behavior led to extremely high infant mortality rates. In some cases infant mortality exceeded 96%, and this corresponded with a

cannibalization of the dead and those who were victims of violence.⁵⁹ Within these populations, a class of rodents developed in the populations which Calhoun would label the “beautiful ones.” In the few secluded areas of Calhoun’s populations, small groups of rodents would congregate together to simply eat, groom themselves, and sleep. They did not mate or fight, and they were ultimately spared from the death and violence occurring in the general population.⁶⁰ However, because the beautiful ones had lost any sense of normalized behavior and any desire to procreate or care for their young, there was no successive generations to repopulate the test environments. The natural death of the “beautiful ones” would signal a completion to the cycle of death for the entire test population.

Military strategists can use Calhoun’s population studies to predict how AI-induced labor displacement may result in behavioral degeneracy especially when combined with other factors like a UBI and the likelihood of increased urbanization in megacities. By understanding the aim of Calhoun’s research and his own solutions to the observed breakdown of his experimental populations, strategists may be able to target and prepare the geographic and socioeconomic conditions that will require the military’s involvement. Calhoun’s studies have been notoriously used to cite the dangers of displaced labor populations, human overcrowding and state-sponsored welfare within increasingly urban environments. The eventual death spiral of the rodent populations has been coined “the behavioral sink”, and it is often quoted as a *de facto* end state of conflict and violence for future human populations that have been displaced by automation.⁶¹ Unfortunately, most behavioral researchers fail to apply the final years of Calhoun’s research in which he insisted that effective design of space and conditions

could actually improve the behavioral sink effect of a displaced population living in crowded spaces. These solutions may offer strategists with insight into developing a proper military's response to behavioral threats which are impacted by AI.

Oddly, Calhoun actually promoted augmenting humans with a form of AI as a counter to behavioral sink. In addition to advocating for innovative urban design and social networks, Calhoun encouraged developing a type of externalized "world brain" which would allow human minds to be linked and overcome restricted living space via cognitive enlargement.⁶² This 1970s concept of an interconnected, human world brain was considered fiction at the time, but it foreshadowed the rise of AI. It also presaged the sentiment of current AI technologists, like Elon Musk, who believe that humanity must merge with AI in order to avoid becoming supplanted by the technology.⁶³ The idea of augmenting humans with AI introduces practical and ethical challenges which are beyond the scope of this paper. Any consideration of human AI augmentation as a strategic response should be avoided since this would essentially integrate humanity into the very threat it is trying to respond to. But understanding the implications of Calhoun's rat studies and how AI may function as a threat multiplier within heavily urbanized, displaced labor populations will aid military planners in understanding the behavioral dynamics behind conflicts that might develop between techno-ententes and within megacities.

H. Review of Pruitt-Igoe's failed community for identification of potential operational environments where AI will act as a threat multiplier, be susceptible to China's influence and require a military response.

The mid-20th century failure of St. Louis's failed Pruitt-Igoe community provides a final monograph on the type of operational environment the military will need to consider should AI's displacement of labor result in the need for UBI and state-sponsored living

conditions. The Pruitt-Igoe project was based on the concept of high-rise housing surrounded by open areas for play and socialization.⁶⁴ In this sense, it unintentionally reflects some of the design concepts that Calhoun employed in his experiments. The community was started in the 1950s, and it experienced a rapid onset of rampant violence and the physical destruction and deterioration of living conditions. These horrific living conditions ultimately lead to the eventual demolition of the development at the hands of the federal government within 20 years of its being built.⁶⁵ As such, Pruitt-Igoe offers awareness on the various conditions and civil threats that AI has the potential to irritate and the conditions that may prompt the military's involvement within those environments.

Researchers have named poor economics and the government's lack of sustainment—specifically, the lack of funding and maintenance—as the main reasons for the rapid decay of Pruitt-Igoe. Cost-cutting measures were implemented at Pruitt-Igoe, and researchers believe that these conditions were exasperated by poor design that divided families, increased security threats, and decreased healthy socialization between disparate racial groups.⁶⁶ This has a direction correlation to conditions that may be found between competing techno-ententes and the increasingly urbanized communities and megacities that are impacted by AI's displacement of labor populations. Displacement of labor populations will not be the only condition that AI will effect. The Pruitt-Igoe disaster was hastened by the racial and socioeconomic flight of segments of the population. As whites and middle-class blacks fled from the Pruitt-Igoe community, the economic balance of the planned community devolved to a point where only low-income and social welfare recipients were left.⁶⁷ If the advancement of AI does

give rise to a Fourth Industrial Revolution and a competitive, neo-bipolar world order, military planners should be looking at ethnic and socioeconomic disparity as the fault lines for emerging threats in global and regional environments.

