



Article

Evaluating The Application of AI to Enhance The US Government's Screening of Foreign Investments for National Security Risks

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Abstract: Foreign Direct Investment (FDI) is critical in driving economic growth, increased technological innovation, and interdependence in the globe. With foreign investments growing to concentrate on strategic industries like defense, artificial intelligence, telecommunications and energy, they present sophisticated challenges to national security. The Committee on Foreign Investment in the United States (CFIUS) has kept the United States at the leading edge in protecting national interests by scrutinising foreign investments that could pose any security or technological independence. Even with the efficacy of this framework, the existing screening procedure is mostly reactive and manual in nature, and as such, it lacks the capability to respond to the dynamism and complexity of contemporary global investment. The study examines how Artificial Intelligence (AI) can be incorporated into the U.S. foreign investment screening system in an effort to enhance efficiency, accuracy, and predictability in high-risk transaction transactions. The research based on the OECD Foreign Direct Investment Aggregated Dataset as an empirical base examines the trends, tendencies, and abnormalities in foreign direct investment flows into the nation, specifically the flows in the direction of the United States. The conceptual application of the AI methods like anomaly detection, clustering, and predictive modeling to the investment data are used in order to interpret investment data and predict the possible risks. This study builds up a framework that shows the use of AI to automate data processing and increase transparency and offer early-warning systems that can help the CFIUS identify strategic or non-transparent investments. The paper concludes that AI application in the process of foreign investment screening would allow the U.S government to stop doing the assessment reactive and instead make decisions based on intelligence. It highlights the need to govern AI ethically, share data among agencies, and train the system in order to ensure accountability and integrity of national security. The results add to the increasing overlap between technology and policy by demonstrating how AI can redefine investment control to form a more responsive and data-driven and future-oriented security tool.

Keywords: Artificial Intelligence (AI) in Investment Screening, Foreign Direct Investment (FDI) Risk Assessment, CFIUS and National Security, Predictive Modeling in Investment Analysis, Data-Driven Security Tools for Foreign Investments

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1. Introduction

A. Background

Mediation of foreign direct investment (FDI) is a platform of international economic integration that encourages innovation, employment, and engagement across the borders [1]. It allows the host economies to enjoy access to capital, high technologies and global

business networks which lead to growth in productivity and competitiveness. Although FDI is a probe of international prosperity, it is also a source of possible weakness when a foreign party acquires a dominant position in strategic assets, key infrastructure or new technologies with a national security interest. In contemporary geopolitics, investments are a form of the strategic instrument as well as an economic transaction. Governments all over the world have thus been more apprehensive of the security aspect of the flow of investment by foreigners. With the understanding that FDI has a dual nature, the United States came up with the Committee on Foreign Investment in the United States (CFIUS) as the key tool in evaluating national security risks that may be posed by foreign acquisitions and mergers. However, with the rise in the global economy being more digital and sophisticated, the pace, magnitude and complexity of investment activities has exceeded the capacity of the traditional screening systems [2]. These traditional methods are very dependent on human examination and filings and hence are less efficient in detecting hidden or even hidden investment threats. Against this changing environment, there is an urgent need to incorporate the sophisticated technological applications, especially Artificial Intelligence (AI), into the investment screening mechanisms to deliver timely and data-driven and precise risk analysis that would not suffocate the rightful economic cooperation.

B. Introduction of CFIUS to National Security

The CFIUS is the main government agency that oversees the national security effects of the foreign investments [3]. Its mandate involves reviewing transactions that might lead to foreign ownership of the U.S. business or assets that are important to the defense, infrastructure or technology industries. The process of review consists of thorough analysis of the ownership framework, corporate connections, and the strategic purpose of the foreign investors, and the evaluation of the geopolitical situation of the genesis of investment. Although CFIUS is an invaluable tool in ensuring the safety of the nation, its procedures are suffering some difficulties due to the nature of the modern investment ecosystem. The massive growth in the FDI flows in the world coupled with the expansion of complex corporate networks has stretched the effective capacity of the system to effectively identify and evaluate risks. In 2018, the Foreign Investment Risk Review Modernization Act (FIRRMA) extended the jurisdictional limits of CFIUS and gave it greater capabilities in investigating minority and non-controlling investments. Nonetheless, even after those reforms, the system does not make much use of inter-agency cooperation and manual analysis, which results in the possible information gaps and slow reaction. These structural constraints render the framework reactive - responding to filings and uncovered risks - instead of predictive, in which threats may be detected proactively with data-driven insights. Since the actions of the adversarial countries are becoming more complex in terms of investment strategies, CFIUS needs up-to-date technological adoption, including AI-based data analysis, to process enormous volumes of information, automate screening and enhance the effectiveness of the decisions [4]. Such a change would enable the United States to keep its national security on board as well as its policy of open and fair investment.

C. The Development of Artificial intelligence in Security screening

Artificial Intelligence (AI) has quickly redefined itself as a niche area of research to become a disruptive technology that is changing the way people interact with government and security agencies. Within investment screening, AI has the possibility of disrupting the way governments identify, assess and act on cross-border financial operations. Through AI features like machine learning, predictive analytics, and natural language processing, huge volumes of data that humans simply cannot analyze can be analyzed by AI, including corporate ownership structures and transaction records, geopolitical signals and market patterns. This analytical ability helps AI systems to identify relationships that are hidden, identify anomalous investment flows, and produce predictive risk scores of a potential foreign acquisition. In the case of CFIUS and other regulatory agencies, AI implementation might facilitate the evaluation procedure, which may not require manual data compilation to improve consistency and accuracy. Moreover, AI-based anomaly detection systems will be able to find the initial indicators of suspicious capital flows that

can be associated with strategic state influence or technological transfer attempts [5]. The natural language processing can help in the unstructured data sources: The news, policy statements and corporate disclosures can be analyzed and put into context to determine the motive of the investment. A combination of these AI-enhanced insights in the screening would not just speed up the risk detection process, but also will provide an active posture on national security. To be effective in the practice, it is important to tackle such challenges as data governance, transparency, algorithmic accountability, and inter-agency coordination. AI is a unique prospect to transform the current screening models of investments into something adaptive, evidence-based, and strong in a diverse global investment climate.

D. Foreign Direct Investment in Global Dynamics

The mobility and instability of the contemporary economy can be seen in the global Foreign Direct Investment (FDI) flows. FDI Aggregated Data set by OECD gives a clear picture of these capital movements, including financial flows, positions, and income among key economies and industries [6]. These data sets point to the directional theory of investment both inward and outward and show the influence of capital mobility in shaping national economic needs and geopolitical orientations. In the case of the United States, the FDI tendencies are economic indicators, as well as indicators of a possible strategic weakness, especially artificial intelligence, semiconductors, biotechnology and telecommunications. A study of multi-year FDI data shows that patterns are set such that the investors are state-backed or sovereign wealth funds and invest in the critical infrastructure or technology-driven enterprise. These trends are important to understand in order to come up with data-driven policies that can predict threats to national security. The study discusses the ways AI may be used to analyze large-scale FDI data to detect anomalies or clusters of data through machine learning methods that point to strategic investment processes. The combination of the OECD data enables the determination of the historical dynamics and generation of predictive indicators that should guide the CFIUS decision-making. Including the data analytics in the policy framework, the United States will be able to transition from the reactive scrutiny to the proactive and ongoing monitoring system [7]. The dynamic state of such integration is in favor of economic openness and security assurance, that is, as long as foreign investments remain beneficial to innovation and competitiveness, risks to sovereignty and technological leadership are reduced.

E. Problem Statement

In spite of the innovation in regulation of foreign investment, the present screening mechanisms of the U.S. government are not as predictive and integrative as they should be. The human analysis and reactive review processes involved in the CFIUS process are incapable of dealing with the increasing complexity of the global network of investments [8]. Current frameworks are not automated, do not have real-time analytics, and adaptive risk modeling to detect and measure security-sensitive transactions in advance. Besides, the raw data of investment and the variability of strategic threats present analytical problems that cannot be effectively resolved using the traditional systems. The research aims to bridge that gap by investigating the possibility of AI supporting CFIUS to become more predictive, data-driven, and transparent in its assessments and bolster national security, as well as encourage responsible foreign investment.

F. Research Objective

The main objective is to determine the application of AI in enhancing efficacy, precision, and anticipation in the screening of foreign investment in the United States [9]. The objectives of this studies are

1. To study the framework and constraints of the present CFIUS screening procedure.
2. To determine AI methods that can be used to measure the foreign investment risk.
3. In order to examine the international FDI patterns based on the OECD database in terms of security.
4. To come up with an AI-based model of actively screening investments.

5. To assess the ethical and policy implication of adoption of AI.
6. To make suggestions on how to incorporate AI in the U.S. national security system.

G. Research Questions

This study aims to establish the role of AI in improving the predictive capability and policy efficiency of CFIUS in screening foreign investments. The research questions of this studies are:

1. To what degree is the existing CFIUS setup effective in confronting threats to national security?
2. How can foreign investment risk be enhanced by AI methods?
3. What is the role of AI integration in enhancing predictive decision-making and policy-based decisions?

