In the Interest of the Nation

A Case Study of Artificial Intelligence Policy in the United States

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Abstract

The potential brought about by artificial intelligence (AI) to reshape national, economic and
security interests has triggered a competition between various governments regarding who will
be leading this new technology. This thesis focuses on determining the process of development
and management of AI technology in the United States in relation to addressing its national
interests, as well as how this might have developed between the Obama and Trump
Administrations. This is done by employing the theoretical framework of structural realism and
a deductive approach. Further, the case study method is utilized by focusing on the U.S. and a
qualitative content analysis focusing on three reports released by the National Science and
Technology Council during the Obama Administration and compare these with two reports
released during the Trump Administration. The key finding of this thesis is that the role of
national interests in the construction of AI policy in the U.S. is to guide how key issues are
framed throughout its development and how points of focus in the reports, such as security and
national and international considerations, are constructed. Further, the results illustrate how
this has changed from the Obama to the Trump Administration, as the Obama Administration
stressed the importance of military and technological capabilities and promoted international
cooperation, while the Trump Administration opted to prioritize national interests.

Keywords: Artificial intelligence; policy; United States; realism; national interests

Word count: 16 499
### List of abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tbody>
<tr>
<td>AI</td>
<td>Artificial intelligence</td>
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<tr>
<td>AGI</td>
<td>Artificial general intelligence</td>
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<td>AWS</td>
<td>Autonomous weapons systems</td>
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<td>DARPA</td>
<td>Defense Advanced Research Projects Agency (DARPA)</td>
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<td>GDP</td>
<td>Gross domestic product</td>
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<td>IARPA</td>
<td>Intelligence Advanced Research Projects Activity</td>
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<td>IR</td>
<td>International relations</td>
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<td>IT</td>
<td>Information technology</td>
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<td>NATO</td>
<td>North Atlantic Treaty Organization</td>
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<td>NLP</td>
<td>Natural language processing</td>
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<td>NSTC</td>
<td>National Science and Technology Council</td>
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<td>OSTP</td>
<td>Office of Science and Technology Policy</td>
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<td>PEST</td>
<td>Political, economic, social and technological tools</td>
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<td>R&amp;D</td>
<td>Research and development</td>
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<td>RMA</td>
<td>Revolution in military affairs</td>
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<tr>
<td>STEM</td>
<td>Science, technology, engineering and mathematics</td>
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<tr>
<td>UAS</td>
<td>Unmanned aircraft systems</td>
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<tr>
<td>U.S.</td>
<td>United States of America</td>
</tr>
</tbody>
</table>
# Table of contents

Abstract ................................................................................................................................................................. i

List of abbreviations ............................................................................................................................................. ii

1 Introduction ....................................................................................................................................................... 1
   1.1 Aim and research question ........................................................................................................................... 1
   1.2 Relevance to International Relations ........................................................................................................... 2
   1.3 Definition of AI ............................................................................................................................................. 3
   1.5 Structure of the thesis ................................................................................................................................... 4

2 Literature review ............................................................................................................................................... 5
   2.1 Ethics, risk implications and current and future applications................................................................. 5
   2.2 Drones: usage and proliferation .................................................................................................................. 7
   2.3 Influence of AI on international relations and national security ............................................................ 9
   2.4 Security and power ..................................................................................................................................... 10

3 Theoretical framework .................................................................................................................................... 13
   3.1 Realism ....................................................................................................................................................... 13
   3.2 Realism within U.S. foreign policy ............................................................................................................. 15
      3.2.1 Offensive realism ................................................................................................................................ 16
      3.2.2 Defensive realism ................................................................................................................................ 17

4 Method .............................................................................................................................................................. 18
   4.1 Epistemology and ontology ........................................................................................................................ 18
   4.2 Case study .................................................................................................................................................. 19
   4.3 Analytical framework and data collection: qualitative content analysis ................................................. 20
   4.4 Limitations and delimitations ..................................................................................................................... 22

5 Key reports and data assessment ................................................................................................................... 24
   5.1 Report A: ‘Preparing for the future of artificial intelligence’ ................................................................. 24
   5.2 Report B: ‘The national artificial intelligence research and development strategic plan’ ..................... 26
   5.3 Report C: ‘Artificial intelligence, automation, and the economy’ ......................................................... 28
   5.4 Themes ....................................................................................................................................................... 30
      5.4.1 Security ............................................................................................................................................... 30
      5.4.2 International and global considerations ............................................................................................. 31

6 Analysis and discussion ................................................................................................................................... 34
   6.1 Developments in the Trump Administration in a comparative perspective ......................................... 35
   6.2 Addressing national interests within AI policy in the U.S. ...................................................................... 38

7 Conclusion ........................................................................................................................................................ 42

8 Bibliography ..................................................................................................................................................... 45
1 Introduction

Artificial intelligence (AI) is a new technology that has been developing rapidly during the past few years and currently poses several challenges. AI has great transformative powers and may create incredible opportunities for human progress, but will also challenge fundamental ethical, economic and security institutions. The potential brought about by AI to reshape national, economic and security interests has triggered a competition between governments that will decide who can reap the benefits of the new technology (Scott, Heumann and Lorenz, 2018: 7). The United States (U.S.) represents the most active stakeholder in artificial technology, as it has been the central figure leading innovation and funding AI-related research (Allen and Husain, 2017). This was the case for the Obama Administration, which recognized the potential transformative power of AI for security, society and economy, and acted towards harnessing its capability to help maintain the U.S.’ global hegemonic position and to assure the state’s security needs in the international system (Allen and Kania, 2017). However, with the arrival of the Trump Administration, this approach changed, and in its place a new and conservative position developed, placing national American interests above international cooperation and innovation (United States, 2017).

1.1 Aim and research question

This thesis aims to contribute to the field of International Relations (IR) by filling gaps in the research on this topic. There are still many things to be discovered, as the field of AI is relatively new and unexplored within IR. Scholars have previously investigated adjacent technologies and challenges associated with them. Herein, the impact of drones on military and international affairs, ethical and practical risks of AI applications, the impact of AI on IR and national security and how power and security are created. However, there has been no attempt at analyzing the combined impact of AI on these issues, the developments of AI policy between different Administrations or the effects of matters of hegemony, national security and international relations on AI policy proposals. This is where this thesis aims to contribute to existing research, by drawing links between policy proposals of AI technology and the relations to national interests, such as issues of security and hegemony. This thesis sets out to explore the research question of how is the U.S. AI policy being developed and managed to address its national interests? Herein, the thesis focuses on the Obama Administration’s policy proposals.
and specifically investigates the role of national security and global relations in its drafting. Additionally, the paper poses a sub-question of how has this developed from the Obama Administration to the Trump Administration? The second question aims to investigate the developments within AI policy in the U.S. between the Obama Administration and the Trump Administration. It is of interest to examine whether issues of national security and global relations have changed within the construction of policy documents focused on AI between the two Administrations. To answer these questions, the thesis draws on the case study method and content analysis.

1.2 Relevance to International Relations

The topic of AI, broadly, and AI policy in particular, is relevant to the field of IR, as AI will have a profound impact on relations between states in this increasingly interconnected world. As technology represents one of the material resources that define power, McCarthy (2015: 3-4) argues that technology is central to the conduct of international politics, where technological artifacts represent a form of institutional power with defined norms and values. Furthermore, Damnjanovic (2015) argues that political theory should explore how its key concepts will be affected when confronted with technologies yet to come, making it a legitimate object of study for political theorists. Such is the case for AI technologies, which hold the potential for great transformative power for the future. Scott, Heumann and Lorenz (2018: 2) identify the challenge of AI as being global in nature, as it is embedded in the connectivity of the Internet. It is the response of governments that will ultimately make the difference in charting the course for how the future will look like (ibid.: 7). Therefore, it is especially interesting to investigate the response of governments towards AI.

The creation of policy frameworks influences the development of AI technologies, and it should be treated with utmost importance by the global community, as they will determine how the technologies will be employed, either militarily or for civilian applications, and how this will affect society. Moreover, the regulatory processes could lead to the establishment of a new global regime supervising and regulating the field of AI and has the potential to significantly contribute to the achievement of global security and economic prosperity. As fears over the creation and use of this technology continue rising, a series of hypothetical outcomes concerning security and ethics has brought into focus a debate concerning the development of a regulatory framework aimed at governing the moral and physical applications of the ever-expanding technology (Scott, Heumann and Lorenz, 2018: 3). As the debate on the
development of AI has expanded, this thesis is investigating the case study of the U.S. and the response of the current and former Administrations. The following section defines AI.

1.3 Definition of AI

When defining AI, it is important to keep in mind how AI technology is employed. Herein, the distinction between ‘general AI’ and ‘narrow AI’ and their various applications becomes important. Meek et al. (2016: 683) define AI by dividing it into two main categories, herein domain-specific AI presenting narrow capabilities and utility functions, and artificial general intelligence (AGI) which responds to a variety of situations, capable of learning and making decisions independently. Buchla defines ‘general AI’ as “a machine that is capable of humanlike behavior, at least in those capacities attributed to the mind” (Buchla, 2008, cited in Damnjanovic, 2015: 77), whereas, Shulman and Bostrom define it as “systems which match or exceed the [intelligence] of humans in virtually all domains of interest” (Shulman and Bostrom, 2012, cited in Damnjanovic, 2015: 77). Whilst ‘general AI’ poses serious security and ethical questions for practitioners and users alike, its development and introduction to the market is believed to be several decades in the future (Allen and Chan, 2017). Further, Li and Zhang (2017: 416-417) claim that AI generally can be categorized into weak and strong AI, where strong AI is considered to have human-like levels of cognition, self-awareness and creativity, whilst weak AI simulates human intelligence passively without understanding. Currently, only weak AI systems exist, and its applications range from healthcare to finance and education.

Therefore, this paper focuses on ‘narrow AI’, and employs the definition proposed by Scott, Heumann and Lorenz (2018: 6), who define ‘narrow AI’ as “technologies that enable machine learning, natural language processing, deduction through vast data-computational power, and ultimately, automated decision-making in robotics or software that can substitute for tasks once performed exclusively by human action and judgement”. By focusing on ‘narrow AI’, the thesis seeks to present the transformative capacities of this technology for society, economy and security, and the ways in which a state, herein the U.S., decides to develop and describe the technology within policy documents.
1.5 Structure of the thesis

The purpose of this thesis is to present the reader with a clear understanding of how AI policy is being developed and managed in the U.S. to address its national interests and how this has changed from the Obama Administration to the Trump Administration. The structure of this paper is as follows: First, in section two, the literature review is presented, focusing on areas such as AI ethics, risks and future applications, drone proliferation, AI influence on foreign affairs along with security and power. In section three, the theoretical framework of structural realism is presented within the U.S. context, as well as how it is used to analyze the selected case. In section four, the methodology is presented, wherein the case study method focusing on the U.S. and a content analysis of policy documents.