Still, one cannot ignore the advancements in urban and structural design that have allowed planned communities to flourish. Modern high-rises in densely populated cities like New York, with their multimillion dollar units and wealth inhabitants, form a potent rebuttal to the failure of Pruitt-Igoe and similar communities. But the success of planning and design should not be used to dismiss the threats that AI will impose on global communities and heavily urbanized areas. Pruitt-Igoe provides a powerful study for military planners who are trying to anticipate the types of communities that AI may impact most. If AI does usher in an era of competition between techno-ententes which are aligned under the U.S. and China, then displacement of labor populations will not only be taking place in developed countries or prosperous states with the economic resources to properly plan for urbanization. AI will also be impacting and displacing unskilled workers in developing countries with limited economic funds, countries that are already experiencing challenges with unskilled labor and countries who are inexperienced in urban planning and design. Pruitt-Igoe and the Calhoun provide an impetus for military strategists to explore similar research which may aid in accurately predicting the types of environments and socioeconomic factors that AI has the potential to intensify. As stated in the Army's study on megacities, "It is less of a question of why the U.S. Army would go than a question of what conditions would draw the Army into a [conflict]."⁶⁸ Countries vulnerable to the effects of AI's influence on labor, economics and population density conditions may be especially susceptible to the influence of China,

and they should be considered in the broader approach to balance within a neo-bipolar world.

Strategic Way Forward

A. Incorporation of AI as a threat multiplier in DoD weapon system planning, readiness and resourcing models, strategic guidance, COCOM plans, and strategic dialogue.

Previous sections of this paper have focused on building the case for AI as a strategic problem with AI acting as a significant threat multiplier within socioeconomic systems, on behavioral and civil conditions, and within the strategic environments that the U.S. military will be required to operate in. Moreover, the anticipation of peer-to-peer competition from China will be combined with the overextension of total forces in support of techno-ententes, threatening the timely prioritization of readiness and resourcing risks. Historically, militaries found it difficult to accept the new weapons and strategic environments that were introduced during the transitions of previous industrial revolutions, and the rise of the Fourth Industrial Revolution will bring its own ethical and logistical challenges for military planners.⁶⁹ The stand-up of new weapon systems—including the rather ironic necessity of integrating AI into those weapon systems—to meet competition from China will also continue to strain the overall military and industrial base. The following proposes an acceptable and feasible approach for addressing AI as the dominant causality within the context of a neo-bipolar world. AI's potential impact to strategic readiness and strategic risk management will briefly be examined in order to provide a possible template for making resource decisions, developing the necessary, and ensuring preparedness and resiliency of military assets for COCOM use.

The implementation of Fourth Industrial Revolution and AI into planning should be approached from a holistic, preparedness perspective in order to ensure that both readiness and capabilities management solutions are considered. By integrating the DoD's readiness and capabilities systems to account for conflicts that could result from the emergence of a bipolar world order and the proliferation of low-intensity conflicts that might erupt between techno-ententes, it is possible to produce a long-term implementation plan for the DoD that balances the limited financial resources that each military component has historically competed for.⁷⁰ AI provides a unique, atypical risk to future readiness levels and capabilities of the military (with commensurate opportunities) threatening to either overtax the DoD or provide an advantage in the way it executes strategic missions within a new bi-polar world order. AI could be used to existentially affect COCOMs and American territory, or could be utilized by the U.S. to dominate in those arenas. Therefore, a determination of any strategic requirements needs to approach AI as a threat multiplier, exploring readiness and capability gaps across the entire spectrum of both national security and DoD requirements.

In order to successfully implement AI's impacts to the global order and integrate the idea of techno-ententes into DoD defense readiness models, it is essential to concisely assess the challenges associated with the resourcing environment that is external to the DoD. Politically speaking, there are few immediate, external incentives for updating DoD strategy to reflect AI as a threat multiplier and shift strategy towards a neo-bipolar worldview. Although there was at least nominal interest in assessing impacts from AI in previous executive administrations, there is little awareness or desire to analyze AI's impacts to the global environment beyond an eager desire to explore its

use in weapons and decision making. The exclusion of AI from the latest National Security Strategy and subordinate policy documents would seem to support this conclusion. This implementation plan, therefore, assumes that supplemental funds external to DoD's Total Obligation Authority (TOA) will be unavailable for exploring AI as a threat multiplier unless a powerful Congressional caucus or crisis emerges which drives such an interest. As such, recommended key implementation measures attempt to be cost neutral to the military's budget, and materiel measures have been purposely dismissed until there is further research and analysis to support or disprove the conclusions of this paper.