H. Significance of the Study

This study has a great importance to the policy makers, security analysts and to researchers exploring the marriage between technology, economics and governance. It adds to the emerging literature on the role of artificial intelligence in updating regulation systems that can protect national security [10]. The research presents an avenue through which CFIUS and other agencies dealing with foreign investments can shift their response-based control approach to proactive intelligence-driven control by proposing an AI-based approach to foreign investment screening. The AI implementation allows it to detect risky investment activity sooner, synthesize data between agencies better, and decrease the human element in decision-making. In addition to the efficiency in operations the study also highlights the issues of ethical use of AI, transparency and accountability in government processes. The implications of the findings in practical terms are to create early warning systems, data sharing protocols and algorithmic governance standards that can be generalized to other areas of national security. Furthermore, the research fills the gap in the economic openness and protection policy, implying that technology-based surveillance has the capacity to both lure legitimate foreign investments and reduce strategy abuse [11]. The study can be useful in enhancing the resilience of the U.S. in responding to economic and technological threats and fostering sustainable international cooperation in the global context of a rapid digital transformation and geopolitical competition.

Literature Review

A. Foreign Direct Investment and Security Concerns Evolution

It is a well-established fact that high rates of foreign direct investment (FDI) have been a major force behind economic integration in the world and the formation of capital, technology transfer, and increased employment rates. The view of FDI has however changed over the years to being not only an economic phenomenon but a phenomenon that is linked to issues associated with national security [12]. This growing presence of government-owned businesses, sovereign wealth funds, and investors in investments that have widely varying strategic interests have led governments to consider some forms of investment as having security implications to them. Foreign acquisitions started to be made in areas that were critical to defense, digital, energy, and new technologies and as global capital flow increased. Such a change highlighted the possibility of FDI as a source of geopolitical power or technology transfer. As a result, countries started putting up regulatory measures to filter and assess foreign investments to determine their danger. Investment screening concept became relevant with the occurrence of incidences of foreign actors having access to vital assets whose usage could be duo-use in nature. The awareness over the last 20 years has transformed the entire policies on investment in the world, with the focus being on the necessity of transparency, data-based control, and harmonious regulation. The contemporary concept of FDI, then, does not limit economic openness to protectionist policies designed to preserve technological independence and national security [13]. This development preconditions the investigation of ways in which sophisticated analytical software like Artificial Intelligence (AI) can transform screening systems to cope with the complexity of the international investment network increase and its national security consequences.

B. The Role and Capacity of CFIUS in the U.S. Investing Plan

The main regulatory organization that prevents the foreign acquisition is the Committee on Foreign Investment in the United States (CFIUS) which is in charge of investigating the foreign acquisitions that can threaten national security [14]. Its jurisdiction covers a broad spectrum of dealings that include takeovers, mergers and green field investments. Multi-agency reviews are administered by CFIUS, and they rely on the knowledge of the defense, intelligence, and economic departments to determine whether an investment project may cause foreign domination of sensitive assets or technologies. Although this framework has been effective in ensuring that key national interests are safeguarded, it is limited to shortcomings of manual operation and human-based assessments, as well. The growth of international FDI has demanded a surge in the number of cases to be reviewed, and the complexity of those cases frequently tests the analytical ability of CFIUS, and introduces delays in the resolution of cases. Besides, automated data integration has not been done thus it is difficult to identify the indirect or layered ownership structure meant to hide the original source of investment. Despite the extent to which CFIUS has been expanded in its jurisdiction and tightened the information-sharing tools, the system is still very reactive, acting in reaction to the filings submitted, but not proactively identifying any emerging threats. With the adoption of more advanced tactics by the adversarial actors, such as the deployment of shell corporations or minority holdings, CFIUS should focus on reshaping its assets to be capable of processing large volumes of data that are dynamic [15]. The process can be enhanced with the implementation of AI technologies that can automate the due diligence process, discover the influence patterns and offer predictive value. Appreciating the advantages and disadvantages of existing frameworks is why technological modernization is necessary in terms of national security in the dynamic environment of global investments.

C. The Artificial Intelligence in Contemporary Governance

Artificial Intelligence (AI) has turned out to be a necessary tool to enhance better decision-making and efficiency in analysis as a governance system [16]. The use of AI in public administration and the security field allows automating the complex data analysis processes that were previously handled by large amounts of manual work. According to its main benefits, pattern recognition, predictive modeling, and anomaly detection, institutions have the ability to handle large and multidimensional data within real time. When screened into investment, AI is able to study corporate relations, financial connections as well as transacting across borders and reveal concealed ownership or influence that can be strategically hazardous. The machine learning algorithms have the capability of continuously learning on the past cases optimizing their prediction accuracy to capture the new risk patterns before they become security threat factors. NLP may process unstructured sources of data like company filings, news articles, and geopolitical briefings in order to put the reasons and back story of a foreign investor into perspective. Additionally, the AI-based visualization systems can be used to help policy-makers in their work to transform the complicated data into the risk indicators that can be easily understood. Although these benefits exist, implementation of AI in governance is not a smooth sail. Such problems as the privacy of data, transparency of the algorithm, and ethical governance should be given extra attention to remain accountable and avoid abuse [17]. However, the need to develop timely and evidence-based responses to policy has increased the pace at which the use of AI in security-related regulatory frameworks is gaining interest. In the case of investment screening, in particular, AI can provide a unique chance to change the paradigm of reactive to proactive governance, which allows to identify suspicious actions faster, coordinate the actions of agencies better, and provide more stable results of decisions.

D. Risk Authoring by Data in Foreign Investment Screening

The analysis based on data has become one of the most important elements in assessing risks of foreign direct investments. Conventional risk assessments are based on the expert judgment and case by case analysis that, although important, is limited in time and data availability. The unparalleled complexity of world financial structures demands

more sophisticated analytical methods that are able to compose bulk data concerning the economies, corporations and geo politics. With the help of such datasets like international organizations, analysts are able to trace the tendencies in FDI inflows and outflows and differ between typical economic activity and unusual investment patterns. In this process, AI and machine learning methods are used to detect irregular trends, including rapid movement of capital, repeated transactions of high-risk jurisdictions, or unusual ownership. Predictive analytics are able to predict the likelihood of making some kinds of investments that result in technology transfers or sensitive infrastructure control. Besides, the clustering algorithms will enable investors to be grouped according to risk profiles, which will enable regulators to focus more on reviews, and the resources will be more efficiently distributed. The application of these data-based insights into policy-making frameworks would allow changing the practice of investment screening into a system of continuous monitoring [18]. This strategy will make sure that potentially dangerous transactions are identified in the early stages and will facilitate informed and evidence-based decision-making. The risk assessment based on data allows closing a gap between economic analysis and security intelligence, providing a solid basis to implement AI in the framework of the CFIUS and other mechanisms of national security to strengthen the accuracy, efficiency, and national security.

E. Issues and Morals in AI-Improved Screening.

The use of AI in screening of foreign investments poses serious dilemmas which should be addressed so as to be fair, accountable and effective. This is one of the key concerns regarding the reliability and availability of data because AI systems require large, high quality datasets in order to obtain valid assessments [19]. Inconsistent or biased information can result in the wrong risk-classification, thus damaging the real investors or missing actual threats. The other issue is algorithmic transparency: the regulators should know the way AI models produce the results to ensure the trust of the people and legal adherence. The application of AI also has some issues when it comes to ethical concerns of privacy because screening programs are likely to entail sensitive financial and corporate data. It is vital to ensure that data storage and processing is done in a secure manner to avoid abuse or illegal access. Moreover, excessive use of AI might exclude the experience of the human factor and the decisions made are not contextually sensitive or diplomatic. It is thus important to find the balance between automation and human judgment. Further complexities are presented by the inter-agency coordination and cross-border data-sharing as various jurisdictions might be different when it comes to AI governance standards. In order to address those issues, governments need to set up apparent ethical standards, auditing systems, and clarifiable AI models[20]. This will make sure that the technological tools do not substitute informed policymaking. These considerations are bound to enhance the legitimacy of AI-enabled systems, but more than that, they will make sure that such systems play a responsible role in achieving the national security goals without compromising transparency or economic openness.

F. Artificial Intelligence (AI)-Driven Investment Screening

Conceptual Framework. An AI-based foreign investment screening conceptual framework is a combination of technological innovation and institutional procedures to develop an operationally dynamic, data-driven, method of managing national security risks. This system starts with the systematic amalgamation of the data of various sources such as financial operations, ownership patterns, trade documents, and geopolitical pointers. This information forms the basis of AI-driven analytics where machine learning models are used to do clustering, anomaly detection and predictive risk scoring to detect potentially harmful investment activities. The analytical layer is the input to an interpretative mechanism which converts the output of computational methods into actionable intelligence to the policymakers. It is then topped off with a decision-support layer, which makes CFIUS and the other agencies review flagged transactions effectively and in a consistent manner. The structure focuses on ongoing learning whereby AI systems are able to make refinements in their predictions in terms of past review findings. It also integrates human supervision to provide contextual decision-making and responsibility where the decisions are high stakes. The adoption of such a system would

be accompanied by the use of standardized data-sharing procedures, inter-agency cooperation, and effective cyber security. Also, the governance structures should be transparent, auditable, and adherent to the ethical standards through algorithms. The application of AI to the U.S. government in a well-organized system of decision-making will help tackle the problem of foreign investment risks at a higher level, which can be prevented beforehand. The idea is a strategic step forward in regards to having a smart, resilient and future-oriented national security governance able to respond to the need to be open to global capital and the need to protect the critical national interests.

