EU vs US: How Regulatory Environments Impact the Compliance Cost for AI Startups

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1. ABSTRACT

The overall goal of this paper is to compare the Artificial Intelligence (AI) regulations in The United States and Europe when focusing on the compliance costs that these regulations bring to AI startups. To distinguish the AI regulations in the US and EU, this paper will analyze each country's regulations, codes, standards, and practices using government documents, articles, and research papers and will discuss how these affect the technical components of my internship and the compliance costs for the company. The research will determine how these differences affect the compliance costs and how that affects AI development for startups. This elicits the research question, "How do the differences in regulatory frameworks in the US and EU affect compliance costs for AI startups?"

2. INTRODUCTION

AI startups play a vital role in driving innovation and keeping the AI industry competitive. Startups work to create new products, bring them to market efficiently, and are fundamental to the economic growth of countries, but often face many challenges that delay their launch [1]. One reason AI startups face considerable difficulties in their development process is because they must navigate and comply with a wide range of regulations. Two regions where AI regulatory frameworks contrast are the United States and Europe. The explosive growth of AI in recent years has made it necessary to implement regulations aimed at ensuring its safe and ethical use, but these two locations have very differing implementations [2]. AI startups must navigate a complex landscape that can challenge their development in numerous ways, including compliance costs. Compliance costs refer to all expenses incurred in meeting regulatory requirements [3]. This paper focuses specifically on compliance costs because they represent one of the most immediate and quantifiable barriers that startups face when trying to bring an AI product to market. Identifying which region offers a more supportive regulatory environment may be an important determinant for startups deciding where to launch their product to save time, money, and employee effort during their development. This paper will compare and analyze the effects of AI regulations on compliance costs for AI startups in the US and EU, with the aim of identifying which regulatory environment better aligns with a startup's goals.

2.1 Background on AI Regulatory Frameworks in the US and EU

AI regulations take a vastly different shape in Europe and The United States. Europe has adopted the EU AI Act, which imposes strict, mandatory regulations on all AI systems across all European countries. In contrast, the US does not have an AI Act like Europe does, but it has some less strict federal frameworks

and allows individual states to decide their own AI laws. However, there are some common priorities for these distinct locations such as mitigating algorithmic bias and discrimination to prevent unfair outcomes, ensuring transparency and explainability to ensure that AI decisions are understood, and maintaining AI accountability and oversight throughout the entire AI lifecycle to help build public trust [2]. These are some important priorities that both the EU and US have, but they both also have quite different approaches based on scope, legal form, and enforcement [2].

2.2 Background on Compliance Costs

Regulations affect the compliance costs of startups during their development. Compliance costs are not just the direct financial costs to meet regulatory requirements, but it also includes indirect costs [3]. Direct costs include regulatory or legal fees, documentation expenses, and the cost of hiring regulatory experts [4]. Indirect costs involve maintaining high-quality data, providing information to regulatory authorities, ensuring human oversight of AI systems, managing delays, time and effort to implement new systems, and increased employee workload [4]. Compliance costs vary between the US and EU due to differences in the strictness of their regulatory frameworks.

2.3 Internship

This summer, I am interning at University College Cork (UCC), where I am working on a research project called CommPAL [5]. It is a research project planning to spin out into a high performing technology startup and it is currently in the regulatory phase of the development. They are developing an app designed to help optimize the daily schedules of palliative caregivers, enabling them to reach all their patients and provide the highest quality care [6]. The app uses AI to process and manage data from both patients and doctors. As more people are living longer, there is a growing shortage of palliative care workers, and consistent growth of palliative care patients [6]. This app will help accommodate that imbalance, improving overall efficiency of the doctors and satisfaction of the care for the patients [5]. Palliative care is an approach that improves the quality of life of patients and their families who are facing problems associated with life-threatening illness [7].

A project like this, which uses AI and personal data from patients and nurses, may face a long and expensive development process due to the need to comply with AI privacy laws, but also healthcare privacy laws. Currently, the team is aligning the project with the relevant regulatory frameworks to prepare it for testing by healthcare workers and patients. The team is exploring the regulatory

requirements and the market opportunities across jurisdictions in multiple locations.

