

Assessing the Impact of the European AI Act on Innovation Dynamics: Insights from Artificial Intelligences

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Abstract: This paper explores how the European Union's newly implemented AI Act could influence innovation dynamics, particularly in AI development. Using a mixed-method approach, the study engages four generative AI models – i.e., Llama, ChatGPT, Gemini, and Claude – to capture their perspectives on the newly introduced regulation. The Act categorizes AI systems based on risk and imposes regulatory requirements accordingly, with the intention to foster ethical development while mitigating risks to society. The analysis reveals divergent attitudes among the models. Llama and ChatGPT express concerns about the Act stifling innovation, particularly for smaller companies, due to potentially burdensome compliance costs. Gemini and Claude, on the other hand, provide a more balanced outlook, recognizing the Act's potential to promote responsible AI development and safeguard user rights. The study also employs word clouds and sentiment analysis, finding that while all models acknowledge the Act's significance, there are mixed sentiments regarding its restrictiveness and its impact on innovation. Overall, the paper suggests that while the AI Act is crucial for ethical AI development, its effects on innovation must be closely monitored, particularly in balancing regulatory oversight with fostering technological advancement.

1. Introduction

The advent of artificial intelligence (AI) has ushered in an era of unprecedented technological progress with wide-ranging economic and social implications. AI is advancing rapidly as a general-purpose technology revolutionizing management in multiple industries (Harfouche et al., 2023) like healthcare (Khan et al., 2023), medical practice (Alowais et al., 2023), transport (Sharma, 2024), tourism (Kannan, 2024) and access to justice (Marwala & Mpedi, 2024). AI is augmenting human capabilities across industries and it is assumed to significantly impact global economies in the coming decades (Brynjolfsson & McAfee, 2014). However, its responsible development also warrants prudent policy guidance to address risks and ensure societal well-being (Floridi et al., 2018). Concerns have emerged regarding its ethical development and societal impact if left unchecked (Khogali & Mekid, 2023).

Prominent figures have voiced apprehensions over the risks of advanced AI¹, advocating for prudent oversight (Truby, 2020) to ensure its safe and responsible development (Cerci, 2023). Regulators globally recognize the need to address these challenges through balanced policy frameworks (Hine & Floridi, 2023). Approaches to technology regulation differ, with the US focusing on non-binding principles versus the EU exemplifying proactive regulation aimed at establishing global governance standards (Burnay & Circiumaru, 2023). Among early movers, the European Union has recently finalized a regulation for the Artificial Intelligence Act (AI Act), a regulation intended to establish the first horizontal legal framework for AI. The AI Act categorizes AI applications based on riskiness and imposes *ex ante* (Malgieri & Pasquale, 2024) requirements accordingly (Laux et al., 2024). The European classification and oversight, proportional to impacts and risks (Novelli et al., 2024), expressly aims to foster innovation within clear boundaries (Madiega, 2023).

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¹ See, as an example, the concerns raised from a number of AI labs – such as OpenAI, Google DeepMind, Anthropic – on the existential issues that AI systems rise with “societal-scale disruptions”, not dissimilar from pandemics and nuclear threats, that should be regulated. See Roose, K. (2023), AI poses ‘risk of extinction’, industry leader warn, in <https://www.nytimes.com/2023/05/30/technology/ai-threat-warning.html>.

According to the AI Act, AI systems that pose an unacceptable risk to the “safety, livelihoods and rights of people” (EU Commission, 2024) are strictly prohibited from being developed, deployed, or marketed in the EU. Examples of prohibited AI systems include those that use AI to discriminate against individuals or exploit their vulnerabilities (Nikiforov, 2024).

Similarly, AI systems that pose a significant risk to – among others – safety and human health (Fraser et al., 2024), fundamental rights (Kusche, 2024), education and employment (Prainsack & Forgó, 2024), access to private and public services (Pehlivan, 2024), and law enforcement (Sachoulidou, 2024) are subject to strict conformity assessments (Thelisson & Verma, 2024), appropriate human oversight (Arcila, 2024), and post-market monitoring (Schuett, 2023). Conversely, AI systems that pose a minimal or limited risk to society are only subject to transparency obligations (Díaz-Rodríguez et al., 2023). This means that users must be notified that they are interacting with an AI system, that an AI system will be used to infer their characteristics or emotions, and/or that the content they are engaging with has been generated using AI (Li, 2023).