G. Empirical Study

In the article entitled *National Security and FDI Policy Ambiguity: A Commentary* by the author, Keyan Lai (2021), the author critically looks at the role of national security in the development and implementation of foreign direct investment (FDI) policies in leading economies of the world? The research points to the fact that ambiguity has become a characteristic of the modern FDI screening regimes since the governments intentionally ensure the flexibility in the interpretation of the policies to strike the right balance between the openness of the economy and the security protection. The author based his arguments on securitization and balance-of-power theories to claim that this ambiguity is not accidental but is a deliberate creation to offer the political actors discretionary authority in how to deal with cross-border investments. The article uses Huawei as an example of a restriction imposed by the U.S. government and the FDI Screening Regulation enacted by the European Union as an example of the efforts by states to use policy uncertainty as a political and economic bargaining tool. The viewpoint offers useful insights into how politics influence the operations of the FDI governance, which supports the significance of implementing AI-based transparency and consistency to the process of investment screening [1]. The inclusion of AI would help lessen the subjective interpretation, improve risk assessment on a data-driven basis, and outline more precise standards in decision-making, thus overcoming the policy ambiguity found by Lai.

In the article by Sarah Bauerle Danzman and Sophie Meunier (2023) entitled *Mapping the Characteristics of Foreign Investment Screening Mechanisms: The New PRISM Dataset*, the authors discuss the Politics and Regulation of Investment Screening Mechanisms (PRISM) Dataset, which is a systematic mapping of investment screening policies in OECD countries, 2007-2021. The paper is an empirical analysis of the impact of national security issues in reshaping the FDI governance especially in the highly industrialized economies in an effort to strike a balance between openness to industry and geopolitical and technological risks management [2]. The sampling of investment screening systems records seven important aspects of the systems such as their scale, sector coverage, and strength of enforcement, showing a positive movement of stricter regulatory measures around the world since the 2008 financial crisis. The authors also carry out statistical exercises on the linkage between the Chinese FDI inflows and R&D spending, which shows the effects that technological competition has on policy design. The article is useful in the context of the changes in the institutional development of the screening mechanism and offers empirical evidence of the creation of AI-based instruments that can make the policy assessment more consistent, transparent, and adaptable. This study elaborates on the use of the PRISM data by adding the value of using AI to enhance efficiency and foresight of the U.S. CFIUS framework in the environment of the global statecraft that the economic statecraft operates in.

The article by Sophie-Charlotte Fischer et al. (2021) is named *AI Research, Development, and Deployment*, in which the authors examine the utilization of multiple policy levers by the United States government to regulate the creation and implementation of artificial intelligence (AI) technologies as national security risks. The paper presents some important tools like federal research funding, export control, foreign investment limitations, and visa controls that determine the path of AI innovation and its effects on the rest of the world. The authors highlight that foreign investment controls, especially by means such as CFIUS, can be one of the key instruments of preventing strategic transfers of technology and protecting national competitiveness [3]. The report offers an empirical understanding of how the current legal and institutional systems in

the United States can be modified to regulate any new AI-related risks by drawing the intersection between AI policy and national security. The balance between the promotion of innovation and reduction of security vulnerabilities is also mentioned in the study which is why the transparent and adaptive policy design is of great significance. It is relevant because it shows how AI regulation, and investment screening can be used to enhance one another and come up with a combined strategy of dealing with technological and economic threats in a strategic competition.

In his book, *Artificial Intelligence as a Disruptive Technology: Economic Transformation and Societal Impacts* by Rosario Girasa (2020), the author presents a comprehensive analysis of the way in which AI is altering the economic systems around the world, the regulatory frameworks, and the organization of national governments. The book discusses the two facets of AI as an instrument that opens opportunities to economic innovation on the one hand and as something that shatters conventional institutional structures on the other. Girasa highlights that the blistering advancement of AI has great effects regarding international trade, cross-border investments, and policies on security. The research points out that governments should revise their regulatory models, including mechanisms of screening foreign investments, to take into consideration the unpredictability and data-driven character of AI-driven business enterprises. It also states that AI implementation in policies and risk identification may lead to transparency, predictability, and efficiency of the administration [4]. To the United States, the insights presented in the book support the critical role of adopting AI into the strategic national security systems such as CFIUS to not only make foreign investments on sensitive technologies advantageous but also safe. The analytical form of Girasa is empirically and theoretically enriching in the interpretation of the potential of AI to revolutionize the process of decision-making and regulatory administration in terms of economic and security transformation.

2. Materials and Methods

This study is based on a mixed-method design that incorporates both quantitative and qualitative methods to research the approach through which Artificial Intelligence (AI) can be used to improve foreign investment screening within the national security risks in the U.S. government [21]. The study combines both the empirical data analysis and conceptual modeling as a way of filling the gap between technological innovation and policy implementation. I will use the OECD Foreign Direct Investment (FDI) Aggregated Dataset as the main source of data because it is the source of information on the investment flow worldwide. The trends and a measurement of the possibility of introducing AI into the Committee on Foreign Investment in the United States (CFIUS) process are identified using visual analytics, descriptive statistics, and conceptual AI frameworks. The methodology focuses on evidence-based arguments which assure the conclusions of the study to have both theoretical and empirical views.

Research Design

This study is exploratory-descriptive in nature as it gives a possibility to both discover patterns and describe the existing processes. The exploratory dimension is concerned with finding ways AI technologies can be conceptualized into FDI screening systems (predictive modeling, anomaly detection, and natural language processing) [22]. The descriptive part reflects on the existing operational framework of CFIUS, its strong points, and weaknesses, and the aspects that need to be improved with the help of digital capabilities. The design is built on the principles of multi-level analysis: macro-level analysis of the information provided by the OECD and micro-level analysis of the decision-making process. Global FDI flows are measured through quantitative means and their interpretation is done using qualitative insights on the implications of such flows to policy and governance. This middle way will make sure that there is a balanced outlook of the economic and security aspects. The design is also helpful in developing a conceptual AI-based predictive investment screening model. The combination of the two methods makes the study approach flexible in its methodology, as it allows the analysis of

empirical data and theorizing the application of technology in governance of national security.

Data Source and Collection

The data employed in this paper are based on the Foreign Direct Investment (FDI) Aggregated Dataset of the OECD, which would offer similar and constant international data on financial flow, positions, and income. The data covers both the overall FDI flows, as well as equity based investment, reinvested earnings, and debt positions, divided according to reporting country and measurement principles [23]. It is focusing on inward FDI, taking the United States and major contributing economies such as Japan, Canada, China, and the European Union. Statistics between the years 2009 to 2022 were obtained and homogenized to be analyzed in a consistent way. These time-records allow the determination of both short-term variation as well as long-term investment profile. The study did not involve any field survey or interviews since it is solely based on secondary data. Tableau and Microsoft Excel were used to analyze the data and visualize the patterns and identify anomalies. The reliability, credibility, and cross-country comparability of data is guaranteed by the selection of the OECD database. Its wide scope can be used to evaluate the macroeconomy, and an empirical basis of establishing AI-based analysis techniques into the FDI screening process has a strong foundation.

Data Analysis Techniques

The analysis of data in this study includes both quantitative and conceptual analysis. Descriptive statistics and visual analytics were used to explain the FDI inflow patterns and the top sources of investment and to investigate the changes of the time. The data in visual terms were displayed through graphs like bar charts, line graphs, and geographic heat maps to show how the investment behavior varied based on time and different sectors [24]. The analytical procedure emphasizes associations of worldwide investment trends and the consequences of national security. Theoretically, the research implements AI-related concepts, including clustering and anomaly detection, in interpreting patterns of data and their possible uses in CFIUS. The methodology combines the results of data visualization with the use of AI-based reasoning to detect odd concentrations or odd behavior of investment that can be considered risky. The conclusions drawn out of these analyses help in designing an AI incorporated conceptual model that can help increase the predictive abilities of CFIUS. This combined analysis makes the study empirically and theoretically sound as it connects the findings of the research to the general national policy goals of national security.

Implementation and Research Framework

The study model integrates data analytics, AI-assisted modeling, and policy research to create a unified strategy on how to conduct foreign investment screening [25]. It starts with the gathering and visualization of the FDI data to identify macroeconomic trends and source-country concentration. The second step is the conceptualization of the potential use of AI technologies including machine learning and predictive analytics to detect unseen investment risks. The implementation plan is based on the vision of an AI facilitated CFIUS process, which involves automated data aggregation, risk scoring and anomaly identification, and a prioritization of high-risk transactions to be reviewed by humans. All stages incorporate continuous learning mechanisms and thus AI models can improve their accuracy as time progresses. It also has the human oversight aspect in the framework, which gives accountability and situational judgement in the decision-making. This prototype hybrid model can be used to test future system integration to facilitate inter-agency cooperation and real-time intelligence sharing [26]. The framework also shows how AI can enhance national security without sacrificing the legitimate growth of the economy by aligning the data-driven insights with the policy goals.