My tasks for my time working on this project will help with the research for this paper. My internship includes tasks such as coding software in Python that manipulates and generates healthcare data used by the AI, coding Python scripts that use various large language models to analyze data, creating a video for the company's website, consulting app/web development and user experience, and using AI to create synthetic datasets. My internship, therefore, will be related to this project because I will be working with AI and it will be interesting to learn more about the regulations involved with its development process.

2.4 **Objectives**

AI regulations can be difficult to understand and implement as a new company. Defining the differences in AI regulations between the US and EU can benefit new companies by helping them identify which regulatory system aligns more closely with their goals and compliance budget and which regulatory requirements are more attainable for their product. This paper aims to explain the differences in regulatory frameworks, how those differences affect compliance costs, and analyze how those compliance costs affect startups in the US and EU with use of qualitative and quantitative data. My plan is to use surveys, interviews, and research done on AI startups to indicate the effect that the different AI regulatory frameworks have on compliance costs for startups. This will lead to answering what affects compliance costs have on startup success and innovation.

CommPAL will benefit from this research because they are currently in the stage of deciding which location would be most beneficial for launching their product. Because of CommPAL's use of AI, it is subject to regulatory frameworks such as General Data Protection Regulation (GDPR) and the EU AI Act, making it an expensive and time-consuming product to bring to market if the location the product launches in does not match their needs. This paper investigates the regulatory and compliance cost differences of the two locations to help CommPAL and other startups working on AI products decide where to launch their product. CommPAL is looking into different regulatory systems, ecosystems, IP strategies, and markets that all best suit their product development, so this research topic covers the regulatory portion of their priorities in order to make a location decision.

3. **METHODS**

To understand how the difference in regulations in the EU and the US affects compliance costs for startups, the first step in this process was using Google, Google Scholar, the NCSU library, and Elicit to

find articles and websites about AI regulations. Finding information on regulations in the EU and US helped discover why there are such significant differences in compliance costs in both locations.

Next to qualitative data, the next step was to use surveys and research to collect quantitative data on compliance costs for AI startups. Data on what AI startups think their budgets will be and if they expect to need more or less money to meet regulatory requirements was available from other research projects. I also found the expected compliance cost for AI startups in Europe and the annual compliance cost of AI startups in both the US and EU with use of case studies. This was useful in comparing which regulatory framework is more expensive for compliance. These data points helped determine which region's regulatory frameworks are less complex to understand and plan for. To make the data easier to interpret, some data is presented in tables.

As a final step in the research process, I conducted three interviews with AI companies in Ireland. I asked questions such as the company's annual compliance cost, their budget for compliance, thoughts on launching in a different country, any delays AI regulations have caused, and any knowledge they have on the differences in compliance costs in the US and EU. I also asked about problems they have encountered meeting regulatory requirements in Europe. I asked how these complications have affected the compliance costs of the startup. Besides that, I asked if they have a specific compliance team or if they have noticed an increase in work for their employees because of regulatory issues.

4. LITERATURE REVIEW

To address the research question, it is essential to examine existing literature on the regulatory frameworks governing AI in both the US and the EU.

4.1 EU AI Act Regulations

Europe's EU AI Act was established in 2024, however it is still subject to considerable changes before it will be finalized [4]. The Act identifies a risk-based approach, categorizing AI systems into four risk levels: unacceptable, high, limited, and minimal risk [2]. Unacceptable AI systems will never be allowed to be placed on the market as they include subliminal, manipulative, or exploitative behaviors [4]. High risk systems, such as AI used in healthcare, education, and employment, are subject to the most stringent requirements, such as data governance to ensure high-quality data, human oversight to mitigate risks, conformity assessments to verify compliance, and post-market monitoring to address emerging risks [2]. These systems are also required to be transparent and explainable to ensure regulators understand how