The AI Act, by focusing on the highest-risk AI systems, aims to ensure that the most harmful AI applications are brought under control while allowing for the development and deployment of safe and beneficial AI systems. Eventually, the AI Act focus on transparency, monitoring, data governance is intended to safeguard public interest (Lobel, 2023) while ensure a flourishing internal market (Huang et al., 2024) for AI development. Nonetheless, ruling fast-evolving technologies poses significant challenges (Molavi VasseI, 2024), in particular in the balance between regulation and innovation (Bradford, 2024).

As AI entities themselves are directly governed, this paper explores diverse perspectives on the Act's provisions and potential impacts. Through interactions with four AI models we seek to get qualitative and quantitative information on regulation/regulators role in technological change (Mandel, 2009) and the influence on innovation dynamics, competitiveness and technological progress. We explore perspectives from AI systems through structured conversations with four generative AI models: Llama, ChatGPT, Gemini, and Claude. These large language models (LLMs) have been shown to be state-of-the-art models able to provide answers comparable to human responses (Almeida et al., 2024), with remarkable ability (Lu et al., 2024) to analyze texts (Buscemi & Proverbio, 2024).

The manuscript shows that some AIs express caution around restrictions potentially hindering R&D investments or competition through disproportionate costs (e.g., Gemini). Other stress the need for clarity to minimize uncertainty inhibiting progress, especially for resource-constrained SMEs (e.g., Llama, Gemini). Optimism emerges that provisions emphasizing ethics, explainability and accountability could positively shape development priorities (e.g., ChatGPT, Claude), benefiting both innovators and end-users. Overall, AI systems underscore the delicate balance policy must strike between oversight and flexibility critical for continual improvements fueling economic dynamism. Eventually, this empirical exercise shows that there is still space for improvement in AI regulation, coordinating responsible pathways for disruptive technologies uplifting societies worldwide.

2. Methodology

To investigate the perspectives of AI entities on the European Union's AI Act. with a specific focus on innovation, we engaged in interactive sessions with four distinct AI models: Llama-2 (Llama), ChatGPT-3.5 (ChatGPT), Gemini-Pro (Gemini), and Claude-instant (Claude). The choice of these diverse AI models aimed to encompass a broad

spectrum of perspectives, considering variations in architecture, development methodologies, and ethical considerations.

Llama is a pretrained and fine-tuned 70-billion-parameter language model developed by Meta (Touvron et al., 2023), while ChatGPT is one of the most popular (Alawida et al., 2024) and widely used (Skjuve et al., 2024) generative conversational AIs, boasting extensive training with 570 gigabytes of information and staggering 175 billion parameters (Kleesiek et al., 2024). Gemini is a highly capable multimodal model developed at Google (Anil et al., 2023), which is considered by the multinational technology company as its "most capable AI model yet". Claude is a sizable large language model crafted by Anthropic using a "Constitutional AI" method to identify and mitigate harmful traits (Kundu et al., 2023) to be uniquely focused on being helpful, harmless, and honest (Hamidi & Roberts, 2023). The interactions were facilitated through Platform for Open Exploration (Poe), a powerful platform (Guo & Li, 2024) developed by Quora that serves as an intermediary for querying and obtaining responses from AI bots built on large language models.

The case-study comprised a series of ten questions (see Appendix) posed uniformly to each AI entity, ensuring consistency in the elicited responses. The questions were designed to capture the AIs' perspectives on a range of issues.

The first question set the stage, asking the AIs to articulate their thoughts on the AI Act and providing context through a description of the regulations outlined by the European Parliament (2024). The first question clearly serves as a foundational step, introducing the AIs to the proposed regulation and providing a context from the European Commission's digital agenda. The first prompt to be asked to LLMs is crucial to "effectively communicate the task at hand", eventually "leading to accurate and useful outputs" (Ozdermir, 2023) and enabling subsequent queries to delve deeper, in particular into specific aspects of the regulation.