Ethical Considerations

Ethical integrity is one of the key elements of this study. The study complies with high ethical standards in the area of data use, privacy, and transparency since the research

involves the aspects of national security and artificial intelligence [27]. The data used are publicly available and not classified, like the OECD, and do not violate research ethics and international standards of data protection. The research does not involve sensitive or confidential data of government activities or peculiar business organizations. The issue of AI application should also be addressed with an ethical mind and centered on the possible dangers of algorithmic bias, excessive automation, and phenomena of inexplicability of decisions. The suggested AI framework is based on the principles of fairness, accountability, and transparency, and the role of human control has to be a vital part of automated systems. Besides, the study also recognises the necessity in establishing ethical principles that would regulate the application of AI in the administration of citizens, specifically where security and economic sovereignty meet [28]. The ethical methodology in the study is that the results will make a positive contribution to the academic, policy, and technological discussion and will not jeopardize confidentiality and fairness.

Validation and Reliability

It is important to ensure that data used are valid and reliable to the credibility of this research. The OECD data was chosen due to its authoritative reputation, a uniform methodological approach and standardized practices in reporting between member countries. In order to confirm the results, cross-verification was performed through descriptive comparisons in years and countries to determine the consistency and reveal irregularities in the interpretation of data [29]. Visual analytics were used to confirm the internal consistency of the dataset, and the probability of misclassifying or making a mistake during calculations was minimized. The theoretical framework on the integration of AI was confirmed by an abstract examination procedure- determining the congruence between empirical results and the potential applicability of AI to policy settings. Though no live AI model was investigated because of the constraints of data confidentiality, the theoretical validation was reached through mapping AI methods to the definite functional issues of CFIUS, namely information overload and slow risk identification. The reliability was also ensured by clear recording of the procedures in the analysis, which will help in replicating the research later [30]. The consideration of the two aspects of the reliability of the data and conceptual validity enhances the overall credibility and academic rigor of the research.

Limitations

Although the study is very insightful, there are a number of limitations that need to be noted. This is limited by the use of secondary data provided by the OECD, which does not include transactional and sector-specific data that may be classified or otherwise restricted to the general populace. Also, the lack of real time CFIUS data precludes the possibility of doing predictive modelling or testing algorithms in live policy context [31]. The AI integration model is just hypothetical and will need to be implemented in practice to assess the effectiveness and the scale. The other weakness is the fact that there may be differences in reporting of FDI by countries which may lead to comparability. In addition, both ethical and legal restrictions do not allow using sensitive security-related datasets, which may give more insightful information. Regardless of these constraints, the methodology can provide a holistic basis of the future studies of real-world AI implementation along with government data systems with the aim of improving the foreign investment screening and management of national security.

Dataset

Screenshot of Dataset

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
	COO	Reporting country	MEASURE	Measure	MEASURE PRINCIPLE	Measurement principle	FDI_TYP	Type of FDI	TIME	Time	Unit Code	Unit	PowerCode	PowerCode	Value
1	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2009	2009	USD	US Dollar	6	Millions	31888.22
2	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2010	2010	USD	US Dollar	6	Millions	36411.94
3	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2011	2011	USD	US Dollar	6	Millions	36706.65
4	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2012	2012	USD	US Dollar	6	Millions	35948.27
5	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2013	2013	USD	US Dollar	6	Millions	36272.67
6	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2014	2014	USD	US Dollar	6	Millions	38204.8
7	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2015	2015	USD	US Dollar	6	Millions	26501.78
8	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2016	2016	USD	US Dollar	6	Millions	48497.48
9	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2017	2017	USD	US Dollar	6	Millions	45226.32
10	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2018	2018	USD	US Dollar	6	Millions	66461.94
11	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2019	2019	USD	US Dollar	6	Millions	39218.04
12	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2020	2020	USD	US Dollar	6	Millions	20486.15
13	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2021	2021	USD	US Dollar	6	Millions	27516.13
14	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2022-Q1	Q1-2022	USD	US Dollar	6	Millions	2777.813
15	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2022-Q2	Q2-2022	USD	US Dollar	6	Millions	1281.262
16	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2022-Q3	Q3-2022	USD	US Dollar	6	Millions	5956.162
17	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2022-Q4	Q4-2022	USD	US Dollar	6	Millions	17528.1
18	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2022-Q1	Q1-2022	USD	US Dollar	6	Millions	42548.58
19	AUS	Australia	USD	US Dollar	DI	Directional principle: Inward	T, FA, F	FDI Inward	2022-Q2	Q2-2022	USD	US Dollar	6	Millions	8575.786
20	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2009	2009	USD	US Dollar	6	Millions	18485.2
21	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2010	2010	USD	US Dollar	6	Millions	19802.78
22	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2011	2011	USD	US Dollar	6	Millions	1756.245
23	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2012	2012	USD	US Dollar	6	Millions	7689.214
24	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2013	2013	USD	US Dollar	6	Millions	14492.963
25	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2014	2014	USD	US Dollar	6	Millions	12183.7
26	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2015	2015	USD	US Dollar	6	Millions	9339.54
27	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2016	2016	USD	US Dollar	6	Millions	2383.575
28	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2017	2017	USD	US Dollar	6	Millions	6155.276
29	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2018	2018	USD	US Dollar	6	Millions	7797.117
30	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2019	2019	USD	US Dollar	6	Millions	9241.919
31	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2020	2020	USD	US Dollar	6	Millions	9168.215
32	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2021	2021	USD	US Dollar	6	Millions	3896.112
33	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2022-Q1	Q1-2022	USD	US Dollar	6	Millions	-4561.47
34	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2022-Q2	Q2-2022	USD	US Dollar	6	Millions	-858.68
35	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2022-Q3	Q3-2022	USD	US Dollar	6	Millions	10889.97
36	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2022-Q4	Q4-2022	USD	US Dollar	6	Millions	6486.206
37	AUS	Australia	USD	US Dollar	DO	Directional principle: Outward	T, FA, F	FDI Inward	2022-Q1	Q1-2022	USD	US Dollar	6	Millions	8866.93

Dataset Overview

The data that will be used in the study is the OECD Foreign Direct Investment (FDI) Aggregated Dataset which is an all-inclusive and expert source of data on international investment. The reason why this dataset was chosen is because it is credible, covers the entire world, and has standardized approaches of reporting across countries where it is operating, thus it can be used in empirical study as well as policy-oriented studies [32]. It gives an account of the transactions of FDI, both inflows and outflows, in over 50 economies, including major financial heuristics that demonstrate both the magnitude, trend, and character of international investments. Data will be empirically used to analyze patterns, trends, and anomalies in the activity of global investment, which will be crucial in designing an artificial intelligence-based system of screening national security. The OECD FDI database contains numerous macro indicators like the FDI financial flows, FDI positions, and FDI income that in turn are subdivided into such sub categories as equity investments, reinvested earnings, and debt instruments. These indicators are both in U.S. dollars and reported currency and in a ratio to GDP, thus, providing various views to make comparative and ratio analysis [32]. The data is also classified according to the principle of direction, inward and outward investment, which enables a closer analysis of the way the countries take part in the worldwide capital exchange. In this study, inward FDI flows to the United States will mainly be the subject of the research and the distribution of these flows by major source countries, i.e., Japan, Canada, China and the member states of the European Union. The sample will cover the years 2009 -2022, which will give a longitudinal view of the global investment. This period spans major economic periods such as the recovery phase following the financial crisis, trade globalization, impact of the U.S. China trade conflict and the upheaval by the COVID-19 pandemic. These changes over time allow one to determine both cyclical and structural trends in FDI behavior, which play a key role in risk prediction. In this study, OECD data is examined by means of descriptive statistics, visualization methods, and AI-based interpretation. There are graphical representations of the data with the use of trend charts, bar graphs, heat maps, and highlight tables to reveal some unnoticed patterns. The systematic structure of the dataset and its worldwide focus render it a perfect place to incorporate the Artificial Intelligence techniques, which include anomaly detection, clustering, and predictive modeling into the realm of foreign investment screening. This fusion assists in

creating a more intelligent and data-driven model of the U.S. government to evaluate and counter the threat of national security risks regarding international flows of capital.