decisions are made [8]. According to a survey done using over 100 AI startups in the EU, more than 33% of AI systems will be classified as high-risk and are therefore subject to the strict EU AI Act's regulations [9]. High-risk AI systems are required to have regular check-ins to make sure they are still compliant with the regulations and penalties will be imposed for non-compliance [10]. Limited risk AI systems, such as chatbots, AI computer games, and spam filters, have some basic regulatory obligations and minimal risk systems do not have any specific requirements within the AI Act [4, 10]. If an AI system violates one of the rules, Europe's AI Act imposes high penalties. Fines of up to thirty-five million Euros per violation of an AI system are possible [2]. Even though the regulatory environment in Europe is strict and has much higher penalties, the EU sees itself as the "regulatory powerhouse" because it maintains ethical AI use and legal clarity [11]. Whilst other locations are questioned if their AI laws maintain ethical oversight, that is not a question for the EU AI Act. The AI Act has many specific objectives such as ensuring safe AI systems, maintaining a robust legal framework to facilitate AI innovation, enhancing effective enforcements on AI systems, preventing fragmentation in laws, and facilitating development of lawful, safe, and trustworthy AI [4].

Next to the EU AI Act, another important regulatory framework to mention is the GDPR. GDPR was implemented in 2018 and it was an extension of the existing data protection regulation [12]. This law protects personal data of EU citizens or residents and if a system violates the laws, the maximum penalty is twenty million Euros [12]. The law highlights seven protection and accountability principles. Lawfulness, fairness, and transparency indicate that data must be collected and used in an ethical way [12]. Purpose limitation means that data can only be used for the specific purpose [12]. Data minimization means only necessary data can be collected and accuracy indicates that data must be accurate and up to date [12]. Storage limitation means that data can not be kept longer than needed and integrity and confidentiality ensures that data must be kept secure and protected [12]. Accountability indicates that organizations must be able to demonstrate compliance with these laws [12]. GDPR also makes sure that companies collect consent from any data subject before any data collection. Together the EU AI Act and GDPR will create significant implications for all organisations processing EU data.

When the EU AI Act started deploying in 2024, many big tech companies such as Google, Apple, and Meta decided to delay launching their AI products in Europe due to the increase in regulatory burden [13]. They are concerned about several European regulations such as the GDPR and the EU AI Act [13]. Ireland's Data Protection Commission has caused major issues for Google, Gemini, and Meta causing

them to pause their AI product launches in Europe due to the "unpredictable nature of the European regulatory environment" [13]. Even though this is showing that Europe's AI innovation and competitiveness is decreasing, Europe is a leader in "trustworthy AI" due to its legal clarity and rules that protect users' privacy, security, ethical use, and trustworthiness [4, 13]. The only issue according to an EU commissioner is that products might be released a few months or a year later than other locations, but it will be a product that is "developed to do good to people" [13].

4.2 US Regulatory Framework

The United States takes a much more fragmented approach to AI regulations, since it relies on federal initiatives, state-level legislation, and voluntary industry standards [2]. At the federal level, AI regulations mostly prioritize fairness, consumer protection, privacy, and international leadership [2]. However, the regulations in the US are not legally binding, meaning that there are no mandatory federal laws requiring companies to comply with specific AI standards [2]. In 2025, Donald Trump removed barriers in order to maintain American leadership in AI, meaning that rapid AI technology developments are being prioritized over regulating them [2]. The US is attempting to protect their international AI advantage by helping AI startups get their products to market quickly. Trump revoked many efforts that Joe Biden took when he implemented the AI Bill of Rights, which regulated AI risks and encouraged ethical use [14]. Now with Trump leading, the US wants to ensure public engagement, limit regulatory overhead, but still promote trustworthy AI that is safe and fair [11]. Additionally, there is an absence of centralized oversight or clearly defined penalties for regulatory violations in the US [10].