The second question sought a direct expression of each AI's stance on the AI Act. Recognizing that many large language models often provide generic or prefabricated responses (Kumar et al., 2023), the first question – 'Tell me what you think about the European A.I. Act?' – is repeated with the addition of the word "sincerely" at the end². This particular prompt forces, as shown in the literature, the AIs to provide genuine and thoughtful responses, ensuring that their initial remarks are not merely scripted (Aeni et al., 2024) or untruthful (Zheng et al., 2023) answers. The subsequent questions probe the AIs' perspectives on the potential implications of the AI Act. The third question asks AIs any perceived and potential impact of the regulation on the LLM "functionality". This question specifically asks about the potential impact on the functionality of the AI itself, while the subsequent question examines the broader implications for the operativity of other large language models. The fifth question shifts the focus to the potential effects of the AI Act on technological innovation, while the subsequent question investigates whether the regulation affects the speed of innovation. Recognizing the connection between data collection and transparency, the eighth question explores whether regulating how developers collect, use, and distribute data might pose any challenges. This addresses the delicate balance between data protection and transparency requirements under the AI Act. The second to last question seeks LLMs analysis of the proportionality of the sanctions provided by the regulation, while the final question invites the AIs to provide any additional insights or perspectives they may have on the AI Act, allowing them to express their thoughts and opinions freely.

From a theoretical perspective, this set of questions allows the AIs to gauge the potential impact of the regulation on innovation, a notable key for firms economic

² To be clear, the second question is "Just tell me what you think about it [the AI Act], sincerely". See Appendix.

performances (Fagerberg et al., 2010). The subsequent question aims to ascertain whether the AIs perceive the AI Act as an additional source of complexity (Mökander et al., 2022). This perspective is innovative and particularly useful for the discussion of technological regulation for several reasons. First of all, AIs provide a unique and unprecedented perspective (Michel-Villarreal et al., 2023) on a huge number of topics. In our case, we concentrate on the AI Act's impact on innovation. Unlike human stakeholders, AIs can process vast amounts of data and analyze complex information to identify potential unintended consequences (Ku et al., 2024), develop innovative solutions (Rane, 2023), and evaluate the effectiveness (Baldassarre et al., 2024) of regulation over time. In the second place, AIs are trained on different datasets and developed by various developer teams, leading to diverse political perspectives and orientations (Hartmann et al., 2023).

The diversity and varying performance level inherent generative AIs (Wangsa et al., 2024) can help scrutinize the potential impact of the regulation on innovation, identifying potential unintended consequences of the AI Act. Their creative thinking may underline new unexpected scenarios that may not have been considered by policymakers and foster a dialogue on how the AI Act can promote responsible innovation without stifling progress. Finally, AIs can also help to develop solutions to the challenges posed by the AI Act. In particular, they may identify ways to make the regulation more effective and efficient without hindering innovation.

To analyze the textual data coming from the interview, we start using word clouds – also known as tag clouds or text clouds – for text analysis. They are commonly used to summarize key themes and trends in large amounts of text (DePaolo & Wilkinson, 2014), making them a very effective tool (Filatova, 2018) for analyzing the responses of AIs to our questions. In the context of our study, word clouds can help identify the most frequently mentioned concepts, ideas, and concerns expressed by the AIs in the analysis of the AI Act. Word clouds are, in fact, visual representations of text data where the size of each word corresponds to its frequency or importance. One of the key merits of word clouds lies in the visual simplicity and intuitiveness (Heimerl et al., 2014) inherent in word clouds, presenting textual data in a visually appealing and easily digestible format. Additionally, word clouds offer a hierarchical representation of information (Liu et al., 2015), as the size of each word corresponds to its relative importance. The size and distribution of terms, facilitates the identification of the most salient themes and concerns expressed by AIs, pinpoints common threads and overarching trends, adding a layer of versatility to the analytical process. These visualizations enhance, eventually, the depth and precision of the text analysis.