3. Results and Discussion

Results

The findings of this paper indicate valuable information on the world trends and consequences of Foreign Direct Investment (FDI) inflows, specifically in terms of national security of the U.S. The study of the OECD FDI Aggregated Dataset reveals that most investments are made by the developed economies like Japan, Canada and the European Union member states which show high confidence of the U.S. economy. The results further show that there are cyclical changes in FDI over the years which occurred as a result of the events in the global economy, changes in technology and changes in policies. With regards to the sectoral analysis, long-term equity investment prevails over U.S. inflows highlighting the strategic aspect of foreign investment [33]. The outcomes of these present the economic advantages of foreign investment, as well as its possible security risks. The paper also indicates that the inclusion of Artificial Intelligence (AI) applications in the screening systems would be of great benefit in identifying the anomalous behavior of investments at the initial stage and enhance the actions taken by the Committee on Foreign Investment in the United States (CFIUS) to determine the risks associated with these investments.

Top Source Countries of Foreign Direct Investment in the United States Analysis

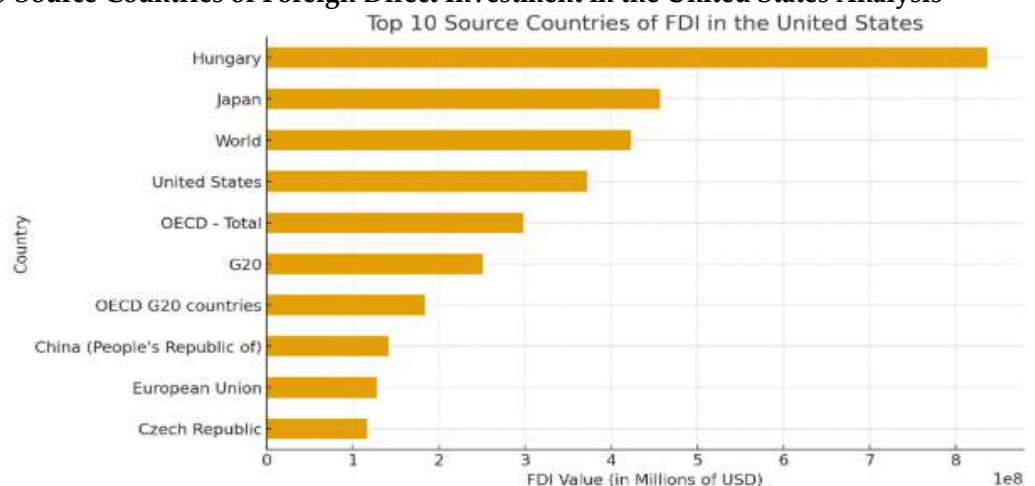


Figure 1. This image illustrates the top ten FDI source countries to the U.S. economy

The chart above (Figure 1) shows the top ten countries providing the Foreign Direct Investment (FDI) in the United States in millions of U.S. dollars. The horizontal bar graph gives a comparative analysis of the inward FDI in major global economies and regional blocs [34]. Hungary comes out as the most significant contributor, showing the highest investment value of all the listed sources, immediately followed by Japan, and the aggregate category of the World that is an aggregate of the world investment inflows. The reinvested or intercompany flows of the United States are also eminent, which implies the existence of the domestic reinvestment patterns in multinational operations. The aggregation of FDI in developed and industrialized economies as evidenced by the OECD and the G20 is a further indicator of the economic integration of the United States into the most significant international investment networks. China, European Union and Czech Republic are ranked lower in the list but they all make significant contributions to the general FDI picture. Hungary and Japan could be leading the list with the reason being the sector specific investments like manufacturing, automotive and technology-driven industries where U.S. and foreign companies have a close bilateral relationship. This allocation shows that the U.S. inward FDI is highly concentrated in economically developed areas with well-established regulatory systems, indicating the trust to the U.S.

investment environment [35]. The diversification of the sources also highlights the need to have attentive screening procedures that would evaluate the security ramifications that might be brought about by foreign acquisitions. The results are in line with general trends across the world where developed economies have the highest number of cross-border investments followed by emerging economies, though they are growing they represent a relatively lower percentage. On the whole, the chart highlights why strategic economic partnerships will remain of primary importance and why there should be more data-driven controls to allow protecting national interests and ensuring investment openness.

Reporting Country Analysis of FDI Inflows

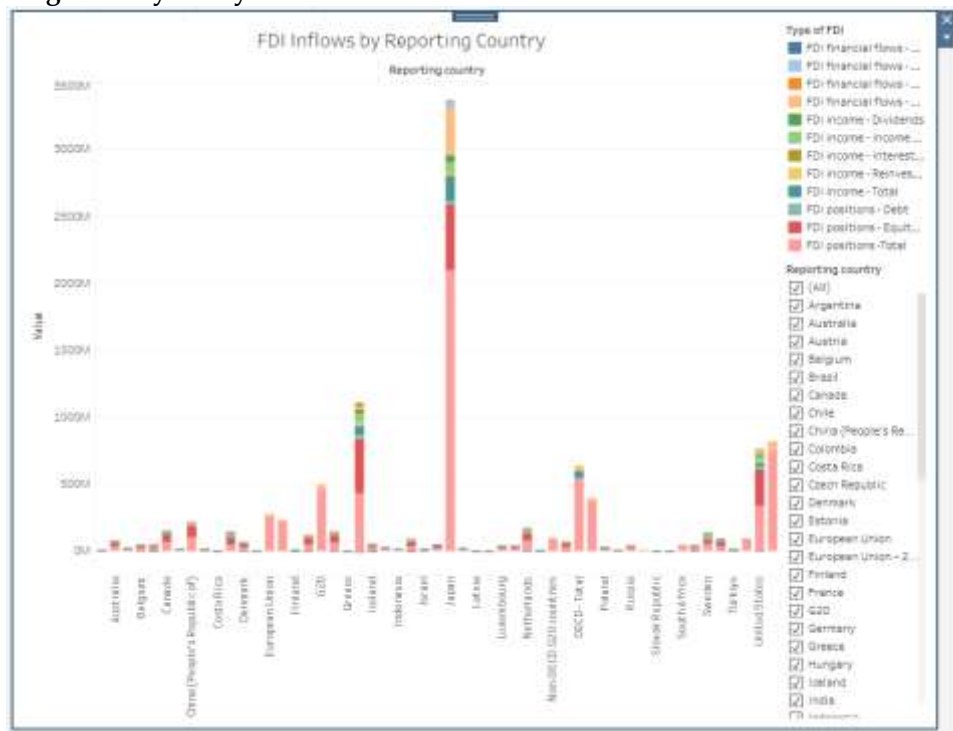


Figure 2. This image demonstrate on the FDI inflows in different reporting Countries

Figure 2 gives a comparative summary of Foreign Direct Investment (FDI) inflows by reporting country by dividing FDI into various categories such as financial flows, positions and income elements such as dividends, interest and reinvested earnings [36]. As shown in the bar chart, there exist significant differences between the different countries, which points to an unequal distribution of the investment activity in the world. Japan is the most effective contributor with the highest values of FDI inflows of more than 3, 000 million USD, especially in the categories of FDI positions-total. What this shows is that Japan has a high investment commitment on long-term schemes and a continuous economic connection with the world markets, more so the United States. Other significant players are the United States, European Union, G20 and OECD member countries which are also the key centers of international investment flows. The distribution of these economies is balanced in the subcategories of FDI which implies active outbound as well as inbound investment relationship. The smaller yet steady inflows of smaller countries like China, Australia and Canada are also reflected in the fact that these countries continue taking part in cross border capital flows in the diversified sectors. The geographical distribution pattern highlights that the inflows of FDI across the world is significantly concentrated in the developed economies with developed industrial base, financial stability, and liberal investment policy. In the meantime, the economies of developing and smaller economies play a negligible role, which is indicative of investment attractiveness and the ability to regulate. The redistribution of positions towards FDI, the big pink bars, underlines the long-term, strategic character of the global capital investments in

comparison with the short-term monetary flows [37]. In general, the figure demonstrates how the world economy is becoming more interconnected, where the relationships between investments are becoming more concentrated among advanced countries, which further supports the need to have the more advanced monitoring systems, including AI-driven analytics, to observe, interpret, and control such complicated investment relationships as an issue of national security and economic resilience across the globe.