In section five, the key reports and the data assessment are elaborated upon by first, providing an in-depth description of the three reports by the Obama Administration, followed by an examination of the use of security and global considerations within the reports. In section six, an analysis and discussion of the material is conducted, focusing on two aspects, namely, developments in the Trump Administration in a comparative perspective to the policies of the Obama Administration, as well as the means through which AI policy is being developed and managed in the U.S. and the way its addressing national interests. Last, conclusions are drawn regarding the literature and theory used, methodology employed, the assessment of the data, and the analysis. The thesis ends with considerations for future research. This thesis argues that AI policy is being developed and managed in the U.S. in a manner that is addressing a series of national interests, as it was written and focused towards issues of (national) security and maintenance of hegemonic position internationally. It is also argued that this has changed from the Obama Administration to the Trump Administration, as cooperation and international considerations have been changed to self-interest.
2 Literature review

In the field of IR, the existing literature can be classified as falling into three main themes, namely AI and ethics, unmanned aircraft systems (UAS) and security and power. Although the field of AI is new to IR scholars, a limited body of work focusing on ethics and future applications of the technology exists (Etzioni and Etzioni, 2017). However, the potential applications and impact of specific AI technologies such as UAS, or drones, has been a reoccurring topic within the field of IR. This section, first, investigates the ethical aspects and future of AI (Meek et al., 2016; Kumar et al., 2016) and an exploration of AI applications (Li and Zhang, 2017). Second, the topic of drone proliferation explores the works of Boyle and Horowitz et al. (2018), Freedman (2016) and Fuhrmann and Horowitz (2017). Third, the work of Scott, Heumann and Lorenz (2018) related to the impact of the Internet on the development of foreign policy and Allen and Chan’s (2017) study on the impact of military technologies on national security are discussed, along with their inferences on the likely impact of AI and their proposed tools for the development of AI. Last, the section examines the issue of security and power, herein security seeking under anarchy (Taliaferro, 2000), scientific knowledge as hegemonic/military power (Paarlberg, 2004) and relationship between new technology and power (McCarthy, 2015; Carr, 2012).

2.1 Ethics, risk implications and current and future applications

In their 2016 article, Meek et al. discuss the ways to better manage the ethical issues and risks of emerging technologies, focusing on AI in particular. Additionally, the authors develop an analysis framework of ethical implications of AI development and posed risks, and they conclude by advancing a series of technology management recommendations (Meek et al., 2016: 682). Meek et al. argue that the emerging field of AI has expanded rapidly in recent years, registering major technological and scientific achievements. Moreover, AI has become an integral part of modern society, with many businesses and industries employing AI (ibid.). However, as AI technology becomes more advanced and commonly integrated in daily products and applications, a series of ethical issues focused on the development and adoption of AI technology become important.

The authors conduct their study by, firstly, surveying the existing literature on AI ethics, and secondly, supplementing it with other studies on the history of AI, technology ethics and technology risk management (Meek et al., 2016: 682). By applying this method, the authors
aim to identify the central ethical issues related to AI technology and the source of differing perspectives to isolate management recommendations through the analysis of the aforementioned issues (Meek et al., 2016: 682). Throughout their literature review process, the authors thematically categorize issues by identifying common themes. Additionally, the authors employ a perspective analysis using political, economic, social, and technological (PEST) tools by classifying external factors affecting AI ethics into four categories to better understand how ethical issues affect AI (ibid.). The article proceeds by presenting the current and future state of AI. Currently, AI is experiencing major advancements and it is being developed into performant products or applications such as natural language processing (NLP), autonomous vehicles, and mission critical control systems for space travel (ibid: 683-684). Furthermore, when discussing the future of AI, the authors highlight the increasingly important role AI will play in people’s lives, influencing jobs through automation (ibid.: 684). The authors conclude by advancing a series of recommendations to improve the management of ethical issues of AI, such as the establishment of national and international ethics committees, educating and training team’s ethics awareness, bolstering AI systems security, and developing failsafe mechanisms (ibid.: 690).

Kumar et al. (2016) investigate the motivations and expectations for development of machine intelligence, herein the role of ethics in developing AI. To examine this, the authors compare the emerging AI scope with older technologies (ibid.: 111). While the prevalence of AI in the technology world is constantly increasing, ethics are becoming more central, as people have to reflect on existing moral issues and how AI can be used to make better decisions for individuals and society more broadly. AI has registered tremendous results at performing repetitive tasks and is thought to have practical applications in space exploration and within commercial and military aircraft industry (ibid.). However, ethical questions start arising when more power is being given to robots. This is already the case with autonomous weapons systems (AWS), where governments are debating whether their development should be supported or banned altogether (ibid.: 114). The authors believe that future ethical questions related to AI should focus on writing apt and correct code and that ethical issues should be tested extensively to prevent future calamities (ibid.).

In their article exploring AI applications, Li and Zhang (2017) claim that while AI is considered a disruptive technology, it also possesses wide application potential. The paper sets out to discuss the security, privacy, and ethical issues in AI applications, identify potential risks and threats and provide suggestions for countermeasures in AI research, regulation, and supervision (ibid.: 416). While recent advancements in AI have highlighted the potential that
the technology possesses in helping societies, its wide use could also impact previously untouched aspects of life such as our privacy, personal security and ethics, with uncontrolled consequences arising from AI applications if threats are not identified and prevented accordingly (Li and Zhang, 2017: 416).

The authors identify a series of potential threats of AI systems. They range from technology abuse to threats posed by technical defects, security hindrances caused by self-aware super-intelligence, privacy infringement in data acquisition along with behavior rules and the role of robots (Li and Zhang, 2017: 417-418). Consequently, Li and Zhang propose a series of countermeasures designed to limit the impact of the rising AI threats. Regarding safety, privacy and ethics research, they argue for embedding ethic rules in AI design, making AI systems more transparent and explainable and improving the general security and robustness of AI systems (ibid.: 418). Concerning the strengthening regulation on AI development, they propose law and policy making, laying down standards, management and supervision as potential amendments (ibid.: 419).

2.2 Drones: usage and proliferation

In their original article “Separating fact from fiction in the debate over drone proliferation”, Horowitz et al. (2016) argue that the risks of drone proliferation are modest or low for use in deterrence, crisis bargaining or coercive diplomacy. Their assumption is challenged by Boyle (2018) in a correspondence article “Debating drone proliferation”, where he argues that drones might have a stabilizing effect and that risks of drones succumb to unjustified publicity, he also posits that Horowitz et al. overlook in their analysis four reasons why the utility of drones for interstate bargaining may be higher (Boyle and Horowitz et al., 2018: 178). While Horowitz et al. argue that drones could increase the amount of information available to government actors by providing real-time surveillance of potential flash points, this argument overlooks information-overload of decision-makers (ibid.: 178-179).

Second, while Horowitz et al. observe that countries and their opponents value drones differently from manned aircraft and behave accordingly and suggest that an emerging norm hints that states distinguish between shooting down manned and unmanned systems, Boyle argues that there is not enough evidence of a norm emerging preventing a crisis escalation (Boyle and Horowitz et al., 2018: 179). Boyle also argues that drone incidents will increase once drones will decrease in size and become accessible to actors and non-state actors alike (ibid.). Last, the risk of gradual erosion of deterrence through repeated drone incursions is
overlooked from the analysis (Boyle and Horowitz et al., 2018: 180). Horowitz et al. reply to Boyle stating their previous argument that the political and strategic effects of drone proliferation are context dependent (ibid.: 181). Furthermore, drones carry implications for counter-terrorism operations and domestic control in authoritarian regimes. While they understand Boyle’s criticism about drone usage, they argue that their original assumption about information and surveillance is not overturned by Boyle’s concerns. Herein, drones may still help alleviate state’s problems associated with lack of information by providing intelligence on opponent’s capabilities and military maneuvers as well as governments designing decision-making systems able to process large information sets and avoid overload (ibid.).

constructed as a literature review of various books and articles exploring the ethical, legal and strategic dilemmas associated with drone use, Freedman (2016) sets out to explore the assumption that drones represent a new era of warfare, herein counterterrorism, and concludes that while drones are important, they are not revolutionary (ibid.: 153-154). Freedman argues that even though drones bring together technologies that have revolutionized modern warfare, they have proven incapable of avoiding civilian casualties in conflicts (ibid.: 155). When criticizing drones, detractors focus on three issues. First, ‘blowback’, or the anger provoked by civilian casualties in targeted countries. Second, the excessive secrecy surrounding the U.S. drone program which undermines its accountability. Last, unease over the distance at which drone operators’ function and the moral hazard caused by the asymmetric risk (ibid.: 156). Freedman ends his article by advancing three conclusions. First, drone pilots find it harder to escape the harsh reality of war compared to other soldiers. Second, there is no evidence of the U.S. becoming addicted to drones. Last, while targeted killings have shaped UAS reputation, their military value lies in providing surveillance (ibid.: 157-158).

In their research article, Fuhrmann and Horowitz (2017) employ the first systematic data set of UAS proliferation to examine the spread of UASs in the context of the scholarly debates about capacity versus interests to explain policy adoption. Their results offer insight for both IR scholars and policy-making communities, as drone proliferation is not simply a function of the threat environment. While the IR scholar’s community has debated whether demand or supply side-factors play a more important role in the spread of military technology, the authors find that both factors play a significant role in UAS proliferation (ibid: 399). Moreover, regarding the debate focused on how regime type influences military policy, they postulate that regime type is important, but not in a linear manner (ibid.: 400).
2.3 Influence of AI on international relations and national security

Scott, Heumann and Lorenz (2018) assess the responses of the policy community to the influence of the Internet on IR and foreign affairs as a case study to draw conclusions and provide tools for the development of AI policy. They focus on examples from the U.S. and China. They proceed to suggest policy making, bilateral and multilateral engagement, actions initiated through international and treaty organizations, partnerships and information-gathering as effective tools in managing the emerging challenges of AI. The article focuses on three main issues within the field of AI and foreign policy analysis; economic disruption and opportunity, security and AWS, and democracy and ethics (ibid.: 2-4). Herein, they identify several important goals, such as the push for domestic economic interests in global AI markets, development programs of AI, initiation of international dialogue, updating arms controls and non-proliferation strategies, aligning around common policies and promoting and strengthening democratic institutions (ibid.: 13-20). There are certain challenges for foreign policy, however, these could be mitigated by employing tools like communications and multilateral policy for those that pursue rights-based goals (ibid.: 27-30).