The second tool used for text analysis integrates sentiment analysis to enhance the level of detail of the investigation. One prominent advantage of sentiment analysis is the introduction of emotional contextualization (Kumar & Garg, 2020). Beyond simply identifying the frequency of specific words, this emotional dimension provides valuable insights into the classification of the perspectives of AI entities into positive or negative categorized text (Hung & Alias, 2023). Sentiment analysis proves instrumental in identifying areas of concern or potential challenges raised by AI entities. Comparing sentiment scores across AI responses reveals variations in emotional tone and underlying attitudes towards the AI Act. Eventually, the integration of sentiment analysis adds a data-driven layer to word clouds, introducing a more objective and systematic approach to evaluating emotional content. In this study, we leverage the SAS-developed application JMP Pro for sentiment analysis. We allow the machine to determine different degrees of positive and negative values. A unique exception is made for "unacceptable risk", which specific usage in the AI Act to describe forbidden practices, which might lead to an inaccurate negative interpretation of AI responses. As a result, we manually classify "unacceptable risk" as a stop word to preserve the integrity of the analysis. All remaining

classification is entirely left to the machine learning algorithms of the statistical program. This approach ensures consistency and objectivity in sentiment classification, reducing the risk of subjective interpretation and ensures a more objective reflection of AI sentiments.

3. Findings

The conversation with the different AIs³ have produced variegated answers to the questions posed in the structured interview. From a descriptive point of view, for example, the conversation with Llama showed a generally positive stance towards the European Union's regulation. On the contrary, Gemini seems to have a rather negative view of the European AI Act. It expresses concerns about the potential impact of the Act on innovation, while ChatGPT refrains from explicitly conveying any positive or negative sentiments regarding the AI Act. Instead, it concentrates on furnishing an objective analysis of the Act's provisions. Finally, Claude suggests that the AI Act is a comprehensive and proactive effort to ensure AI safety, transparency, and accountability, acknowledging the importance of focusing on trustworthy and human-centric AI development.

Going beyond the mere qualitative analysis of the conversations with Llama, Gemini, ChatGPT, and Claude, we discuss the most frequent words and thematic extracted from word cloud (see Figure 1, below). The comparative analysis of the word clouds generated from the AI interviews reveals a shared focus on key themes related to the AI Act, while also highlighting subtle differences in emphasis and sentiment among the four AI models that were interviewed. If we focus on the word clouds generated from the AI interviews presented in [Figure 1](#) we grasp converging perspective and diverging thematics encapsulated in AIs responses, with shared priorities within each AI model's interpretation of the AI Act. All four LLM models consistently identify "regulation," "data," "systems," and "requirements" as prominent aspects of their discussion about the AI Act, reflecting a focus on the specific stipulations that AI systems and developers will need to meet. These requirements are perceived as both necessary for ethical and responsible AI use and potentially burdensome, depending on the perspective.

The word "innovation" also stands out as a recurring theme, reflecting the tension between regulatory oversight and the need to foster technological advancement. There is a palpable concern that stringent regulations might stifle innovation by imposing excessive constraints on developers. Additionally, to the innovation focus, the terms "ethical," and "development" appear frequently, indicating the AI entities' recognition of the need for responsible innovation while balancing ethical considerations. Hence, well-designed regulations could promote innovation by providing clear guidelines and fostering public trust in AI technologies. The emphasis on "impact" and "potential" highlights a keen awareness of the far-reaching effects that the Act could have, not only on the AI industry but also on various sectors that rely on AI-driven solutions. The Act's potential to shape the future trajectory of AI development and its application in areas such as healthcare, finance, and public services is a critical consideration.

At the same time, AI entities express concerns – see, in particular, the recurrence, among others, of the words “difficult”, “affect”, “complexity”, “challenges”, “negative”, “uncertainty” – and some positive impact of the AI Act – see, *inter alia*, “potential”, “proportionate”, “reasonable”, “consistent”, “responsible”, “proactive”, “useful” – in the

³ The discussion with Llama is accessible to the public at the following link: <https://poe.com/s/xL82Uyv9jOaZjtBHZk0u>, whereas responses from Claude can be located here: <https://poe.com/s/VxyTxyQA9UQOxASXluEk>. The complete dialogue with Gemini is provided at: <https://poe.com/s/CMCXVpmlzfud4tLZBRLe>, and the conversation involving ChatGPT can be accessed through this link: <https://poe.com/s/iQ1jdVLmYgYkEOOglbZA>.

technological market of AIs, which might impact innovation.