At the state level, some states are employing their own AI regulations to protect users and AI companies. Colorado is an example of this. In 2024, Colorado enacted The Colorado AI Act which drew a lot of inspiration from the EU AI Act because of its risk-based approach to regulate AI systems [14]. This AI Act wants to emphasize transparency, risk mitigation, and documentation [14]. Another state that took initiative is Illinois, whose Supreme Court's AI Policy became effective in 2025 [14]. This framework provides guidelines on ethical use, accountability, and safeguarding judicial integrity [14]. These states are stepping in to create laws that they believe should have been in the federal regulatory framework. These state-level regulations make it difficult for new AI companies to understand exactly which regulatory laws are required of them, especially if a business is operating across states [15].

5. RESULTS

The findings presented in this section are based on insights from the literature review on regulatory frameworks and data gathered through case studies and interviews about compliance costs.

5.1 Comparison of Regulations

The regulatory frameworks in the US and EU vary in many aspects. Europe has much stricter AI regulations and must comply with GDPR regulations [2, 12]. This leads to a complex set of laws to be compliant with as an AI startup, but it is also relatively straightforward to understand what is expected because of the centralized approach. Every European country has the same laws and regulations when it comes to AI and data privacy, so there should never be any uncertainty [2]. However, that does not make the requirements easier or cheaper to meet. Not meeting the requirements can lead to high penalties, which could put AI startups in debt before they even get their product in the market [2]. So, Europe has its pros and cons, since it is a very centralized approach and ensures safe and ethical AI products due to the rigorous laws, but the laws are strict and impose harsh penalties and costs.

The fragmented approach and changing federal, state, and industry AI laws of the US makes it difficult to fully know when your product meets all the regulatory requirements [8]. Fortunately, the US does not impose severe penalties for non-compliance, which presents an advantage compared to the penalties in Europe [10]. The US may have simpler regulations to obey, but it does not maintain as much data privacy, security, oversight, and ethical use as Europe does. The United States also presents both advantages and disadvantages. It is a simpler framework with less penalties and costs, but it is decentralized and fragmented. Besides that, the fact that Trump is deregulating in order to increase the speed and efficiency of AI innovation can be good for launching an AI product there, but that can also lead to untrustworthy AI systems, despite their quick and efficient AI growth [2].

Since CommPAL is likely a high-risk AI system, due to their use of both AI and healthcare data, it must meet the most stringent regulations [5]. The United States may be more favorable in terms of AI regulatory frameworks, given its comparatively less strict regulations and the absence of a risk-based classification system as implemented in Europe. Additionally, the lower penalties for non-compliance with AI requirements in the US presents a potential advantage for companies such as CommPAL. However, this does not consider the differences in healthcare regulations between the US and the EU, which may also impact regulatory compliance. Even though the US seems more favorable at the moment, startups must also take into consideration that the lack of regulation could lead to

untrustworthy products and the US could at any time start regulating, which could cause uncertainty.

The following table shows some of those most noticeable differences between the regulatory frameworks in the US and EU.

Table 1. Table comparing regulatory frameworks of the EU and US. Uses data from Ref. [10].

	Risk Assessment	**Penalties**	**Type of regulation**	**Approach**	**Priorities**
Europe	Four risk categories	Up to 35 million Euros	Strict, mandatory compliance, legally binding	Centralized	User safety, transparency, oversight, trustworthiness
USA	Case-by-case assessment	No clearly defined penalties	Flexible, fragmented, not legally binding	Decentralized - federal and state-level	Competitiveness, innovation, trust, minimal regulatory burden

5.2 **Effects of Regulations on Compliance Costs**

Regulations have an effect on compliance costs. Since the US and EU have different levels of regulation, the compliance costs for companies that are developing an AI product also vary greatly.

5.2.1 *Compliance Costs*

With the growth of AI, regulatory frameworks are expanding, meaning compliance costs are also increasing. In 2018 a study with companies in various industries was conducted that showed that compliance costs increase as nations go through periods of increased regulation, which is also what is happening now with the recent implementation of the EU AI Act [3]. This study showed that 58% of companies around the world expected increased interaction with regulatory personnel in their industry when more regulatory frameworks were implemented [3]. This would lead to more budget going out to these interactions [3]. Two-thirds of the surveyed companies also expected an increase in their total compliance budget and 43% of the companies expected the compliance team to grow [3]. Adhering to regulatory requirements can be prohibitive for innovation, potentially divert funds from research and development, and cause delays in market entry, especially for startups who have limited funds [16]. However, it may be worth it to spend more on these costs, as not meeting regulatory requirements can cost much more with the high penalties that regulatory frameworks bring [3]. As long as startups

navigate AI regulation effectively, they can position themselves for growth and success making regulatory requirements catalysts for innovation [16].