The authors make several broad structural conclusions from their assessment of responses of the policy community to the rising influence of the Internet, and they are, thereby, able to draw a series of connections to AI policy. They argue that policy-making should evaluate the issues located at the intersection of AI and IR to better guide the development of governmental policy positions for the future, namely the construction of ethical red lines for AI solutions (Scott, Heumann and Lorenz, 2018: 11). Development of public diplomacy should consider raising awareness about the implications of AI for internal relations through official dialogues; moreover, communications should focus on issues and countries where change is going to take place near-term and is going to be high-impact (ibid.: 11-12). As in the case of the Internet beforehand, there has been no significant change in the work framework, but only in topic and its pace and creativity. As such, the traditional toolset of diplomacy can be applied to a new set of technological developments and the key in developing a successful AI foreign policy strategy lies in ‘effective adaption’ of the toolset (ibid.: 13).

Allen and Chan (2017), in turn, investigate the likely impact and transformative potential of AI technologies on national security by examining four prior cases of transformative military technology, namely, the nuclear, aerospace, cyber and bio technologies, and thereby, develop recommendations for national security and AI policy. They start by
analyzing possible technology development scenarios and how these might transform national security (Allen and Chan, 2017: 7). Herein, they focus on implications for military, economic and information superiority. The AI-related policy recommendations focus on the U.S., and include preserving technological leadership, support for peaceful AI use and mitigation of catastrophic risk (ibid.: 10). The lessons that they draw from their case studies suggest that the radical change brought about by AI solutions can, and should, be met by equally radical government policy ideas ready to contain them (ibid.: 3-5). Moreover, Allen and Chan claim that governments must maintain their role in both promoting and restraining commercial activity of AI. Last, governments must also work on formalizing goals for technological safety and must provide adequate resources for its development. As with previous technological innovations and changes, Allen and Chan propose that the U.S. should reassess its national interest to fit this new technological paradigm.

2.4 Security and power

Taliaferro (2000) explores in his article whether the international system provides incentives for expansion by examining realism and its internal debate on this topic. Taliaferro argues that the debate between the various strands of realism over the implications of anarchy is of utmost importance, as, first, the outcome of this theoretical debate has broad policy implications, second, debates within particular research traditions and not between them are likely to generate theoretical progress in the study of international politics, and third, regardless of realism being viewed as the dominant theoretical approach in IR, it remains the competitor of all non-realist approaches (ibid.: 130-131). Regarding the debate between contemporary realism branches, of importance is the neorealist and neoclassical realist debate where the former seeks to explain international outcomes or the interaction of two or more actors in the international system, and the latter seeks to explain foreign policy strategies of individual states, why states pursue specific strategies at different times, and how they respond to systemic imperatives (ibid.: 133-134).

The article underlines four assumptions of defensive realism. First, the intractability of the security dilemma, where anarchy induces states to engage in self-help (Taliaferro, 2000: 136). Second, while the security dilemma is unavoidable, it does not generate intense competition and war. However, material factors or ‘structural modifiers’ such as balance in military technology or international economic pressure may influence the likelihood of international cooperation or conflict more compared to the distribution of power (ibid.: 137-
Third, material capabilities influence foreign policies, as leader’s ability for military planning and foreign policy decision-making is influenced by the relative distribution of power (Taliaferro, 2000: 141). Last, domestic politics can shape foreign policies under specific conditions such as imminent external threat (ibid.: 142).

When discussing power, Paarlberg (2004: 122) posits that U.S. military hegemony has been built on scientific prowess. Furthermore, military primacy comes from weapons quality, and not quantity, where each U.S. military branch has dominating weapons. However, scientific and technical knowledge is now dispersing due to globalization, making hegemony harder to maintain in the area by one state (ibid.). The key to the revolution in military affairs (RMA) in the U.S. is the application of modern science and engineering, particularly chemistry, physics and information technology (IT) to the design and use of weapons (ibid.: 125). While American dominance in these fields has facilitated U.S. military dominance of traditional battlefields, it is important to evaluate the extent and durability of American scientific hegemony (ibid.). The author concludes that the U.S.’s scientific primacy has a remarkable durable foundation, ensuring American military primacy will stand until stronger challengers appear. While globalization has contributed significantly to its strengthening, science-based military primacy on the battlefield does not ensure security. Federal investments in science and technology are slowly downgrading the U.S. global position. Science can bring large security gains to both asymmetric and conventional military affairs alike (ibid.: 150-151).

In his book, McCarthy (2015: 9) applies a theoretical discussion to the concept of technology in IR through the analysis of the Internet as a form of institutional power that advances U.S. foreign policy aims. The analysis uses both a critical discourse analysis and a content analysis of policy rhetoric and narratives. The material consists of 230 policy documents, public statements and press releases from the Bush and Obama administrations along with seven interviews with U.S. officials (ibid.: 12-13). The focus point of the analysis is the free flow of information, as this was particularly central in the accounts. McCarthy also claims that technology is central to the conduct of international politics, as it represents one of the material resources that define power (ibid.:3).

Carr (2012: 176) proposes a social constructivist approach to technology, as she views technology as the expression of social, cultural and political values. Carr focuses on the political history of the Internet in the U.S. to understand the relationship between power and new technology (ibid.: 173). She investigates the dominant approaches within IR, herein instrumentalism and technological determinism, and identifies that these approaches fail to accommodate new social technologies (ibid.: 181). The research of the paper is based on a
number of case studies focusing on different time periods within the development of the Internet (Carr, 2012: 183-186).

To conclude, this section has reviewed how previous research has been conducted within the field of IR on AI and other transformative technologies and what theoretical and policy considerations have emerged for security and foreign policy. Most significantly, the importance of specific ideas, namely that technology is central to the conduct of international politics, that American military hegemony is built on scientific expertise, and that AI technology holds tremendous potential to enhance both social and economic aspects in the future. The next section is examining the theoretical framework focusing on structural realism as well as an overview of the relevance of realism within the U.S. context.
3 Theoretical framework

Foreign policy can be defined as the external behavior of states (Rosenau, 1971: 95, cited in Beach, 2012) or as “government activity constructed with relationships between state and other actors, particularly other states, in the international system” (White, 1989, cited in Beach, 2012). Policy drafting is therefore a complex and extensive process through which an Administration can influence American interests domestically and abroad. Realism is relevant within the U.S. context, as it, in general and military terms, represents the theoretical current that has guided the country through the Cold War and which has experienced a revival following September 11, and guided some of the country’s foreign policy. Policy can be looked through a theoretical lens in order investigate reasoning behind its drafting, as illustrated by previous similar research within IR which emphasized the role of realism in explaining state behavior and in terms of material capabilities and the influence of technology in asserting power. Herein, it is appropriate to discuss realism in connection with U.S. policy. Following a deductive process and a survey of existing literature on topics such as power, security and drone proliferation, the framework of realism has emerged as the prevalent theoretical model employed for analysis. Consequently, this thesis utilizes a realist theoretical framework for its analysis to explain how AI policy is being developed and managed in the U.S. and how this is used to address national interests. First, the theory of realism is explained, and second, realism in connection with U.S. policy decisions is examined.

3.1 Realism

At its core, realism advocates for the self-interested behavior of a state and general dissent to cooperate on the mitigation of major problems in the international community. The main theoretical debates in realism are structured around two key points, namely why states search power and how much power is enough. While classical realists like Morgenthau (1948) believe that the former lies in human nature, the same cannot be said for structural realists. Instead, structural realists believe that the structure of the international system forces states to pursue power (Mearsheimer, 2013: 78). Furthermore, there is a deep divide between structural realist scholars on the matter of how much power is enough for a state. Defensive realists like Waltz argue that the pursuit of hegemony is unwise, as the system will punish those who seek too much power (Waltz, 1979, cited in Mearsheimer, 2013: 78). Offensive realists like Mearsheimer believe that states should gain as much power as possible and should pursue
hegemony if the circumstances allow it, as power is the best way ensure survival (Mearsheimer, 2013: 78).

In short, classical realists believe power is an end in itself, while structural realists consider power a means to an end, the end being survival (Mearsheimer, 2013: 78). Power is based on the capabilities controlled by the state and take on the form of material military assets or latent socio-economic factors. Thus, a state can gain power either through military conflict or through increasing its population size and share of global wealth (ibid.). In accordance with the realist tradition, hegemony is defined as the prevalence and distribution of material resources, namely military and economic capabilities, political relations and security arrangements of a great power (Yetiv and Oskarsson, 2018: 7). Taliaferro (2000: 153) defines hegemony as a situation in which one great power benefit from a preponderance of the material capabilities in the international system. Furthermore, Ayres (2011: 439) defines a hegemom as “a state with a preponderance of the world’s power” while Dunne et al. (2013: 354) further defines hegemony as a state that dominates the international system through its military and economic might.

Thayer (2010: 1-2) argues that realism exhibits four main characteristics. First, power is an essential component of international politics, as states seek power to ensure their survival in the anarchic system; the search for power is an inherent part of human nature, and this behavior is uniform across different groups, institutions and states. Second, a state’s national interests are primary, and they should be advanced in all circumstances and by all means available at the state’s disposal, may they be economic, military or diplomatic, and through hard or soft power alike. Third, states should not be dependent on other states for security and should not trust other states with peace and cooperation; cooperation will last as long as their interests coincide. Last, realists explain international politics as being governed by the pursuit of power and self-interest, and by a lack of trust between states, making cooperation conditional rather than intrinsic (ibid.). These signature traits of realism will be further employed in the analysis process to demonstrate how new technologies, herein AI, can be managed to secure power and security internationally.

Following the end of the Cold War, international politics were thought to have changed, leaving the realist tradition behind for a more liberal, globally interconnected world in which international institutions would force major powers to act in accordance with the rule of law, as proposed by liberalism (Mearsheimer, 2013: 91). Nonetheless, while the spread of democracy has contributed to more cooperation-focused international politics being conducted overall, realism has since made a comeback after the September 11 attacks, with military power
playing a critical role in world politics (Mearsheimer, 2013: 91). Therefore, realism has proven to be a continuously relevant theory concerning the development of policy, especially within the U.S. This paper employs a structural realist approach to develop its analysis framework. The following section introduces how realist theory has been applied to previous foreign policy development in the U.S., as well as shortly presenting the offensive and defensive realist debate.

3.2 Realism within U.S. foreign policy

As previously stated, the U.S. ascribes itself, in part, to the realist tradition, and has for many years developed foreign policy papers presenting realist characteristics. As previous research in the field of IR demonstrates, policy analysis can be used to investigate foreign and national security policies and to highlight the importance states allocate in its drafting. As the following section presents how foreign policies previously enacted by the U.S. Administrations follow a realist tradition, this thesis argues that realism is a valuable theoretical tool in examining AI policy in the U.S. Therefore, a realist analytical framework is employed to explore the research question of how is the U.S. AI policy being developed and managed to address its national interests.