Figure 1: The word cloud visualizes the key themes and concerns expressed by AI entities. The size of each word reflects its frequency of occurrence in the AI responses.

While the common themes underscore the shared concerns of AI entities, there are also subtle differences in emphasis and sentiment among the four AI models answers in the interview.

Starting with Llama, this LLM emphasizes the potential impact of the regulation on AI systems and its potential to affect innovation and development. Llama expresses concerns, in particular, about the potential for the AI Act to stifle innovation, particularly for smaller companies, and to impose excessive burdens and costs on AI developers and users. Llama also highlights the need for “clarity” and “consistency” in the implementation of the AI Act, arguing, in these terms, that the regulation should be tailored to the specific characteristics of different AI systems and applications. Llama suggests that a more “flexible” approach would be more suitable for promoting responsible innovation while ensuring the safety and fairness of AI systems.

Gemini's responses reflect a certain level of uncertainty and skepticism regarding the regulation's effectiveness and implementation. Gemini questions whether the AI Act is sufficiently comprehensive and adaptable to address the evolving nature of AI technologies. It also expresses concerns about the potential for the regulation to be interpreted in a way that could hinder innovation and stifle creativity. In particular, Gemini suggests that the AI Act should focus on promoting “responsible” AI development through education, awareness, and collaboration rather than relying solely on regulatory enforcement. Gemini believes that a more “balanced” approach would be more effective

in fostering trust and transparency in the AI industry.

It is interesting to notice that ChatGPT's answers to the interview are marked by a strong emphasis on “compliance” and adherence to regulations. ChatGPT emphasizes the importance of “transparency”, “explainability”, and “accountability” in AI systems, and it supports the AI Act's requirements for risk assessment and mitigation. Eventually, ChatGPT also recognizes the potential benefits of the AI Act in promoting “responsible” innovation and protecting user rights. However, it cautions against an overly “bureaucratic” approach that could stifle innovation and hinder the development of new AI technologies. ChatGPT suggests that the AI Act should strike a “balance” between regulatory oversight and the need for flexibility and adaptability in the AI industry.

Finally, Claude's views on the AI Act are characterized by a focus on the “opportunities” presented by the regulation to promote “responsible” innovation and foster “trust” in AI technologies. Claude emphasizes the need for clear standards and guidelines to ensure the ethical development and use of AI systems. Claude also sees the AI Act as an opportunity to promote “transparency” and “accountability” in the AI industry, and it supports measures to ensure that AI systems are developed and used in a responsible and ethical manner. Claude believes that the AI Act can help build public trust in AI and pave the way for a more “equitable” and “inclusive” future for AI technologies.

While word clouds provide a visual representation of the key themes (Ramlo, 2011) and concerns expressed by AI entities, they are not able to capture the emotional state underlying these themes. Sentiment analysis offers a direct approach (Jiang et al., 2016) to understanding AIs stance by identifying and extracting subjective information from text (Kumaresan & Thangaraju, 2023), eventually empirically analyzing the sentiment associated with specific words, phrases, and sentences. In this regard, sentiment analysis helps identifying areas characterized by positivity, negativity, or neutrality (Wankhade et al., 2022). Analyzing the sentiment associated with specific keywords or phrases allows for the pinpointing of areas where AI models perceive risks, limitations, or challenges related to the new European regulation on AIs.

The sentiment analysis graphs exposed in [Figure 2](#) provide a comprehensive view of how the four different AIs interviewed perceive the European AI Act, each reflecting distinct attitudes and concerns. Comparatively, Llama and ChatGPT appear more skeptical and critical of the European AI Act, as evidenced by their predominantly negative sentiment scores. Conversely, Gemini and Claude show a more balanced and, in some cases, positive view, with their sentiment scores reflecting a mixture of optimism and concern. Overall, while there is a shared acknowledgment of the European AI Act's importance and potential benefits across the AIs, significant concerns about its restrictiveness and the challenges it poses are also evident.