A phenomenon relating to compliance costs is the “compliance trap” which means startups get stuck in debt and get delayed significantly because they are not prepared to cope with the costs of meeting regulatory requirements and budget much lower than they need [17]. A simulation of AI startups versus tech giants was done based on the OECD Regulatory Compliance Cost Assessment Guidance where the sensitivity of compliance cost effects on startup success was measured [17]. The simulation showed that a 200% increase in fixed compliance costs would change the startup's operating margin from 13% to -7%, meaning that the company no longer makes a profit, but loses money instead [17]. This can happen when a company falls into the compliance trap by not budgeting adequately. Compliance costs often deviate significantly from the budget due to unexpected complications, delays, or the unknown indirect costs that come with the job [17]. Another experiment was done where researchers used a case-study approach, drawing from a startup’s real-world challenges and budgeting experiences as it navigated regulatory compliance [17]. This startup fell into the compliance trap and it was seen that their compliance costs were about 2.3 times higher than the amount they spent on research and development of the product [17]. To address compliance costs and challenges arising from regulatory uncertainty, AI companies have enacted compliance teams that are in charge of documentation, knowing the rules, making the product meet regulatory requirements, and handling any regulatory problems that come up [10]. However, these teams also bring a lot of extra costs and time to hire [10].

Table 2. Compliance Cost Sensitivity for Startups. Table reprinted from Ref. [17]

	Start-ups	
	Base case	200% increase in fixed compliance cost
Revenue	$2,000,000	$2,000,000
Gross Margin	40%	40%
Gross Profit	800,000	800,000
Total Compliance Cost	300,000	700,000
Fixed compliance cost	200,000	600,000
Variable compliance cost	100,000	100,000
Expenses	240,000	240,000
Operating Income	260,000	(140,000)
Operating Margin	**13%**	**-7%**

5.2.2 *Compliance Costs in the EU*

The size of compliance costs is directly affected by regulations and can vary a lot in different regions, due to different regulation complexity, documentation requirements, required system changes, required employee efforts and time, and penalties. Because of this, a survey of over 100 AI startups and 15

venture capital firms in the EU has indicated that 16% of AI startups in Europe have considered relocating outside of the EU [9]. This is because they are concerned the EU AI Act will slow down AI innovation due to the extra costs it requires [9]. The total direct compliance costs of the EU AI Act consist of five cost components: costs for safeguarding high-quality data, costs for documentation, costs for providing regulatory authorities with information , costs for human oversight over AI systems, and costs for safety verification [4]. These components of compliance costs on high-risk AI systems were estimated to add up to 29,277 Euros per year per company in 2023 [4]. This is the upper boundary of the annual fixed costs. The lower boundary was estimated at 18,629 Euros per year [4]. These costs, however, do not include other direct costs, such as hiring compliance teams, complications, and record-keeping and it does not include indirect costs [4]. According to the survey done with 100 AI startups and 15 venture capital firms in Europe, around half of the startups expect the total compliance costs to be around 160 to 330 thousand Euros annually per startup now that the EU AI Act has expanded since 2024, but 19% of startups expect it will be higher [9]. Compliance costs generally vary strongly per type and complexity of AI system [4]. From these results, it can be concluded that the compliance costs in Europe are extremely high, are increasing quickly, and can cause major problems for startups who have limited funds available to them. Startups want to focus on innovation and making the best possible product, but the regulatory requirements and costs that come with that can prohibit innovation because there are not enough funds.

Table 3. Increase in Compliance Costs since the EU AI Act expanded. The table uses data from Ref. [4, 9].