Realism has a long tradition of engagement in academic and political discussions within the U.S., with theory and policy being interlinked, and policymakers often using theory to diagnose problems, anticipate events, formulate action prescriptions and evaluate results of policies (Rosato and Schuessler, 2011: 804). Moreover, realism remains a relevant theoretical approach in the U.S. for conducting policy and advancing state interests, as American diplomats and academics must work on negating threats whilst advancing national interests (Thayer, 2010: 4). According to Thayer, realism is relevant within the U.S. because it guides the country’s foreign policy (ibid.: 2-3). Although the Obama Administration has kept a liberal rhetoric and collaborative approach towards policy with its allies and international institutions, it has also proved to be very pragmatic in action, and able to act according to realist principles. Below, a number of key foreign policy decisions of the Obama Administration are presented.

Regarding Iran, the Administration has acknowledged the difficulty of stopping the country’s nuclear program due to its advanced state of development, diversification, support from China and Russia and fear of retaliation against American interests in the global economy. Nonetheless, the U.S. has started preparing for a nuclear-armed Iran by adjusting its alliances and military presence in the region (Thayer, 2010: 3). Concerning Iraq, the policies prescribed
are similar to those of the Bush Administration, and have embraced a slow withdrawal of troops instead, as opposed to the campaign promise of total extraction. Moreover, on Afghanistan, the U.S. has continued to back the government of Hamid Karzai, accelerating involvement and covert operations taking place in Afghanistan and Pakistan to maintain control in the two countries (Thayer, 2010: 3). Regarding great powers like China and Russia, policies have remained unchanged, with the Obama Administration remaining skeptical about Moscow whilst also acknowledging its importance as an ally in combating terrorism and piracy as well as in terms of relations with North Korea. Furthermore, the U.S. has continued to sell weapons to Taiwan and support a two-China policy and has continued expansion of its naval and air forces to contain the growing Chinese policy (ibid.: 3-4). Nevertheless, the U.S. continues to seek power to safeguard itself against international challengers like China.

3.2.1 Offensive realism

In the essay ‘America Unhinged’, Mearsheimer (2014: 9) theorizes that American national security elites act on the assumption that each region of the globe possesses great strategic importance and that threats endangering the U.S. are found everywhere, making them reside in constant fear. Mearsheimer presents the cases of Egypt and Syria, where he argues the U.S. acts based on three assumptions. The first is that the two states are of considerable strategic importance to the U.S.; the second is that certain moral reasons require the U.S. to intervene in Syria. Last, the U.S. believes that it possesses the capacity to influence local politics in meaningful and constructive ways (ibid.).

The elite’s consensus is that Egypt and Syria represent the most urgent states that the U.S. should consider assisting, although not the only ones. Consequently, the U.S. believes it has a lot of social engineering to enact, forcing it to pursue an interventionist foreign policy to dominate the international system and to ensure its security (Mearsheimer, 2014: 10). However, this assumption is wrong. Mearsheimer argues that while intervening in states such as Egypt and Syria might help satisfy short-term security goals, it also poses serious costs for the U.S. The strategic costs associated with this approach are minimal due to the secure status of the U.S. However, the economic and human costs associated with the pursuit of global domination are significantly higher, and the costs derived from the development/creation of national security policy that undermines the traditional liberal-democratic values at the center of American politics (ibid.: 10-11).
3.2.2 Defensive realism

In his essay ‘Structural realism after the Cold War’, Kenneth Waltz (2000: 16) argues that the U.S. has used its economic superiority to guide foreign policy and meet political and security interests. The Bush and Clinton Administrations employed NATO as an instrument for maintaining American domination over foreign and military policies of European states (ibid.: 20-21). Moreover, Waltz argues that the constancy of threat produces constancy of policy, and in the absence of threat, policy becomes capricious. In the case of the U.S., the absence of a serious threat to its security grants it autonomy in foreign policy choices. Furthermore, Waltz posits that a dominant power acts internationally only when power moves it; to this extent, the U.S. has a long record of intervening in weak states with the goal of bringing democracy, with Central America and the Middle East as examples in this sense (ibid.: 29).

According to Walt (2018: 13), the U.S. is the most secure great power in history, and it is actively pursuing its goal of being the greatest power in the Western hemisphere to assure its citizens that they will not be attacked, blockaded or coerced by a rival with similar capabilities, and will continue to do so for the foreseeable future. One such example is how the U.S. is actively balancing against and containing the expansion of China, both through troops and equipment deployment, diplomatic and economic partnerships. It can be argued that the development of AI policy aims to continue this position.

In summary, this section has shown how realism represents a commonly used theory in IR, particularly in the U.S, and focused on particularly how the Obama Administration has employed it to assess national and international security risks to develop appropriate policy responses regarding security, economic and social prosperity. However, both the Obama and the Trump Administrations have also developed their own understandings of the rising security risk of AI and how it can be managed to address American national interests. Realism can be employed as an analytical framework to evaluate the policy proposals by the U.S. White House Administrations to assess how, as an example, security risks might guide foreign policy responses. In this thesis, realism is employed as an analytical framework by focusing the analysis and coding for aspects related to issues of security, leadership and international relations.
4 Method

This thesis focuses on how AI policy is developed and managed in relation to national interests in the U.S. as well as how this has changed from the Obama Administration to the Trump Administration. To investigate the subject at hand, this thesis seeks to combine the case study method with content analysis. While the former will be employed to further focus on the U.S.’ role and power in the international arena, the latter will be used to analyze reports published in 2016 by the National Science and Technology Council (NSTC) of the Obama Administration, as well as documents published by the Office of Science and Technology Policy (OSTP) of the Trump Administration. The goal is to better understand how national interests are being undertaken within AI policy in the U.S.

This thesis employs deductive reasoning, where existing theories and concepts within IR have guided and informed the research process; moreover, in the analysis section, the thesis will proceed to draw specific ideas from existing literature to explain a particular case or phenomena present in the field of IR (Halperin and Heath, 2012: 31; Singh, 2007: 401). Herein, the thesis explores how AI policy is being augmented and supervised and how this relates to addressing national interests in the U.S.

4.1 Epistemology and ontology

According to Grix, epistemology constitutes the branch of philosophy that studies the theory of knowledge (Grix, 2002, cited in Harrison and Callan, 2013: 43). Ontology represents a theory of ‘being’ concerned with the impact of essential differences (Harrison and Callan, 2013: 98). Furthermore, ontology is concerned with reality and ‘what exists’, as it tries to explain what can be examined through research and examination of the political and social spheres (ibid.). As Harrison and Callan point out, diversity in IR research can be attributed to the different ontological and epistemological stances that researchers hold, with the positions often being an implicit and unchangeable part of the self, affecting our worldview and what constitutes a valid area of study. Additionally, it is of utmost importance for researchers to try and maintain an objective and value-free stance whenever conducting investigations and be clear on their epistemological stances, as it will influence their choice of methods (ibid.: 43).

Furthermore, epistemology can be deconstructed into constituent trends such as positivism and relativism. This thesis employs a social realist epistemology, which is defined
by structures that underpin social events and discourses which are indirectly observable, and which have to be expressed in theoretical terms, making them likely to express a provisional nature. This does not prevent them from being applied in action to generate social change (Walliman, 2006: 15). This relates to the choice of the theoretical framework, as social realism can help identify and describe underwritten discourses and social norms present within realist theory related to the construction of technology policy, herein focused on AI, and can additionally illustrate how this policy is being developed and managed to address American national interests. Furthermore, this thesis has selected the social realist epistemological stance based on observations of previous similar research conducted in IR, where it has guided scholars to deconstruct and study constitutive elements such as anarchy and hegemony.

4.2 Case study

According to Lamont (2015: 131), the case study method represents an in-depth study of a single unit or historical episode employed to describe or comprehend other units or episodes. Herein, the case study is that of the U.S. and their policies relating to AI. This paper considers how AI policy is being developed and managed in the U.S. to address its national interests and how this has developed between the Obama Administration and the Trump Administration. This thesis is constructed as a case study of how a state responds to and manages new technological advances.

In their analysis of what constitutes a good case study, Halperin and Heath (2012: 205) posit that case study results should exhibit internal validity towards the researched topic, and external validity towards the general debate of the case and comparative context. As the case study is built on the analysis of a single case, it cannot be used to test theory openly. Thus, inferences generated by it should be treated with caution (ibid.: 206). Political science researchers employ the case study method because it represents a powerful tool for examining if theories and concepts shift, and whether the theories function in other cases in the same manner as the original case (ibid.: 207). Although a common research method in IR, the case study design is not always a simple method to employ in practice. The goal of a good case study should be limited to the production of knowledge about the selected case (Lamont, 2015: 137).

Gerring (2004: 342) defines the case study as “an intensive study of a single unit for the purpose of understanding a larger class of (similar) units”. Moreover, he postulates that
case studies are more useful for forming descriptive inferences, and that conclusions should not be drawn before considering the single-unit/cross-unit options available in a specific research context (Gerring, 2004: 346). When discussing the strengths and weaknesses of the case study method, Gerring identifies a series of characteristics that either qualify or disqualify the need for this method. The key characteristics of relevance within this thesis are, first, that inferences need to be descriptive, second, focus on internal case comparability is given precedence over external case representativeness and, third, the strategy of research is exploratory rather than confirmatory (ibid.: 352).

This case study focuses on the U.S. to form an in-depth descriptive account of the policy framework of AI within the U.S. along with its management in terms of addressing U.S. national interests. Furthermore, the thesis focuses on internal case comparability to better understand how different matters from the three reports released by the NSTC influence the drafting of the policy. In addition, considering the limited nature of previous research on this topic, the thesis follows an exploratory research strategy to generate a new understanding on how AI policy is developed and managed in the U.S. and how this might have changed between the two Administrations.

4.3 Analytical framework and data collection: qualitative content analysis

In addition to the case study method, this thesis also employs content analysis. Content analysis is defined as an activity in which “researchers examine artifacts of social communication” (Berg and Lune, 2012: 353). Holsti (1969: 14) defines content analysis as “any technique for making inferences by objectively and systematically identifying specified characteristics of messages”. Content analysis is a well-established qualitative research method that allows researchers to scrutinize large amounts of data derived from documents, reports or other visual and textual materials by employing coding and categorization as its active tools to explore beliefs, attitudes and preferences of actors (Lamont, 2015: 89; Halperin and Heath, 2012: 177).