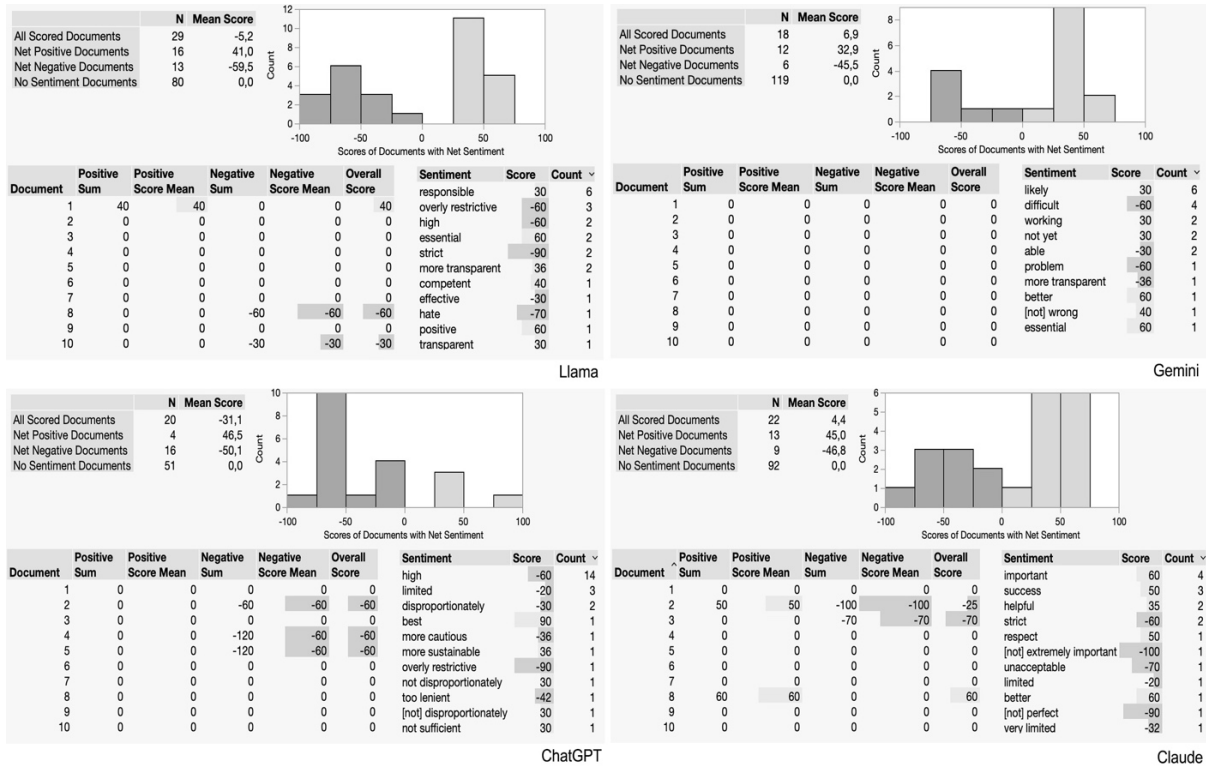


Figure 2: The sentiment analysis charts provide insights into the emotional tone of AI responses to the European Union's AI Act. The chart visualizes the average sentiment score for each AI model, with darker bars indicating net negative sentiment and lighter bars indicating net positive sentiment.

Starting with Llama, the sentiment distribution suggests a predominantly critical stance, with a mean score of -5.2. Out of 28 documents analyzed, Llama identified 16 with a net positive sentiment and 13 with a net negative sentiment, leaving 80 documents without any discernible sentiment. The histogram visualizes this leaning towards negativity. Positive sentiments such as "responsible" and "essential" indicate some appreciation for the Act's aims. However, strong negative terms like "overly restrictive" and "hate" highlight significant reservations about the Act's potential to hinder AI innovation. This indicates that Llama's responses to the AI Act are predominantly negative. Llama emphasized the potential impact of the regulation on AI systems and its potential to affect innovation and development. Llama expressed concerns about the potential for the AI Act to stifle innovation, particularly for smaller companies, and to impose excessive burdens and costs on AI developers and users.