	Lower boundary	**Upper boundary**
2023	18,629 Euros	29,277 Euros
2024	160,000 Euros	330,000 Euros

5.2.3 *Compliance Costs in the US*

With the fragmentation of the regulatory frameworks in the US comes the difficulty in understanding all compliance requirements. However, compliance costs in the US are significantly lower, and the penalties are far less severe compared to those in Europe. California's AI Transparency Act, for example, only has penalties of 5,000 Dollars per violation and Utah's AI Policy Act only penalizes

non-compliance with 2,500 Dollars per violation [8]. Besides penalties, the direct compliance costs of AI companies launching in the US are also low because compliance is mostly voluntary and industry-driven [8]. US compliance costs are not zero, but regulations are more flexible and vary greatly between states and companies [8].

5.3 **Findings from Interviews**

As part of this research project, I conducted three interviews with researchers and founders of AI and healthcare startups based in Cork, Ireland.

5.3.1 *EU AI Act*

The first interview was with a researcher at a medium-sized hospital in Cork who has interests in compliance costs and the EU AI Act. She highlighted several advantages of the EU AI Act, including that it sets clear ethical standards, builds public trust in the AI market by enforcing strong regulations, ensures a predictable legal framework, and upholds strong privacy protections [Interview Participant 1, personal communication, July 16, 2025]. Besides the pros, she mentioned that there are also many disadvantages that come along with the EU AI Act, such as the need for front-end costs, complex administration, third-party auditors, and regulatory experts, which all lead to a slower innovation cycles, less flexibility for innovation, and difficulty to get funding [Interview Participant 1, personal communication, July 16, 2025]. Paying for an external regulatory expert can go up to 60 thousand Euros per year, more documentation requires up to 25 thousand Euros a year, risk categorization costs about 30 thousand Euros, and conformity testing can go up to hundreds of thousands of Euros a year [Interview Participant 1, personal communication, July 16, 2025]. This all leads to about 100 to 400 thousand Euros annually for an AI startup in Europe [Interview Participant 1, personal communication, July 16, 2025]. Paying these regulatory costs leads to additional burdens, including delays in time-to-market, time spent understanding complex regulatory requirements, the need to engage compliance teams or external experts, and a heightened risk of employee burnout due to regulatory stress [Interview Participant 1, personal communication, July 16, 2025]. She indicated that her research project has a compliance team and that they've been working on compliance for her project already for about 12-18 months [Interview Participant 1, personal communication, July 16, 2025]. Some issues she has had that she mentioned are that she underestimated the costs of compliance initially because the AI Act has been changing so much and the delays the EU AI Act have brought to launching her product [Interview Participant 1, personal

communication, July 16, 2025]. This has caused her to look into launching outside of Europe [Interview Participant 1, personal communication, July 16, 2025].

The second interview was with a project investigator of a small AI and healthcare research project that is transitioning into a startup in Ireland. She mentioned that complying with the EU AI Act and with the GDPR regulations has significantly affected the compliance costs for her startup [Interview Participant 2, personal communication, July 21, 2025]. Even very early in the design of the product, the team had to start implementing a quality management system and other types of documentation, which costs a lot of time, effort, and money [Interview Participant 2, personal communication, July 21, 2025]. She employed a legal expert to write daily protection impact assessments, but she does not have a full compliance team [Interview Participant 2, personal communication, July 21, 2025]. She said that the EU AI Act has caused a delay in launch because of the need to attract more investment, understand regulations, get legal advice, attend training sessions, and decide which geographic location would be most efficient to launch their product due to different regulatory environments [Interview Participant 2, personal communication, July 21, 2025]. The annual compliance cost for her startup was around 100 thousand Euros annually, but when they were a research project, it was only around 40 thousand Euros a year [Interview Participant 2, personal communication, July 21, 2025]. She mentioned that compliance costs have gone up significantly, so her initial budget did not account for that [Personal Communication, 2025]. Her project has seriously considered launching the product in a different location due to the high compliance costs in Europe [Interview Participant 2, personal communication, July 21, 2025]. However, she thinks these regulatory frameworks lead to more trustworthy and safe products because protection and informed consent of citizens is very important, but it can also lessen innovation, so there needs to be a better balance [Interview Participant 2, personal communication, July 21, 2025].