By implementing this method, the researcher can analyze materials for clues on the construction of AI policy through national interest. The process of analysis starts by first, scrutinizing existing literature and theories of AI within IR for reoccurring key words and concepts that can guide the coding process. Second, a new coding system is developed based on a deductive method, followed by the start of analysis. A deductive approach entails immersing the researcher in theoretical knowledge existing in the field of study, herein the field of IR. The knowledge is then employed to develop a hypothesis, herein that AI policy is
constructed and managed in accordance with U.S. national interests. It then proceeds by coding certain words or text fragments for specific themes that the researcher is interested in gathering data on. Specific patterns will start emerging and the analysis process can proceed (Lamont, 2015: 90-91). The data is then analyzed, and the findings are utilized to either confirm or invalidate the hypothesis. Last, the findings guide the revision of the theories and/or models in the study field (Harrison and Callan, 2013: 29). By employing content analysis, the researcher is using a highly transparent research method that enables the analysis of a wide range of textual and non-textual materials (ibid.: 27).

This content analysis focuses on the policy proposals of the NSTC signed into effect by President Obama in 2016. This method is particularly relevant in helping reveal and decode the role of American national interests in the development of AI policy. By identifying the policy and the language employed in its drafting, one may comprehend the role of U.S. national interests in the construction of AI policy as well as how this is developed and managed. The proposed primary material for the analysis is policy prescriptions outlined by the NSTC for the Obama Administration. The primary material includes a set of three reports published in October and December 2016 by the NSTC and the Executive Office of the President: ‘The national artificial intelligence research and development strategic plan’ (United States, 2016a), ‘Preparing for the future of artificial intelligence’ (United States, 2016b) and ‘Artificial intelligence, automation and the economy’ (United States, 2016c).

The analysis starts by examining the primary material and describing the structure of the reports, main areas of interest and definitions of AI. Following, the reports are codified according to certain words or text fragments as informed by previous knowledge in the field of study and the theoretical framework of realism, in this case ‘security’. Following this, the reports are searched and codified for words such as ‘national’, ‘international’, ‘global’, ‘country’, ‘countries’, and ‘leader’ to uncover specific patterns in the way the reports are phrased in terms of international and global considerations. The coding categories have resulted from the deductive approach used in this thesis. Additionally, they have been further developed in accordance to realist theory and concepts present in IR, as theoretical models and ideas have informed and guided the research process. Furthermore, the thesis is including a comparison of the developments from the Obama Administration to the Trump Administration. This is done by coding two policy documents, namely, ‘FY 2019 Administration research and development budget priorities’ (United States, 2017) and ‘Science and technology highlights in the first year of the Trump Administration’ (United States, 2018), according to the mentioned themes. The comparison starts by coding the documents for specific words, namely ‘security’, ‘leader’,
‘national’, ‘international’, ‘global’, ‘country’ and ‘countries’ to infer developments in and comparisons between the reports from the Obama Administration.

Additionally, the paper is employing various other materials, such as reports on the potential impact of AI technologies on states and its powers, foreign policy and security risk analyses, research articles from academic journals, books and other materials which are then used to triangulate the findings and ensure a higher degree of validity. The materials are collected by searching various journal databases for up-to-date articles and research papers and by accessing the webpage of the aforementioned public service agencies.

4.4 Limitations and delimitations

There are certain limitations to the case study method. One common criticism of the case study method is that it lends itself to selection bias on the researcher’s part, with no other generalizing capabilities drawn upon besides the limited number of cases selected by the researcher (Lamont, 2015: 132). Hodkinson and Hodkinson (2001) argue that the method can accumulate large amounts of data, making it difficult to process by researchers; moreover, the method can prove to be costly if attempted on a large scale, as the process of collecting and analyzing data is time and resource-consuming. Additionally, there exist limitations to the content analysis method. Harrison and Callan (2013: 27-28) argue that while certain measures can be used to maximize intracoder and intercoder reliability, the method finds it difficult to permanently eliminate subjectivity. This thesis tries to minimize the impact of limitations on its study. The case selection process has been guided by literature on AI ethics, risks and applications, drones, emerging transformative technologies as well as literature on power and security. Furthermore, this thesis focuses only on the U.S. and does not try to make generalizable statements. The thesis aims to increase validity of its findings by employing triangulation of data when available and controls the amount of data collected and analyzed to reduce the impact of potential limitations.

Additionally, this thesis exhibits a series of delimitations, limits set by the researcher. The research process focuses only on the U.S. as a case. Additionally, it concentrates exclusively on the Obama and Trump Administrations, as it represents the most recent and comprehensive development for AI policy in the U.S. The analysis centers on three reports from the Obama Administration and two reports from the Trump Administration, as those are the only reports available through the NSTC and OSTP websites from each Administration. As
access to material was limited, it was not possible to pursue a quantitative study, and it was decided to focus on a qualitative study instead. Additionally, the allocated space allowed only for an analysis focused on the key issues mentioned.
5 Key reports and data assessment

As mentioned, this thesis is analyzing three reports published by the NSTC in 2016 for the Obama Administration as its primary material for analysis. This section briefly presents each paper to the reader and continues with the analysis process more broadly by employing content analysis as its method and by coding and categorizing the reports for words or themes relevant to the analysis process, mainly security and international and global considerations. Each of the three reports underlines different areas of interest.

Whilst Report A highlights various aspects of AI such as applications for public good, regulation, research and workforce, economic impacts, fairness, safety and governance, global considerations and security and preparedness for the future, Report B emphasizes research and development strategies for investment in AI research, human-AI collaboration, ethical, legal and societal implications, safety and security of AI systems, and public datasets and environments for AI training and testing. Last, Report C exclusively stresses the impacts of AI on automation in the economy. The following analysis firstly examines each report, then looks at the topics of security and international implications. A table summarizing the reports can be found at the end of this chapter.

5.1 Report A: ‘Preparing for the future of artificial intelligence’

The first report ‘Preparing for the future of artificial intelligence’ (United States, 2016a) was released by the NSTC in October 2016. The report contains twenty-three policy recommendations in areas of public interest such as the public good, regulation and security. The report starts with a brief history of AI, then proceeds by employing a working definition of AI throughout the report and providing a concise summary of the current state of AI. When defining AI, the report acknowledges that there is no universally accepted classification of AI by practitioners, opting to present a set of three common approaches to AI developed by experts, researchers and business investors (ibid.: 6-7). These are focused on behavior requiring intelligence and rationality, as it is described as “systems that think like humans […] act like humans […] think rationally […] and systems that act rationally” (ibid.: 6). The report takes up a number of issues, such as economic impacts, research and applications for public good (ibid.: 1-2). However, most importantly, the report addresses regulation, governance, global considerations and security.
In discussing AI and regulation, the report notes that the approach to regulation of AI-enabled products to protect public safety should be guided by an assessment of risk aspects that AI may reduce, and risk aspects that the technologies may increase (United States, 2016a: 1). If the risk falls within margins of an existing regulatory regime, the policy discussion should consider if existing regulation adequately addresses the risk, or whether the regulation should be adapted to the introduction of AI. Moreover, if the policy responses to the introduction of AI risk to increase the cost of compliance or slow down the development and adoption of crucial innovations, policymakers should consider adjusting their responses to further accommodate lowering the costs and barriers of innovation without impacting safety or market fairness (ibid.).

Regarding the importance of fairness, safety and governance, the use of AI in making consequential decisions about people, replacing traditional human-driven bureaucratic processes has led to concerns about ensuring justice, fairness and accountability. The use of AI to control physical-world equipment leads to concerns about safety, especially for systems exposed to the full complexity of the human environment. Consequently, the report acknowledges the importance for AI practitioners in learning from and developing safety cases for the technology, risk management and risk communication from previous safety-critical systems and infrastructures (United States, 2016a: 2-3). Moreover, AI practitioners are tackling fairness and safety together, as they strive to avert undesirable behavior and generate confidence for stakeholders that malfunctions are unlikely.

On global considerations and security, the report emphasizes that AI raises policy uncertainties across a range of areas in international relations and security. AI represents a topic of interest for various states, multilateral institutions and other stakeholders as they have begun to engage with the technology. Thus, dialogue and cooperation could facilitate AI research and development (R&D) and harness its power for good, whilst tackling shared challenges. AI currently is key in cybersecurity, with an increasing role in both defensive and offensive cyber measures. Creating and operating secure systems requires time and expertise; automating the work partly or fully may aid augment security across a broad range of systems, lower costs and maintain a rapid response to detect and react to evolving threats. Additionally, hindrances arise from the prospective use of AI in weapon systems; nonetheless, the move from human-controlled weapon systems involves certain risks and raises legal and ethical questions. To succeed in incorporating autonomous and semi-autonomous weapon systems in the U.S. defense, it is important for government institutions to act in accordance with international
humanitarian law, control proliferation, and work with allies to develop standards for development and use of such weapons (United States, 2016a: 3).

In preparing for the future, the report underlines the potential of AI to be a major driver of social progress and economic growth if government, civil society, the public and industry will work together to support the development of the technology, with thorough attention to its potential and to managing its risk. The U.S. government must play several roles, such as convening conversations about important pitfalls and setting the agenda for public debate, monitor the safety and fairness of AI applications being developed, adapting regulatory frameworks to encourage innovation while protecting the public, provide public policy tools to ensure that disruptions in the means and methods of production enabled by AI increase productivity and avoid economic consequences for specific sectors of the workforce (United States, 2016a: 3-4).

5.2 Report B: ‘The national artificial intelligence research and development strategic plan’

The second report to be analyzed is ‘The national artificial intelligence research and development strategic plan’ (United States, 2016b), also released by the NSTC in October 2016. The report identifies seven strategies for prioritizing Federal-funded AI research in the U.S., as well as two recommendations for better implementation of the strategies. The report starts by presenting the purpose of the National AI R&D plan and its desired outcomes, then proceeds to describe a vision for advancing national priorities with AI. Moreover, the report succinctly introduces the current state of AI in the U.S.

As outlined in the purpose of the national AI R&D strategic plan, research advances in AI technologies have enabled new sectors of the economy to impact our daily lives, like voice-assisted smart phones, financial trading, language translations and more. Additionally, AI advances are further contributing to social well-being in the form of environmental sustainability, public welfare, education and precision medicine (United States, 2016b: 5). However, the report stresses the increasing complexity of AI R&D environment; whilst past and present investments of the U.S government have generated innovative advancements in AI, other industries and non-profit organizations have become major contributors to AI. The report makes several assumptions about the future of AI. Firstly, it presumes that AI technologies will continue to expand in complexity and prevalence due to R&D investments...
by industry and government. Secondly, it supposes that the influence of AI on the public regarding education, employment, safety and national security will continue to increase, as well as on U.S. economic growth. It also assumes that industry investment will continue to intensify, as recent commercial breakthroughs have amplified the perceived revenues on investment in R&D (United States, 2016b: 6).