Another key measure will be garnering support for incorporating AI as a potential threat multiplier within DoD Joint Staff guidance and policy for DoD wargame activities. This task will ensure that the emergence of AI-related threats and the potential transition to techno-ententes will be preemptively aligned under readiness and capability assessments. This pre-positioned alignment will allow for rapid, joint development of the Planning and Programming across all echelon levels for any service Chief's requirements. Moreover, there will be a direct policy link for rapid execution and support to Combat Commanders who need to respond to emerging AI-related threats in their area of responsibility. The greatest impediment to employing this measure will be the organizational reluctance to acknowledge AI as a threat multiplier and hesitation of accepting techno-ententes as a new concept in international relations and strategic lexicon. However, previous unconventional strategic approaches have been introduced into military policy via internal DoD think tanks such as the Office of Net Assessments (ONA) and external policy think tanks with historical, reputable ties to DoD strategy and

security policy. These analysts should be engaged when exploring the merits of AI as a threat multiplier.

Finally, the service Chiefs should begin exploring the integration and sustainment of IPL requirements for the structuring, manning, and readiness of AI-related threats, while also ensuring that there is close coordination with external stakeholders in Congress and the State Department. As previously shown, AI's main line of influence will be on global economics and the development of a potential bi-polar world order. Therefore, the U.S. military should be actively engaged with the key professionals in associated federal and private sectors, namely economists and diplomatic counterparts. COCOMs should also be encouraged to be mindful of AI-related threats and the potential impact of AI on socioeconomic and regional balance, especially when they are working with their staffs to develop future security cooperation in support of theater strategy. Increases to budget requirements for force integration of experts in AI technology and economics are not anticipated, although components are encouraged to sustain current funding levels for targeted personnel in these broad scientific and economic fields.

By incorporating a uniform response to AI across all military branches and within effected COCOM regions, the DoD's senior leadership will be better equipped for responding to associated policy and defending increases to future requirements for strategic and operational safeguarding. Preemptively exploring the implications of AI will help formulate the necessary dialogue internal to the DoD and when addressing limited manning and spending resources with external stakeholders in theater, across federal agencies, with Congress and in the current and future Executive administrations. If

implemented properly, these measures should strengthen the DoD's credibility when identifying, prioritizing and defending key global and regional infrastructure sustainability efforts that may be triggered or intensified by AI.

Conclusion

In former sections of this paper, AI has been examined as a catalyst for ushering in the Fourth Industrial Revolution, a technology uprising which has the potential to displace human labor markets and drive new paths for global economic competition. AI has also been examined in light of its propensity to function as a possible threat multiplier in the tensions that will arise between techno-ententes which are aligned under the neo-bipolar world order shared between the United States and China. As previously demonstrated, the correlation between competition in AI technology, subsequent global labor displacement and socioeconomic stressors is not always linear. These conditions correspond to the second and third order factors observed in other threat multiplier models where circumstances like economic and social inequality, increased populations and urbanization, religious and ethnic tensions, and weak or corrupt governments are all potential friction points between competing techno-ententes.

This response to the Fourth Industrial Revolution will not be the sole responsibility of the military, and there are admitted limitations to this paper's attempts at capturing the many ways in which AI will impact local, state, and national conditions. However, the U.S. government and military are currently unprepared to respond to AI as a form of economic competition with China. Military efforts to address AI have been limited to its role in enhanced decision making and autonomous weapons, and policy has failed to address AI as a likely means of significant economic competition and

weaponization. Current strategic guidance discusses the potential of a multipolar world order, but it fails to consider competition and implementation of AI technology as the driver behind a neo-bipolar world order.

In conclusion, there is a strong likelihood that the U.S. military will have to develop new strategy and respond to conflicts which result from AI-driven state fragility, economic instability, and strategic competition. The question of competition between the U.S. and Chinese AI technology is underscored by the reality of the U.S. military's current efforts to expand capabilities and readiness level in anticipation China's threat as a peer-competitor apart from the threats of AI. Military strategists will need to develop end states and strategic objectives which focus on maximizing flexibility and constrained resources in support of urban warfare in heavily populated, state-controlled megacities and regional tensions between the techno-ententes with their economic and political ties to either the U.S. or China. This paper is the first to explore AI as an economic destabilizer and strategic threat multiplier, but it must not be the last. The military should be prepared to invest in and research the implications of AI as a primary means of competition within the emerging neo-bipolar world order so that it is prepared to fully execute its mission when the "future" becomes the "now".

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