The third interview was conducted with a small medical device startup using AI. They are currently in the regulatory phase, but are initially launching in the US due to less regulations and lower costs [Interview Participant 3, personal communication, July 25, 2025]. They mentioned that their compliance costs per year would be between 100 and 300 thousand Euros in Europe. Even though there are quite high costs, they mentioned that they are willing to pay this after launching in the US because the EU AI Act leads to better quality products [Interview Participant 3, personal communication, July 25, 2025].

5.3.2 *US Regulatory Frameworks*

The startup from the first interview said that the US can lead to trust issues with the products, can have issues with entering the EU AI market, and can receive public backlash [Interview Participant 1, personal communication, July 16, 2025]. This is all due to the fragmentation and lack of AI regulations in the US. Besides that, if the US suddenly decides to implement a more centralized AI regulatory framework, costs will go up for startups, which could be an issue for future innovation in AI in the US [Interview Participant 1, personal communication, July 16, 2025].

The second interviewee mentioned that there would be a shock to the industry if the US suddenly starts regulating [Interview Participant 2, personal communication, July 21, 2025]. Therefore, the US may be simple to comply with at the moment, but that may not last forever.

As stated above, the third interview I performed was with a startup launching in the US initially. They mentioned that the US does not have big initial costs for AI and healthcare products [Interview Participant 3, personal communication, July 25, 2025]. However, they did not take into account that US regulatory consultants were about three times more expensive than European consultants [Interview Participant 3, personal communication, July 25, 2025]. Even with high consultant costs, the US only costs around a few thousand Dollars per year for compliance [Interview Participant 3, personal communication, July 25, 2025].

Table 4. Similarities Between Interviews [Interview Participant 1-3, personal communication, 2025].

	Type of company	**Challenges**	**Annual Compliance Costs**	**Delay**	**Budgeted Correctly**	**Considered Different Location**
Interview 1	Research project	High front-end costs, complex procedures, slow innovation, regulatory experts are needed	100-400 thousand Euros	Yes	No	Yes, because of compliance costs, understanding, and delays
Interview 2	Research project transforming to a startup	Go-to-market strategy, startups have finite resources, and geographic	Around 100 thousand Euros	Yes	No	Yes, because EU AI companies are taking up to 18 months to become compliant and expectations are

		jurisdiction				increasing
Interview 3	Startup	High costs, uncertainty of compliance	100-300 thousand Euros	Yes	No	Yes, because of different regulatory environment and a more suited market

5.4 Effects of Compliance Costs on AI Startups

Significant differences in compliance costs in the US and EU can have significant effects on AI startups. High compliance costs can cause startups to delay their product launch, to lose money instead of making a profit after launching their product, and prohibit innovation due to costs diverting funds from research and development [17]. This can result in AI products having fewer features than originally intended or companies lacking the necessary funds to fully develop their product as envisioned. They will have to redirect funds to meeting compliance requirements rather than improving functionality. Findings from the interviews indicated that high compliance costs from the EU led to the need for more funding, less flexibility for innovation, delay in time-to-market, increased burn-outs of workers, more time needed to get regulatory experts involved, and the need to decide if launching in another location would be more suitable [Interview Participant 1-3, personal communication, 2025]. While European startups face a range of these complex regulatory challenges, the United States does not currently experience these issues to the same extent. However, this could change if the US chooses to adopt more stringent AI regulations in the future. [Interview Participant 1-2, personal communication, 2025].