A vision for advancing national priorities with AI is portrayed in this report, with hope that AI will be safely used to benefit all members of society in the future; moreover, AI advancements could enhance well-being in all sectors of society and provide advancements in all national priorities. First, it could help increase economic prosperity through new products, services and markets, and help improve the quality and efficiency of various existing goods and services like logistics, transporting and manufacturing (United States, 2016b: 8). Second, AI could help improve educational opportunity and quality of life throughout a person’s life by employing virtual tutors able to create customized educational plans catered to each person’s interests, abilities and educational needs, could provide tailored health information designed to promote a healthy and active lifestyle, and could assist in daily repetitive tasks to further save time (ibid.: 10). Third, AI could help enhance national and homeland security by employing machine learning agents that can process large data sets and identify adversaries with rapidly changing tactics. Furthermore, virtual agents could provide security to sectors and infrastructure vulnerable to attack and could help decrease battlefield risks and casualties (ibid.: 11).

The current state of AI finds itself at the brink of the third wave of development and sees AI systems regularly outperforming humans in specialized tasks such as playing chess and answering trivia questions. Moreover, the pace of achievements seems to be increasing steadily, as is the prevalence of machine learning in best-performing systems. These achievements have been stimulated by a strong foundation of fundamental research; with an expanding research base, further advances are expected to take place in the near future. However, the U.S. is no longer the leading figure in the number of publications about AI (United States, 2016b: 12-13). Although the U.S. government has had a key role in AI research, private companies are active in AI R&D, increasing the number of patents for ‘deep learning’ and ‘deep neural net’, and direct investments in AI startups. Consequently, AI applications are generating substantial revenues for large corporations (ibid.: 12). However, AI systems still experience limitations, with progress being made in ‘narrow AI’, which performs specialized tasks, and very little advancements being noted for ‘general AI’, which can operate across various cognitive domains.
5.3 Report C: ‘Artificial intelligence, automation, and the economy’

The last report to be scrutinized is ‘Artificial intelligence, automation, and the economy’ (United States, 2016c) released in December 2016. The report encompasses three policy strategies devised to educate and prepare new laborers to enter the workforce, support workers who lose jobs, keep them attached to the labor force and tackle inequality. By employing these strategies, the report aims to make advanced automation compatible with productivity, high employment rates and shared prosperity more generally. The report opens with a short introduction, then proceeds to present a detailed account of the economics of AI-driven automation and concludes with three strategies focused on transforming the policy field of AI and automation in the economy.

The report states that since 2010, a new wave of innovation has been registered within the field of AI due to rapid advances in technology, such as the availability of big data generated by businesses, government and social media, the usage of large data sets to train more elaborate algorithms through machine learning, and access to computers with increased processing power. Consequently, this has brought questions about automation and their impact on the economy back into public discussion (United States, 2016c: 7). Technical innovation and economic expansion is engrained in American ingenuity, with AI-driven automation following previous historical development cycles. The report also references the World Economic Forum and the fact it acknowledged the importance of AI automation as a central economic and social development previously identified by experts in technology (ibid.: 8).

The report includes a number of studies focusing on the economy and the efficiency presented by the employment of robots. First, Graetz and Michaels’ study identifies that robots in 17 countries have contributed in average to a 0.4 percent growth in annual gross domestic product (GDP) between 1993 and 2007, accounting for about one-tenth of the overall GDP growth in the same period (Graetz and Michaels, 2015, cited in United States, 2016c: 7). Secondly, a study by Daugherty and Purdy concludes that AI could double annual economic growth rates in the U.S. and eleven other countries by 2035 (Daugherty and Purdy, 2016, cited in United States, 2016c: 8).
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<tr>
<th>Information</th>
<th>Structure of report</th>
<th>Areas of interest</th>
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<tr>
<td><strong>Report A</strong></td>
<td>Executive summary; Introduction; Public outreach and development of this report; Applications of AI for Public Good; AI in the Federal Government; AI and Regulation → Case Study: Autonomous Vehicles and Aircraft; Research and Workforce → Monitoring Progress in AI, Federal support for AI Research; AI, Automation, and the Economy; Fairness, Safety, and Governance; Global Considerations and Security → International Cooperation, AI in Weapons Systems; Conclusion; Recommendations.</td>
<td>Applications of AI for Public Good, AI and Regulation, Research and Workforce, Economic Impacts of AI, Fairness, Safety, and Governance, Global Considerations and Security, Preparing for the Future.</td>
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<tr>
<td>October 2016</td>
<td>Number of recommendations: 23</td>
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<td><strong>Report B</strong></td>
<td>Executive summary; Introduction → Purpose of the National AI R&amp;D Strategic Plan, Desired Outcome, A Vision for Advancing our National Priorities with AI, Current State of AI; R&amp;D Strategy → Strategy 1-7; Recommendations.</td>
<td>R&amp;D Strategies: Investments in AI research; Human – AI collaboration; Ethical, legal and societal implications of AI; Safety and security of AI systems; Public datasets and environments for AI training and testing.</td>
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<td>October 2016</td>
<td>Number of recommendations: 2 and 7 strategies</td>
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<td>December 2016</td>
<td>Number of recommendations: 3 strategies</td>
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To conclude, the three reports released by the NSTC have been examined and this has presented the reader with the areas of interest of each report, namely, security, economic and international considerations. By doing so, the research aims to facilitate the coding and
categorization process necessary for the analysis. The next subsections present more thoroughly the approaches to security and global implications of the U.S. in its development of AI policy.

5.4 Themes

This thesis has identified security, leadership, cooperation and positioning as the dominating themes in the reports and it has done so through the deductive process and guided by structural realism. The following subsections present each theme in more detail, with the findings illustrated as a table towards the end of each section.

5.4.1 Security

The first set of themes identified during the analysis process of the three reports are security inferences of AI (see Table B). This has been achieved through coding the texts for specific words and categorizing the results by the underlying theme. The three reports share a series of similar views in regard to the security considerations of AI technology. All three reports highlight national security and hypothesize that AI can be employed to enhance national security and system security, as they mention ‘security operations’ (United States, 2016a: 19), ‘national security’ (ibid.: 36), ‘security of AI systems’ (United States, 2016b: 27-28), and ‘national security projects’ (United States, 2016c: 43). The reports emphasize this in different ways. Report B and Report C focus on strengthening cybersecurity defense capabilities and programs developed by government agencies (United States, 2016b: 31; United States, 2016c: 30).

Report A focuses on security to a larger extent and emphasizes the need for increasing security in the field of AI as it mentions “increasing security of systems and applications” (United States, 2016a: 36) and “implementing security controls” (ibid.). The report underlines detecting and preventing fraud and ensuring the security of other AI systems by identifying and repairing vulnerabilities (ibid.: 9-10). Furthermore, the report focuses on more broad security aspects as well, such as the employment of unmanned aircraft systems (UAS) for military and border security operations (ibid.: 19), educating AI practitioners and students about ethics and security (ibid.: 32), and ensuring data integrity, privacy protection and availability (ibid.: 36), and establishing a government-wide policy on AWS compliant with national security (ibid.: 38). This means that the report focuses on a broad range of security
aspects of the U.S. Furthermore, it suggests how AI could be assigned to help decrease vulnerabilities in electronic security systems and strengthen existing traditional ones.

<table>
<thead>
<tr>
<th>Table B: Security</th>
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<tbody>
<tr>
<td><strong>Report A</strong></td>
</tr>
<tr>
<td>Extra security measures through machine learning (9); security vulnerabilities (10); military and border security operations (19); conducting “series of periodic studies on how AI will affect (…) national security” (23); teaching ethics and security to AI practitioners (32); increasing security of systems and applications (36); implementing security controls (36); national security (38)</td>
</tr>
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</table>

5.4.2 International and global considerations

As mentioned, the research identified AI inferences on global considerations in the three reports, focusing on leadership, positioning, and cooperation (see Table C). All three reports state that at the time of the publication, the U.S. was in a leadership position in AI technology, using phrases such as ‘world leader’ to underline the position (United States, 2016a: 35). Moreover, the reports emphasize their commitment to maintain the global hegemon position by employing action verbs such as ‘ensuring’ (United States, 2016a: 35; United States, 2016c: 4), ‘continued’ (United States, 2016b: iii; United States, 2016c: 4), ‘enable’ (United States, 2016b: 3), and ‘maintain’ (United States, 2016b: 15; United States, 2016c: 29). While Report B and Report C highlight that the U.S. is no longer leading the race in certain areas, such as in publication numbers (United States, 2016b: 12) and funding towards job training (United States, 2016c: 36), Report C also emphasizes that there is a risk for the U.S. to lose the position of ‘global economic leader’. Additionally, Report A argues that AI poses crucial policy questions across a range of areas in international relations and security and has been the topic of interest in recent international discussions (United States, 2016a: 3).
### Table C: International and global considerations

<table>
<thead>
<tr>
<th>Considerations</th>
<th>Report A</th>
<th>Report B</th>
<th>Report C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>“AI poses policy questions across a range of areas in international relations and security (…) topic of interest in recent international discussions”</strong> (3); monitoring the state of AI in other countries (24); international cooperation, work together to identify opportunities for cooperation and develop international frameworks, international engagement (35); global issues → disaster preparedness, climate change, wildlife trafficking, jobs (ibid.); bilateral discussions – Japan, Republic of Korea, Germany, Poland, the UK and Italy (ibid.); international norms and obligations (38)</td>
<td>“opportunities for industrial and international R&amp;D collaborations that advance U.S. priorities” (5)</td>
<td>“clear challenges facing U.S. workers, the current level of investment in active labor market policies (…) by the United States is low by both international and historical standards” (35)</td>
<td></td>
</tr>
<tr>
<td><strong>“The United States, a leader in AI R&amp;D”</strong> (35); “ensuring U.S. international leadership and economic competitiveness” (ibid.)</td>
<td>“continued U.S. leadership in networking and information technology” (iii); “enable the United States to remain a world leader in AI” (3); “The United States no longer leading the world in publication numbers” (12); “to maintain leadership position in this area” (15)</td>
<td>“ensure America’s continued leadership in the creation and use of AI” (4); “the United States has the potential to accelerate productivity and maintain strategic advantages that result from American leadership in AI” (29); failing to educate in AI skills → losing position as “the global economic leader” (32) “Increasing funding for job training (…) still leave the United States far behind other European countries” (36)</td>
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Furthermore, Report A stresses that the U.S. should continuously monitor the state of AI in other countries to discover partners for international cooperation on matters of AI, and
work together to identify opportunities for cooperation, develop international frameworks, and international engagement concerning AI (United States, 2016a). The report argues that this will enable the U.S. to be better prepared to confront global issues such as disaster response preparedness, climate change, wildlife tracking, jobs creation, and security (ibid.). Report A and Report B highlight that the U.S. has identified a series of opportunities for industrial and international R&D collaborations that advance American priorities, and have conducted bilateral discussions with Japan, the Republic of Korea, Germany, Poland, the United Kingdom and Italy to develop a series of international norms and obligations for AI (United States, 2016b: 5; United States, 2016a: 35-38).