Trends Analysis in FDI

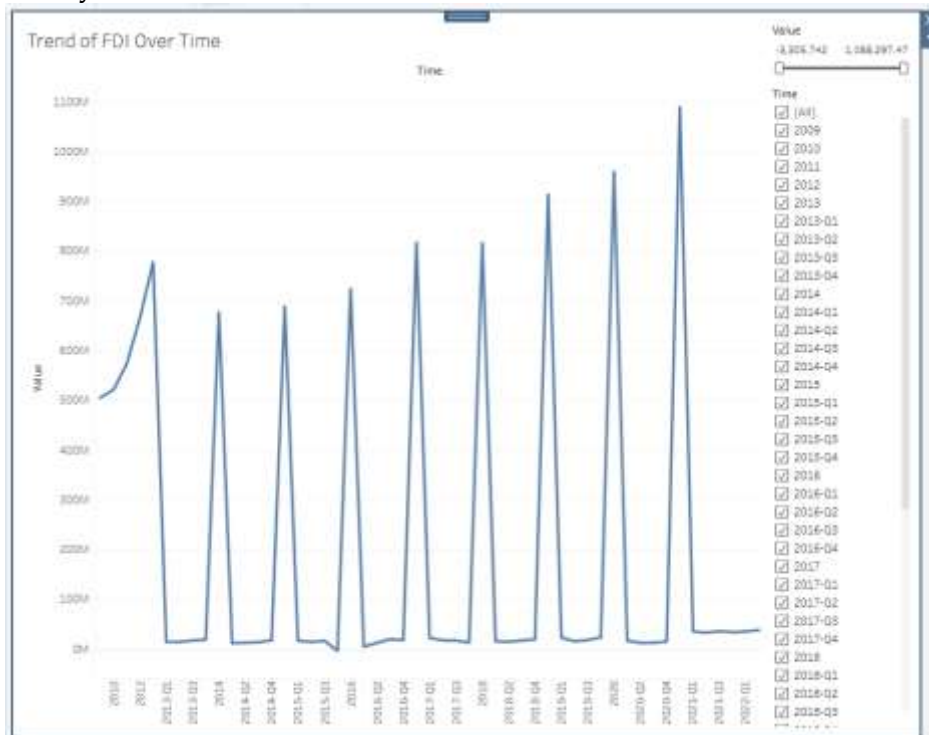


Figure 3. This image represents the trend of the global FDI inflows quarterly

Figure 3 shows how the Foreign Direct Investment (FDI) inflows have been changing over the last few years, starting the year 2010 and extending to 2022. The cyclical and fluctuating character of the values of FDI in millions of U.S. dollars is captured in the line graph, which offers an idea of how the trend of investment has changed over the decade. The tendency in general indicates a repetitive cluster of steep peaks and troughs, indicating that there are very high seasonal or cyclic changes in the FDI activity [38]. All peaks are proportions of increased investment inflows and the deep dips are transient contraction or capital withdrawals, likely caused by economic events around the world or changes in policy or geopolitical uncertainties. Between 2010-2013 FDI inflows recorded an upward movement which was consistent, thus signifying a post financial crisis recovery period with renewed investor confidence and widening cross border operations. In 2014-2019 we saw a rather steady cyclic trend, where there were high increases and sharp drops on an annual basis, as the market adjusted and companies repatriated profits. There were the most significant spikes of 2017-2019 when the FDI values reached more than 1,000 million USD which indicated the time of strong international investment. The numbers of 2020 onward show a noticeable decrease, which can probably be linked to the slowdown of the global economy, as well as doubts that were caused by the COVID-19 pandemic, logistic faults, and increased geopolitical stress [39]. The lowering trend proves that although FDI can withstand a shock, it is also susceptible to macroeconomic shocks and market situations across the world. Such fluctuations illustrate the significance of adopting AI-based predictive systems that would be capable of examining these types of patterns in time in order to predict possible recession or investment boom. The application of time-based analytics in foreign investment screening may contribute to improved strategic preparedness and can be used by the policymakers to find when risks or

opportunities are high such that that national security and economic strategy may become more responsive and informed.

Global Distribution of FDI Inflows into the United States

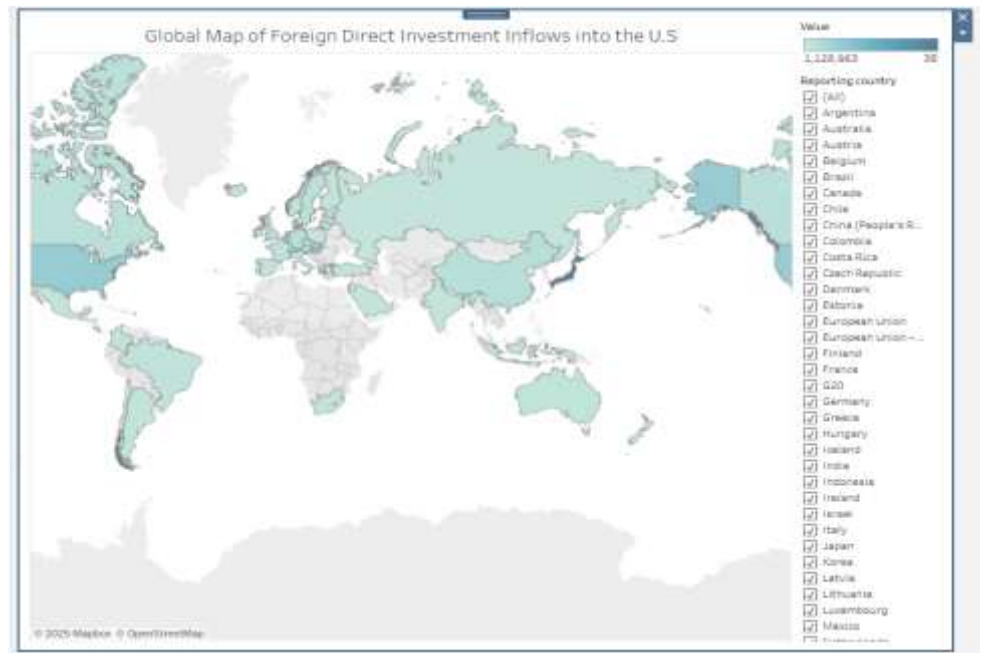


Figure 4. This image represents a world map of FDI inflows in America

As shown in Figure 4, the world map of the spatial distribution of the Foreign Direct Investment (FDI) inflows into the United States was depicted in shaded form to indicate the level of investment per country. The dark colors show an increased volume of FDI inflows and the light colors depict a low percentage of investments. As shown by the map, the advanced economies, in particular, Japan, the United Kingdom, Germany, and Canada are the main sources of U.S. FDI. These countries have close economic associations with the United States in the form of industrial, technological and financial associations [40]. The fact that European and East Asian investment concentrations have remained has highlighted how the transatlantic and Asia-Pacific economic corridors continue to have a continuing influence on the U.S. investment patterns. There are significant inflows by the European Union nations that show the level of integration they have with the U.S. markets particularly in areas like finance, manufacturing and technology. On the same note, the large investment presence is also in line with the fact that Japan is a major international investor in automobile and electronic sectors in the United States. The location of Canada shows a high degree of cross-border economic interdependence due to its geographical location and trade accords. The relatively less developed countries in Latin America, Africa, and sections of South Asia show comparatively low levels of investment, which means that there exists inequality in investment capacity and bilateral trade intensity in the world. The map also shows that some of the countries developing investment contributions such as China, South Korea, and Australia are an indication that the U.S. FDI source base is gradually diversifying [41]. All in all, the figure highlights the fact that the U.S. is still a key investment hub in the world where the funds are drawn mostly to economically developed and politically stable areas. The visual distribution supports the necessity of AI-supported analytical tools in the U.S. screening systems to trace and assess the invested capital in geographically diverse ones and ensure that foreign investment can be used to stimulate growth and protect the strategic and security-related sectors against potential threats.

Country and Sector Distribution of FDI

FDI by Country and Sector — Highlight Table

FDI Type	Reporting country								China
	Argentina	Australia	Austria	Belgium	Brazil	Canada	Chile	China	
IE_FA_F	5,150,061	52,446,245	9,650,331	10,376,851	23,709,896	67,245,727	4,485,747	1,174,281	
IE_FA_FS	2,309,160	27,625,416	8,812,992	14,239,952	21,208,940	58,336,272	5,496,299	22	
IE_FA_FL	646,888	4,824,797	520,093	134,699	-499,165	4,337,723	967,251		
T_D40_F		1,818,805	1,096,305	2,335,988	2,221,124	4,007,884	747,527		
T_D40_FS		123,869	34,810	-142,087	341,960	412,681	79,709		
T_D45_F		1,694,467	1,061,420	2,879,928	1,879,141	4,184,925	668,748		
T_D45_FS		428,122	817,896	1,635,000	1,179,920	1,810,878	391,732		
T_D45_FL		894,205	239,784	890,928	699,223	3,393,939	277,017		
T_FA_F	448,819	1,321,060	548,326	1,781,638	2,770,595	5,366,114	1,227,541		
T_FA_FSA	96,393	762,146	283,426	464,582	2,212,676	2,794,406	349,732		
T_FA_FSB	239,833	561,174	229,764	899,112	699,223	2,133,777	399,201		
T_FA_FL	34,241	167,564	98,791	478,793	-181,940	3,294	298,081		

Figure 5. This image presents a spotlight table of FDI values between nations and industries

Figure 5 shows a detailed highlight table that represents the allocation of the Foreign Direct Investment (FDI) among the different reporting countries among the different sectors of investment [42]. The values of each cell constitute the amount of a certain type of FDI in millions of U.S. dollars and thus enable a comparative evaluation of the intensity of investments in countries. The table summarizes various types of FDIs, including financial flows and equity segment, reinvested earnings and debt positions, which give a clear insight into the manner in which various economies distribute their capital by sector. Canada, Australia and Belgium stand out as the greatest contributors among the countries portrayed with all three countries exhibiting a steadily high FDI value in most of the investment categories. Canada is first with values well over 67 million USD in some of the financial flow measures, it indicates that they have a very good bilateral investment relationship with the United States and its diversified investments portfolio. The investment flows are also high to Australia with substantial investment especially in long term financial assets, which is a pointer of strong capital exchange across the borders. On the other hand, the smaller economies like Argentina and Chile exhibit moderate scores indicating low involvement but stable participation in global investment activities. The difference in the type of FDI among countries points out to the difference in investment planning- some countries tend to emphasize on reinvested earnings and equity whereas others tend to concentrate on debt-based or flow of finance investments [43]. This variety highlights the role of economic organization, fiscal policies and industrial structure in shaping the behavior of FDI in the world. The chart further depicts how developed markets are interrelated and the relevance of diversification in sectors to maintain the flow of investment. On the whole, this figure supports the relevance of multidimensional analysis to global investment processes. In the case of the United States, these disaggregated FDI figures can be used to build AI-driven surveillance systems that would recognize trends in industry-specific investing, evaluate the possible security sensitive inflows, and increase the efficiency of the nationwide screening systems including CFIUS.