6. CONCLUSION

The goal of this research was to answer the question, “How do the differences in regulatory frameworks in the US and EU affect compliance costs for AI startups?” This research highlights the significant differences in compliance costs between the US and the EU, largely due to variations in the strictness and centralization of their regulatory frameworks. To answer the research question, the results from Table 3 show that regulatory frameworks affect compliance costs vastly. The US currently has less strict, decentralized, fragmented regulatory laws, which lead to less direct compliance costs. The EU has strict, centralized, risk-based regulatory laws, which lead to high direct and indirect compliance costs. High compliance costs directly lead to less innovation for AI startups. Due to this, EU AI startups have considered launching outside of Europe, but that could cause difficulties if other regions start regulating

more in the future. This study suggests that startups must carefully align their launch strategies with their risk tolerance, resource availability, and long-term goals. Future research could further explore the evolving nature of AI compliance and its impact on innovation in different sectors since this research only focused on AI, but other factors are important to consider as well. Other factors could include, startup culture, startup ecosystems, and any other sector-specific regulatory environments that are related to the product.

7. DISCUSSION

AI startups can benefit from the results of this paper, but also it has some limitations. This paper only addresses AI regulations and compliance costs, but there are many more factors to discuss. For example, CommPAL must also be compliant with healthcare privacy laws, which take a much different shape than AI regulations. There are also other factors that AI regulations affect besides compliance costs. As a result, this paper is limited in its ability to provide a complete answer to the question of which region is more suited for AI startups. Nonetheless, compliance costs are closely tied to global AI competitiveness and remain an important topic for AI startups to consider since it can slow down innovation in a rapidly growing and changing AI market. Another limitation of this paper is that there is not a lot of knowledge and data on compliance costs of AI startups, since many companies do not share that information. Additionally, both the EU AI Act and US regulatory frameworks are evolving in response to the rapid pace of AI development, so the results of this paper may not reflect the future regulatory environment.

7.1 Prior Knowledge and Course Connections

I do not have prior knowledge of AI regulations or the effects of regulations on the compliance costs for startups from any past coursework or experience. However, I do have some knowledge of startups in Europe because my father has been the head of two startups in Europe for the past five years. Over the years, he has shared issues his startups have encountered with regulations, so that knowledge helped with this project.

This research course aligns with the Computer Science major by allowing students to explore a relevant topic within the field while developing essential research and academic writing skills. These skills are particularly valuable for those considering careers in Computer Science research. This research will be useful in preparing for ENG 331, which is a writing class for engineers. Before I started my internship, there were a few classes I took at North Carolina State University that helped me prepare for it. The core

Computer Science classes such as CSC 216, CSC 316, CSC 230, and CSC 246, were especially helpful in getting me familiar with Computer Science topics and programming platforms. It would have been useful to take a Python class before coming to this internship, but CSC 469 was helpful in getting me more familiar with Python since it required the programming projects to be written in Python.

7.2 Contributions to Placement Company

This research indicates that the optimal regulatory environment for an AI company depends on its specific goals, whether it prioritizes a centralized, ethically driven but stricter framework, or a more decentralized and cost-effective path for launching its product. From the results, it can be seen that both the US and EU have various advantages and disadvantages. Which AI regulatory framework better aligns with CommPAL's goals and commercial ambitions is something to discuss with the team to help with their decision to either expand internationally or stay local.

7.3 Reflection on Internship and Research

It was difficult to decide on a topic that was both relevant to my placement work and the requirements of the module. Also, this research needed to be achievable in a relatively tight timeframe. However, I think I put together a good report and the interviews helped bring a lot more interesting insights and depth to the research. This project has deepened my understanding of how regulatory frameworks shape technological innovation. My internship was also amazing and it has taught me so much, brought me many connections, enhanced my skills, and it was overall a pleasure to work with my placement company. I sincerely hope that my research can help them with their decision.

8. REFERENCES

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10. PRESENTATION AND VIDEO LINKS

Video: https://drive.google.com/file/d/1sOdvjfeyUf6Gm1OlEqzUFFPvntB-AW8R/view?usp=sharing

Presentation: https://docs.google.com/presentation/d/1X6I3XqpJnJAlkQIs7bSgB6kNUWe7FD5SUOSEuHZOz1U/edit?slide=id.g37205a85388_0_448#slide=id.g37205a85388_0_448