The previous sections have concisely summarized the contents of the three reports compiled by the NSTC and released by the Obama Administration in 2016. Furthermore, the thesis has presented the reader with the underlying themes related to the drafting and management of AI policy in the U.S. and the impact on national interests. The thesis continues by scrutinizing the implications and results of the policy proposals during the Trump Administration, their overall effects on development and oversight of AI technologies, and consequences for addressing national interests of the U.S.
6 Analysis and discussion

During the Obama White House Administration, the transformative capacity of AI was recognized both by the President and the NSTC. The NSTC drafted three reports assessing the capabilities of AI for national security, economy and global relations of the U.S., and developed a series of policy prescriptions and strategies aimed at harnessing the force of AI. This power would be employed to advance the interests of the U.S. in the global arena and help maintain the position as a global hegemon, specifically on matters of AI. The reports were publicized and signed into effect by President Barack Obama in October and December 2016. As President Obama mentioned in a 2016 interview with Wired magazine:

The way I’ve been thinking about the regulatory structure as AI emerges is that, early in a technology, a thousand flowers should bloom. And the government should add a relatively light touch, investing heavily in research and making sure there’s a conversation between basic research and applied research. As technologies emerge and mature, then figuring out how they get incorporated into existing regulatory structures becomes a tougher problem, and the government needs to be involved a little bit more. Not always to force the new technology into the square peg that exists but to make sure the regulations reflect a broad base set of values. Otherwise, we may find that it’s disadvantaging certain people or certain groups (Obama, cited in Dadich and Anderson, 2016)

This process is echoed within AI policy development in the U.S. during President Obama’s mandate. Herein, the Administration fostered the development of AI technologies generally, providing a light touch in the form of regulation for specific uses of AI such as self-driving cars and drones. This follows what Scott, Heumann and Lorenz (2018: 3) mention, that protecting social equality and representation is essential. Additionally, the first stage benefits from the economic capabilities that constitute American hegemony. Starting with the second stage, regulating AI technology becomes more difficult, as the government needs to intervene and act as the leading authority in the field to assure a broad set of values are represented and that the technologies are not disadvantaging anyone. In the case of this thesis, the NSTC developed three reports containing policy prescriptions and considerations for the field of AI. Since January 2017, Donald J. Trump has been the President of the United States of America, and a new set of issues has been identified as vital for the Administration (White House Office, 2018a), marking a departure in tone and interests from his predecessor.
The following section presents a comparison of the AI policies of the two Administrations. The comparison starts by analyzing the two reports ‘FY 2019 Administration research and development budget priorities’ (United States, 2017) and ‘Science and technology highlights in the first year of the Trump Administration’ (United States, 2018) for differences and similarities related to the themes of security, leadership and international relations. Lastly, this thesis is investigating what role national interests of the U.S. play in AI policy development and management.

6.1 Developments in the Trump Administration in a comparative perspective

The analysis of the two reports illustrate the developments between the reports from the Obama Administration to the current Administration (see Table D). Related to the topic of security, the analysis reveals that the first report stresses the priority of national security, using phrases such as “security of Americans […] is paramount” (United States, 2017: 2), “prevent terrorist attacks, […] and secure American borders” (ibid.), “security through energy independence” (ibid.) and ‘national defense’ (ibid.: 1) to describe U.S. security goals. The second report also reveals that cybersecurity is of utmost importance, as is homeland defense and national security (United States, 2018: 7). This can be achieved by “prioritizing U.S. leadership in emerging technologies for national security” (ibid.).

In comparison to the reports published by the Trump Administration, the reports from the Obama Administration share similar priorities, as issues of national and homeland security, cybersecurity and military and border security are emphasized. Thereby, both the Obama and Trump Administrations exhibit certain similarities, herein accepting the realist view that military and economic capabilities contribute to the hegemonic position of the U.S. in the international arena. Furthermore, all the reports share the supposition that security, in all its various forms, is of extreme importance to both Administrations, and that the development of foreign and AI policy will benefit the U.S. as it will be a way to gain power through AI technologies and pursuing hegemony, as power will assure the survival of the U.S.

These reports can be further compared to those released by the Obama Administration, and guided by Scott, Heumann and Lorenz’ (2018: 3) toolset, which focuses on communication, bilateral and multilateral engagement as well as international initiatives. By actively engaging in policy making, the previous White House Administration has tried to manage the emerging issue of AI. Furthermore, by promoting multilateral engagement and
creating partnerships with other states, as shown in Table C, the U.S. had been furthering their national interests by securing its reputation as global leader in AI and a hegemon of the international system. The U.S. is striving to enhance its power by increasing its global wealth to dominate the international system. The Trump Administration, however, has expressed reluctance in continuing this strategy, withdrawing the country from previous international agreements such as the Paris Climate Accord (Calfas, 2017) and the Trans-Pacific Partnership (Baker, 2017), adopting instead a conservative stance that supports American national interests above anything else. Thereby, the Trump Administration has not focused on bilateral and multilateral engagement on the global level as suggested by Scott, Heumann and Lorenz (2018: 3).

Additionally, on the topic of leadership, the importance of ‘American leadership’ is highlighted in both reports by the Trump Administration, particularly in achieving priorities of “national security, economic growth, and job creation” (United States, 2017: 1). The first document also mentions “American economic and technological leadership” (ibid.: 2), as well as “America’s standing as a world leader” (ibid.). The Obama Administration also stressed taking a leadership position in this area. Allen and Chan (2017: 10) see preserving technological leadership as paramount, this is evident in the reports where ‘leadership’ is mentioned extensively and show the wish for a hegemonic role.

The first report of the Trump Administration also puts a high emphasis on internal affairs, as exemplified in the fact that all of the Administration’s research and development priority areas begin with the word ‘American’, such as ‘American security’, ‘American prosperity’ and ‘American energy dominance’ (United States, 2017: 2). The second report also emphasizes the national level, as it describes ‘our economy’, ‘our nation’, ‘our country’ and ‘our lives’ (United States, 2018: 4-9). This means that the Trump Administration has further prioritized national interests through an emphasis on national strength.

Moreover, cooperation is only mentioned in brief at the end of the first report, signaling the different levels of importance given to the international and national level. Both reports mention international partners, but only briefly (United States, 2017: 4; United States, 2018: 9). This signals that the Trump Administration is departing from the position held by the previous Administration, where, as shown in the analysis, cooperation was considered a priority. The Trump Administration opted to concentrate firstly on American national security, American economy and leadership, and deprioritize American involvement in international affairs. Other differences between the two Administrations can be also observed, namely how hegemony was pursued by the Obama Administration and how it perceived the U.S. as a global
leader. The Trump Administration stands in the same tradition, although it has changed the means and the goals of pursuing hegemony, deprioritizing international dialogue and cooperation with other partners, and focusing on a nationalistic, American approach instead.

<table>
<thead>
<tr>
<th>Table D: Thematic analysis of policy papers under President Donald Trump</th>
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<tbody>
<tr>
<td><strong>Security</strong></td>
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<tr>
<td>‘FY 2019 Administration Research and Development Budget Priorities’</td>
</tr>
<tr>
<td>National defense (1); priority of national security; security paramount (2); secure borders and prevent terrorist attacks (2); security through energy independence (2)</td>
</tr>
<tr>
<td>Cybersecurity (3); “ensure national security” - homeland defense and national security (7); “prioritizing U.S. leadership in emerging technologies for national security”</td>
</tr>
<tr>
<td><strong>Leadership</strong></td>
</tr>
<tr>
<td>“American leadership” in achieving priorities of “national security, economic growth, and job creation” (1); “American economic and technological leadership” (2); “maintain America’s standing as a world leader” (in medicine) (2)</td>
</tr>
<tr>
<td>‘American Leadership in Emerging technologies summit’</td>
</tr>
<tr>
<td><strong>International</strong></td>
</tr>
<tr>
<td>International partners (4)</td>
</tr>
<tr>
<td>International partners (9); “Americans need (…) in today’s information-driven, global economy” (5); “our economy, our nations, and the planet as a whole” (9); Global exchange (6)</td>
</tr>
<tr>
<td><strong>Position</strong></td>
</tr>
<tr>
<td>“[T]he next generation of technological breakthroughs that will transform our lives and transform our country, and make us number one in this field” (4)</td>
</tr>
<tr>
<td><strong>General</strong></td>
</tr>
<tr>
<td>The Administration’s R&amp;D priority areas → all begin with “American…” (ex. American security, American prosperity, American health = focus more national</td>
</tr>
</tbody>
</table>

In conclusion, this section has shown how AI policy has developed in the Trump Administration by taking a comparative approach to the documents released by the Obama Administration. The analysis has revealed a series of similarities regarding AI policy development and management in the U.S. and the way it addresses American national interests. The realist view of the international system as a self-help mechanism has remained constant.
However, a departure from the previously held position of the U.S. as leader of the international arena, in connection with cooperation and partnerships, as well as a deprioritization of international cooperation on AI put the Trump Administration on a different path, moving further away from liberalist prescriptions of cooperation towards a more isolationist approach.

6.2 Addressing national interests within AI policy in the U.S.

When analyzing the policy prescription for AI in the context of realist theory in the U.S., a series of patterns emerges. As mentioned previously, realism has traditionally been the guiding theory in developing foreign policy in the U.S. since the Cold War and experienced a revival at the beginning of the 21st century (Thayer, 2010). The AI policy proposals developed by NSTC are consistent with Thayer’s four pillars of realism, as presented in the theoretical framework of this thesis. Thayer’s pillars are evident, as the AI policy proposals, on the one hand, seek to assert the U.S.’ power in international politics in terms of national security and economy, and on the other hand, advance its national interest of continuing to lead and innovate in the AI technology sector. This also follows Scott, Heumann and Lorenz (2018: 3), as they mentioned several important goals when discussing policies surrounding the Internet: pushing for national economic interests, concentrating economic power, as well as initiating international dialogues. This can also be seen in relation to AI policy in the U.S., as this clearly shows the importance of gaining international and economic hegemony regarding this technology.