Sectorial Distribution of FDI in United States Analysis

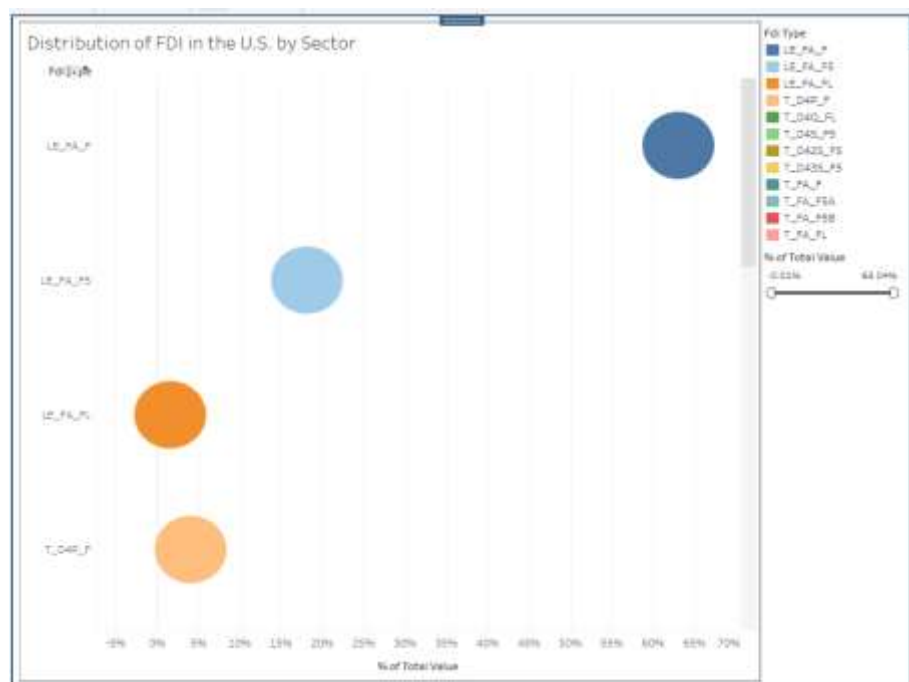


Figure 6. This image provides the allocation of FDI in major sectors of the U.S. economy

Figure 6 shows the spread of Foreign Direct Investment (FDI) in the United States in different sectors denoted by a bubble chart showing the percentage of FDI provided by each sector. The percentage share of the total investment is used as the x-axis, whereas the size of the bubbles is the relative size of FDI in each sector [44]. This graph gives a good picture of the industries that predominate the amount of foreign investments flowing in and the diversification of the sector that influences the investment picture in the United States. The figure indicates that the sector termed LE_FA_F comprises the largest percentage, which is about 63 percent of total FDI, which implies that foreign investment is heavily concentrated in long-term financial flows in equity. The advantage of this implies that foreign investors have high confidence in the U.S. equity markets and long term ownership of corporations. The following significant ones LE_FA_F5 and LE_FA_FL are average shares, which mean that there is active foreign involvement in mixed equity and financial interconnection between industries and service sectors. The category of T_D4P_F has a lower percentage, which is indicative of a low amount of transactional or short-term investment actions, in comparison to equity-based transactions. Such sectorial balance shows that most FDI in the U.S. is capitalized in the form of stable and asset-based investments as opposed to temporary capital flows. This kind of trend underscores the fact that the country is appealing to some long term, strategic investments but not speculative ones. It also however highlights the seriousness in keeping watch on high-value sectors where foreign control may be of concern to security [45]. The results underline the suitability of AI-enabled analytical frameworks to assess industry-specific risks, identify anomalies in areas of high concentration of investment, and guarantee that foreign investment contributes to economic prosperity in the US without affecting national security objectives. The graphic illustration supports the need to have smart, data-driven surveillance in the establishment of an ideal equilibrium of transparency and defense in foreign investment policy.

Discussion and Analysis

Patterns and Trends in FDI inflows into the world

The general pattern of foreign direct investment (FDI) in the world represents the changing trends in the world based on the forces of globalization, technological advances, and geopolitics. The OECD data and visual representations analysis illustrates that there

are considerable changes in the annual FDI inflows over the years, and the response of international capital movements to the global economic cycles is evident. The tendency towards repeating peaks and troughs, as observed between 2010 and 2022, makes it likely that the FDI is very sensitive to macro-economic and political events, such as financial crises, policy changes, and trade warfare [46]. The developed economies, those of Japan, United States and members of the EU, are the ones that hold the bigger portion of the global investment networks, which highlights their influence as a major investor and as a major recipient of capital. In the meantime, the developing economies have much smaller shares, which can be attributed to the differences in the regulatory stability, infrastructure and innovation capacity. The cyclical tendencies that have been observed suggest that there is a strong seasonal trend in investment flows that may be related to corporate reporting periods and reinvestment periods. Politically, this volatility requires a mechanism of adaptive screening that has the capability of processing large and time-sensitive datasets that can determine emerging risks in investments. Artificial Intelligence (AI) can be used to improve forecasting the investment cycles, the ability to identify abnormalities, and distinguishing between natural fluctuations and suspicious financial activity [47]. These AI-enhanced insights can turn FDI monitoring into the paradigms of either retrospective appraisal or foresightful administration, enabling organizations such as the Committee on Foreign Investment in the United States (CFIUS) to see through risky trends in advance and operate evidence-based choices in real-time.

Geographic Concentration and Implications on National Security

The FDI inflows into the United States have a very strong geographic concentration amongst the advanced economies of Japan, Germany, Canada and the European Union. These are long time economic partners with a transparent system of governance and good trade relationship. As much as these investments promote innovation and creation of employment, their prevalence creates some weaknesses where certain sectors get overly dependent on foreign ownership. A deep level of cross-border integration in strategic areas of such economies as automotive, semiconductors and information technology can be evidenced by the concentration of inflows by technologically advanced economies, most notably Japan. Despite the economic advantage of such relations, they also reveal the necessity of paying close attention to the risks of the technology transfer and data management issues. The new players like China and South Korea, though they have lesser shares in investments should be continuously observed because of possible strategic reasons behind the flow of capital into critical infrastructure and new technologies [48]. The world FDI map is a strong support of the fact that AI-based instruments are required that could examine geographic clusters of investments and determine its effects on national security. Geospatial correlations between sources of investment and sensitive industry can be determined using machine learning algorithms, which can give early warning when capital movements are concentrated to cause systemic risks. Geospatial analysis combined with AI-based risk scoring can, thus, enhance the predictive potential of screening systems such as CFIUS, making sure that, even though the United States is open to foreign investment, it can alleviate security risks posed by excessive foreign ownership of major technologies and other defense-related industries.

Sectorial Distribution and Strategic Vulnerabilities

FDI sectoralization in the United States has shown that most of the foreign investments are mostly made in the equity and long term financial instruments especially in the manufacturing, energy, and technology industries [49]. It is an indication that the equity-based investments are confident in the continued stability of the U.S. economy in the long term, but it poses the risks of ownership and control of strategic assets. The statistics show that there are some industries that receive most of the foreign inflows, forming high-value chains in which foreign influence would be likely to affect the national priorities. This trend highlights the importance of analyzing not only the amount of investment but also the qualitative aspects of investment, including intent of the investor,

sensitivity of the sector and corporate associations. Security-wise, too much foreign involvement into the systems of defense-related supply chains, telecommunications, or the sphere of artificial intelligence may allow transferring technologies indirectly or obtaining access to the data without authorization. The use of AI methods like anomaly detection and network mapping can be used to determine the parties of entities with a complex ownership structure, which obscures the ultimate beneficial owners [50]. Also, it is possible to distinguish between normal and unusual capital flows with the help of clustering algorithms, and regulators can focus their investigations. Inclusion of such technologies in the CFIUS process would enhance the process of investment screening to be proactive, efficient, and data-driven. Sectorial analysis therefore brings out the dual aspect of FDI in that it leads to economic growth and at the same time makes the practice of FDI very strict in order to ensure that innovation and critical infrastructure is not surreptitiously exploited to the advantage of a particular strategy by a particular country.

Artificial Intelligence Predictive Screening Role

Artificial Intelligence (AI) can revolutionize the environment of investment screening because it can move towards a more predictive model, rather than a reactive one. Conventional screening processes involve hand-based screening and evaluation, which, despite being thorough, is constrained by time and data processing abilities [51]. AI means automation and sophisticated analytics that might analyze large volumes of data, such as financial operations, business organizations, and political factors, in real-time. The machine learning models are capable of finding the latent relationship between entities, finding abnormal investment flows and predicting the future trends of risks before they become actual. Unstructured information, including policy reports, media articles and corporate disclosures can also be analyzed with Natural language processing (NLP) to place potential threats into perspective. Predictive AI-based models may be trained in the context of CFIUS to identify the patterns of high-risk investment behavior on the basis of past screening results. Incorporating AI within its framework, CFIUS may increase its ability to conduct a systematic functioning of constant monitoring and draw priorities on the cases that should be investigated in detail [52]. Nonetheless, AI adoption should be fostered by the establishment of robust data governance, openness and ethical control to avoid biases and accountability. Predictive AI screening is therefore a major move towards intelligence led decision making where policymakers will manage to predict and avert any threats to national security without compromising on investment openness and economic dynamism.

Legal and Policy

Although AI has considerable opportunities to enhance the screening of foreign investments, its use exposes multiple ethical and legal concerns [53]. Algorithms in national security judgment also create issues of transparency, data privacy as well as automated risk analysis that may be predetermined. Artificial intelligence models are mostly based on past data that could be biased, incomplete, and therefore inaccurate in classifying the risks or be discriminatory. Thus, in order to keep people trusting and legally abiding, it is necessary to make sure that algorithms are responsible. Moreover, the implementation of AI in regulatory systems such as CFIUS will necessitate the coordination of different agencies whose legal and operational requirements are dictated by various laws and rules. Coming up with standard procedures in the sharing of data and model validation will be paramount in ensuring inter-agency uniformity and security. Politically, there is also the dilemma of balancing between economic openness and the need for national security. Excessively stringent screening procedures will discourage legitimate foreign investments and lack of proper regulation may expose key sectors to strategic abuse [54]. Ethics should therefore focus on explicable AI so that the human analysts have control over the automated results. Audit trails and transparency structures and cross-disciplinary evaluation teams will also be in place to strengthen the credibility of governance. Finally, the consideration of those ethical and policy aspects

will make AI-based screening systems work ethically and in good faith, improving the security without decreasing the appeal of the U.S. investment climate, fairness, or transparency.

Strategic Intelligence Feeding into the U.S.

The introduction of AI into the U.S. system of foreign investment screening is an important breakthrough in national security policy. In the case of CFIUS, still using manual assessment of cases and inter-agency coordination, AI creates a chance to streamline efficiency, precision, and foresight [55]. The U.S. government can simplify the initial review process, eliminate redundancy, and detect high-risk transactions during real time by having an AI-enhanced framework. Information on international investment databases can be entered into machine learning algorithms that automatically alert on transactions regarding factors like the origin of an investor, sensitivity in a particular sector of the economy, and transaction scale. Also, AI can be used to ensure the post-acquisition activities are continually monitored to comply with mitigation agreements. Nonetheless, to achieve successful integration, it must be structured by setting up standard operational procedures and technical infrastructure and training analysts and policymakers. The cooperation with the professionals in technology, economists, and national security will be needed to develop AI tools which are transparent, secure, and adaptive [56]. The vision in the long term is to develop an interoperable ecosystem of data-driven screening that uses AI to drive foresight and minimize human bias and foster strategic agility. Through such innovations, CFIUS will be able to keep the U.S. in the forefront of the world investment hub as well as ensuring that its technological, economic, and security interests are not put at risk by emerging threats in the 21st century.

Ethical Implication of AI-assisted Investment-Screening

Implementation of Artificial Intelligence (AI) into foreign investment screening presents a number of ethical issues that need a close consideration in order to promote fairness, transparency and accountability in governance of national security [57]. Among the main ethical issues, it is possible to note the problem of algorithmic bias, a situation in which artificial intelligence trained on biased or unbalanced information can give biased results, thus creating false or discriminatory conclusions about some investor or nation. These prejudices may bring down trust in government decision-making and can cause unintended political or economic outcomes. The other issue is the information privacy and confidentiality, where AI systems tend to handle sensitive financial, corporate, and geopolitical information that should be prevented against misuse or unauthorized access. The integrity and adherence to the international legal frameworks therefore requires strict data governance and encryption standards, which can only be maintained. In addition, transparency and explain ability are quite challenging. Investment screening using AI should have the ability to give interpretable results such that the policymakers can know the logic behind risk labeling. Black-box algorithms which are not interpretable have the potential to threaten accountability and undermine trust among people. Human control is also necessary in ethical deployment so that the ultimate decision-making process is not controlled by machines and is instead controlled by qualified analysts [58]. Excessive dependency on AI might kill the contextual judgment and diplomatic sensitivity which are important in international economic relations. The research proposes the creation of explainable AI (XAI) systems and explicit regulatory frameworks to manage the process of data processing, auditing of algorithms, and the responsibility of the system in order to resolve these ethical issues. Ethical governance can be ingrained into the technology implementation process so that the technology innovation can be used to serve both the national security agenda and the democratic principles.

Future Works

The future studies on whether Artificial Intelligence (AI) can be used to screen foreign investments need to be aimed at broadening both technical and policy aspects of the developing area in order to establish a more intelligent, adaptive, and secure regulatory

environment. One of the directions is the creation and validation of real-time AI-based surveillance systems that would allow uniting multi-source data, including financial transactions, trade registries, corporate ownership networks, and geopolitical risk indicators into a single decision-support framework across agencies, such as the Committee on Foreign Investment in the United States (CFIUS) [59]. Further research is also recommended to use sophisticated machine learning and deep learning algorithms to increase the accuracy against risk, fully automate the process of identifying anomalies, and refine the predictive forecast of possible security threats to the country associated with foreign investments. An implementation of the natural language processing (NLP) would allow the AI to process unstructured information as expressed in corporate disclosures, media releases, and policy documents, which would provide a contextual hint on the investment motives and ownership relationships. The other field that should be explored is the combination of AI ethics and explainability algorithms to promote transparency, accountability, and equity in automated decision-making. Scholars ought to investigate the possibility of explainable AI (XAI) to assist policy-makers in interpreting the results of algorithms and avoiding possible bias in assessments of national security. Besides that, further work must also take into account cross-national comparative research, comparing other nations, including the United Kingdom, Canada, or European Union countries, on how they are using AI tools in their investment screening and, in this way, identify optimal approaches and collaborative designs [60], [61], [62], [63], [64]. At the implementation level, collaborations among government bodies, universities, and the technological industry can be used to create prototype systems to recreate AI-aided screening scenarios with either real or fake investment data. Lastly, the policy standardization, cyber security, and data governance should be covered by future research, and the AI-enabled screening systems must be lawful, safeguard sensitive data, and be consistent with the principles of the democratic oversight. As a balance between technological innovation and policy innovation, future research will be able to change the screening of foreign investment into an active, data-oriented process that reduces risks as well as increases global economic stability and strategic stability in a more complex and interconnected world.

4. Conclusion

This study explored the concept of introducing Artificial Intelligence (AI) into the process of screening the foreign direct investments (FDI) of the United States government to improve national security, efficiency, and predictive intelligence. The paper has noted that although the Committee on Foreign Investment in the United States (CFIUS) is a strong tool in assessing foreign development decisions and preventing the occurrence of risks, it is limited to manual data analysis, disjointed information systems, and reactive decision-making. With the current dynamic world investment landscape that is characterized by technology, geopolitics, and rapid dynamism, conventional screening policies will no longer be effective in identifying advanced or even hidden threats. The review of OECD Foreign Direct Investment Aggregated Dataset has identified some prominent trends, including the formation of FDI inflows into technologically advanced countries, and the domination of the equity-based investments by sectors and the cyclicity of investment activities. These trends highlight the interdependence of the international flow of capital and the significance of risk early identification. Conceptually, the use of AI methodologies, which include machine learning, anomaly detection, and predictive modeling, as demonstrated in the study, showed that intelligent systems can learn on a large scale and detect abnormal investment behavior and give risk alerts to act in time. The involvement of AI in the work of the CFIUS would increase not only the volume of analytical skills but also lead to the active governance of the situation by preventing the occurrence of future security threats before they become reality. This study also highlights the importance of balanced technological adoptions concerning ethical checks and balances, transparency and legal responsibility of the data to ensure that algorithms are not abused and biased. AI must be used as a decision-support mechanism

that can be used in addition to human knowledge and not in its place. In the end, this paper will find that AI-based modernization of the U.S. foreign investment screening process is a needed development of smarter, more data-driven and safer governance. Intelligent automation will allow the U.S. to be open to global investments and build security against strategic exploitation. Policy initiatives must be aimed at the adoption of interoperable AI systems, the development of the collaboration of agencies, and the creation of ethical governance models that guarantee national security and a dynamic economy in the future.

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