Global cooperation and the development of a shared policy regime for AI should be understood as a temporary strategy of the U.S. with like-minded partners and remains viable only as long as their interests coincide. Advancing an international regime to harness the potential of AI and coordinate its development and integration in the global economy and daily life of people is achieved for the self-interest of the U.S., generating dependency on American products and services, leaving the world open to power plays (Thayer, 2010). Furthermore, by developing leading AI solutions and drafting policy proposals to manage AI, the U.S. is pursuing its goal to remain securely in power and reasserting its commitment to protect its citizens from attacks and coercion attempts exerted by competing states (Walt, 2018). Furthermore, the U.S. has successfully employed its economic superiority to guide its foreign policy in relation to AI and in terms of addressing its national interests, such as political and security concerns.
Whilst this is evident and valid for relations enacted by the U.S. under the Obama Administration, the same cannot be said about the Trump Administration. By developing its strategy in the ‘Preparing for the future of artificial intelligence’ report, the Obama Administration reaffirmed the U.S.’ status as a global hegemon in AI. This was done in a way that also prioritized cooperation and partnerships, while still serving national interests before global ones. By comparison, the Trump Administration has not done so in a comprehensive manner, as there is a shortage in producing analytical reports surveying the state of policy in the U.S by the Executive Offices of the White House Administration (White House Office, 2018b). Moreover, the Trump Administration has left many positions unfilled in the Executive Offices, particularly in the OSTP, thus depriving the Administration of critical knowledge and counsel in matters of AI (Allen and Kania, 2017). The Trump Administration has been unable to develop a grand overarching strategy to include both foreign and AI policy, and is instead employing a more defensive realist approach to power and security, being risk-adverse towards pursuing power and hegemony as the ultimate goal (Mearsheimer, 2013: 78). This closely follows the defensive realist assertions of Waltz (2000), where the pursuit of hegemony is generally unwise, as the international system will punish those who seek too much power. Relating back to Allen and Chan (2017: 3-5), it is important that the hegemonic position of the U.S. does not end up in an arms race for superiority to avoid conflicts.

As mentioned, hegemony represents the prevalence and distribution of material resources, herein, mainly military and economic capabilities, political relations and security measures (Yetiv and Oskarsson, 2018: 7). This means that American hegemony is comprised of its armed forces, economic power and technologies. Furthermore, international cooperation and partnerships of the U.S. with its allies contribute to the creation and preservation of power, and hence hegemony. Therefore, hegemony acts as a tool through which the U.S. can exercise influence to achieve its national interests, herein security.

Specifically, AI policy in the Obama Administration was shaped by a series of factors. First, a rapidly evolving technology field and prosperous economy contributed towards expanding economic capabilities of the U.S. with knowledge and funds. Second, a prepared military engaged in various missions around the world contributed towards the U.S. possessing a strategic advantage in key parts of the world. Third, electronic surveillance and traditional security capabilities contributed towards maintaining the safety of the U.S. from foreign attacks. Last, the Obama Administration maintained an open dialogue and bilateral relations with its strategic partners, as well as with various other states around the world. This can be seen explicitly within the AI policy documents, and it represents means through which the
Obama Administration planned to manage AI technology and achieve national interests through economic contributions, research funding, military capabilities, security issues, and multilateral and bilateral engagement.

The Trump Administration has made a clear departure from its predecessor’s assessment and choice in foreign policy, opting to prioritize American national interests above its role as global leader in AI and position as an international hegemon, as highlighted by the language employed in official documents, as the focus was on ‘national’ and ‘American’ regulations for commercializing autonomous systems, integrating UASs in the airspace system and enabling deployment of automated vehicles onto roads (United States, 2017; United States, 2018). However, while this differs substantially from the Obama Administration, its objective remained the same, namely accomplishing national goals. Thereby, the Trump Administration adheres to an even larger degree to the realist idea of self-interested behavior of a state and general dissent to cooperate on the mitigation of major problems in the international community (Thayer, 2010). As proposed by structural realists like Mearsheimer (2013: 78), the structure of the international system forces states to pursue power. This is relevant for the case study of this thesis, as it illustrates how the U.S. continues acting in a realist manner, even expanding upon this, as there has been a change in leadership and approach to issues and strategies.

Structural realism considers power as a means to an end, with the end representing state survival (Mearsheimer, 2013: 78). To gain power and consequently attain national goals such as survival, the U.S. has sought to maximize its power in various ways through its Presidential Administration. This has been achieved through the creation of a policy regime for AI aimed at stimulating the creation and adoption of applications to expand the societal, economic and military capabilities of the state. By doing so, the U.S. has demonstrated both how it is managing and expanding AI technology, and how it has addressed its national interests and accomplished its goals, herein becoming a leader in AI and remaining ahead of other challengers. Furthermore, the increasing threat of the People’s Republic of China in the field of AI can be categorized as a definitive contributing factor towards the development of American AI policy during the Obama Administration, as the U.S. tried to maximize its power and gain a hegemonic position (Allen and Kania, 2017).

This has been achieved by the Obama Administration by adopting an AI policy that promotes equal funding and development of civilian and military AI applications through various federal and state agencies such as DARPA, IARPA, and the National Science Fund. Additionally, the U.S. has reformed its educational policies to accommodate AI and promote
STEM study programs. By doing so, they have demonstrated the ability to both manage and develop AI technologies effectively through equal distribution and adoption plans of AI applications in society and economy alike, whilst also ensuring that national interests such as enhancing economic capabilities that contribute to the creation and maintenance of hegemony have been met.

To sum up, militarily, the U.S. has achieved its national interests by ensuring its armed forces are distributed in key strategic positions around the world in to be able to react to any security threat towards itself or its allies. Furthermore, by stimulating technological R&D through federal grants, by investing in the diversification and wide adoption of AI in various sectors of the economy and by fostering STEM educational programs, it has created global dependency on American services and products in the field of AI, and thereby, furthered its national interests. Consequently, both the Obama Administration and the Trump Administration has influenced the development and management of AI policy to address national interests, as there are references to economic contributions, research funding, military capabilities and security issues. Both Administrations tried to expand the societal, economic and military capabilities of the state to maximize its power within the field of AI, as a means of addressing American national interests.

However, this has been achieved in different ways, as the Obama Administration, on one hand, focused on expanding the economy through numerous technological discoveries and by generating knowledge in AI technologies, keeping the country secure through traditional security means and expanding the use of cybersecurity in defense capabilities along with maintaining and expanding diplomatic relations with regional and international partners and allies. The Trump Administration, on the other hand, prioritized and emphasized American national interests at home and followed the idea of self-interests and general dissent to cooperate. Thereby, both Administration illustrate how the U.S. continues to act in a realist manner, despite change in leadership and approach.
7 Conclusion

To conclude, this thesis has investigated the development and management of AI policy in the U.S. as a means of addressing its national interests as well as how this has developed from the Obama Administration to the Trump Administration. The role of national interests in the construction of AI policy in the U.S. is to guide how certain issues are framed throughout its development and management, as illustrated by key points within the reports, such as security and global hegemony. Moreover, this has developed and changed from the Obama to the Trump Administration. As both Administrations present characteristics of military, economic and social capabilities to various extent within their AI policy proposals, they are thereby recognizing the importance of AI technology in conducting international politics, as well as how AI technology contributes to the construction and upholding of hegemony internationally. While the Obama Administration stressed the importance of military and technological capabilities by engaging the military in different parts of the world and developing regional and international partnerships and relations with various other states, and by employing new technological means of ensuring security of the U.S., the Trump Administration opted to prioritize national interests above international interests and acts in a self-interested manner to achieve national interests of the U.S., such as security. Both Administrations have worked towards achieving the same goal, herein accomplishing national interests, although they have employed different strategies, albeit consistent with realism.

The research questions were developed through the discovery of a gap in the existing research in the field of AI in IR, as it is a new and relatively unexplored area. However, research on this topic is of utmost importance, as AI is set to have an impact on relations between states, and as technology is an influential part of the conduct of international politics and an expression of political values. In addition, AI has developed rapidly during the past few years, has great transformative powers, and the potential to reshape national, economic and security fields. The U.S. is one of the most active stakeholders in AI, as demonstrated by the Obama Administration’s recognition of the potential of AI for security, the economy and global relations. Consequently, the U.S. has asserted its national interests by becoming the global leading authority in AI research and development along with becoming the first country to develop AI policy.

The literature review examined the ethical and practical risks of AI, as well as research on drone proliferation, policy considerations for national security and foreign policy, as well as an examination of power and security. Furthermore, the thesis has briefly investigated
structural realism as an analytical framework for developing appropriate policy responses to issues of national security and foreign policy and has shown how it has been the theoretical underpinning of both the Obama and Trump Administrations.

The thesis employed a social realist epistemology and ontology to conduct research. Additionally, this paper used the case study method and qualitative content analysis to explore the case of the U.S., using policy documents primarily from the Obama Administration, but also taking a comparative perspective to policy documents from the Trump Administration. The analysis investigated three reports issued by the NSTC for the Obama Administration that assessed the potential of AI in areas of security and global relations. The reports focused on different areas of interest such as public good, fairness, research, safety and the economy. All of the reports were discussing issues of security, as they emphasized how AI could contribute to enhancement of national security. Last, regarding global considerations, all three reports acknowledged the leadership position the U.S. held under the Obama Administration as well as the necessity for international cooperation.

Two issues were brought up in the analysis and the discussion. First, a comparative analysis of the AI policies of the Obama and Trump Administrations, and second, the theory of structural realism and the role of national interests in AI policy in the U.S. The position of the Trump Administration has been focusing on national goals, and this was highlighted by the use of words such as ‘our’ and ‘American’. It further deprioritized issues of international cooperation in comparison to the Obama Administration which highlighted the importance of leadership and cooperation. Regarding theory, the thesis examined how the Obama Administration employed realist theory to develop its AI strategy to address national interests in terms of emphasizing the U.S. as the hegemon in AI. The Trump Administration, in turn, changed its approach towards foreign policy, and prioritized American national interest and security above international cooperation. The thesis addressed the research question and illustrated how AI policy in the U.S. is developed and managed by drawing on issues of national interests, such as national security, foreign policy and international cooperation.

As for future research, while military and economic capabilities were employed during the Obama Administration to further the involvement and cooperation of the U.S. in international affairs, the same cannot be said of the Trump Administration. As more than a year has passed since the start of the mandate, the Trump Administration has made it a common practice to review and renegotiate international accords and partnerships established by the Obama Administration without proposing alternatives for replacements. Additionally, the Administration has not requested the production of extensive new documentation on critical
issues for the Administration generally, and on the topic of AI particularly. As such, it is difficult to gauge the progress made in AI policy during the current Administration or begin new research to compare the two Administrations. However, similar research could be made on a larger scale for other new types of technologies or comparing across countries or sectors. For example, it could be interesting to compare the U.S. and China in how they construct policies regarding new technologies.

Moreover, there are two key issues that governments should consider during the development of AI policies in the near future. The first proposition is that polities should focus on assuring diffusion of AI technologies throughout society and ensure fair access and use of AI. Second, legislatures should work towards establishing ethical red lines for AI usage by evaluating concerns situated at the crossroads of IR and AI and develop policy encompassing them.
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