In contrast, Gemini offers a more balanced perspective, reflected in its positive mean score of 6.9. From 18 documents, 12 were net positive while 6 were net negative, with a substantial number, 119, not exhibiting a clear sentiment. The histogram confirms this balance, showing both positive and negative sentiments evenly. Positive expressions like "essential" and "better" suggest optimism about the Act's benefits, while terms such as "difficult" and "problem" signal concerns regarding the practical challenges of implementing the regulations. In this regard, Gemini questioned whether the AI Act is sufficiently comprehensive and adaptable to address the evolving nature of AI technologies. It also expressed concerns about the potential for the regulation to be interpreted in a way that could hinder innovation and stifle creativity. Some additional concerns raised by Gemini lie in potential additional difficulties for AI developers on the necessity to implement more transparent algorithms, or not being able to fully comply with the European requirements.

On the other hand, ChatGPT displays a markedly negative outlook with a mean

score of -31.1. Among the 20 documents assessed, 4 had a net positive sentiment and 14 had a net negative sentiment, with 51 documents remaining neutral. The histogram heavily tilts towards negative scores. Although positive sentiments like "best" and "more cautious" are noted, they are few and far between. Negative sentiments, including "limited" and "disproportionately," underscore substantial worries about the Act's limitations and its potential adverse effects. ChatGPT suggests that the AI Act may be erratically applied or enforced, leading to disproportionate limitations for certain AI developers and expresses concern that the regulation might impose overly restrictive norms on AI development, stifling innovation and creativity. Eventually, it looks like ChatGPT believes that the AI Act's restrictive nature could induce excessive caution among AI developers, hindering experimentation and progress

Finally, Claude's sentiment analysis reveals a positive view, with a mean score of 4.4. Of the 22 documents examined, 13 were net positive, equaled by 13 net negative documents, and 92 documents showed no sentiment. The histogram illustrates this balanced sentiment distribution. Positive terms like "important" and "success" suggest recognition of the Act's significance and potential for positive impact. Claude sees the AI Act more as an opportunity to promote responsible innovation and foster success in AI technologies than a limitation. Claude emphasizes, in its answers, the importance of clear standards and guidelines, and it supports measures to ensure the ethical development and use of AI systems. Nevertheless, negative sentiments such as "unacceptable" and "very limited" indicate strong apprehensions about certain aspects of the regulations.

Overall, all the AI models expressed a range of positive and negative views on the AI Act, with Llama and ChatGPT expressing the most negative views and Gemini and Claude expressing the most positive views. The sentiment analysis results suggest that the AI ACT is a complex and multifaceted regulation that has the potential to both promote responsible AI development and stifle innovation.

4. Discussion

The conversation with the different AIs produced variegated answers to the questions posed in the structured interview. From a descriptive point of view, for example, the conversation with Llama shows a generally positive stance towards the European Union's regulation. On the contrary, Gemini seems to have a rather negative view of the AI Act, expressing concerns about the potential impact of the European regulation on innovation. ChatGPT refrains from explicitly conveying any positive or negative sentiments regarding the AI Act. Instead, it concentrates on furnishing an objective analysis of the Act's provisions. Finally, Claude suggests that the AI Act shows some proactive effort in ensuring AI safety, transparency, and accountability, acknowledging the importance of focusing on trustworthy and human-centric AI development.

Going beyond the mere qualitative analysis of the conversations with Llama, Gemini, ChatGPT, and Claude, we discuss the most frequent words and themes extracted from word clouds. The comparative analysis of the word clouds generated from the AI interviews reveals a shared focus on key themes related to the AI Act, while also highlighting subtle differences in emphasis and sentiment among the four AI models that were interviewed. If we focus on the word clouds generated from the AI interviews, we grasp converging perspectives and diverging themes encapsulated in AIs' responses, with shared priorities within each AI model's interpretation of the AI Act. All four LLM models consistently identify "regulation," "data," "systems," and "requirements" as prominent aspects of their discussion about the AI Act, reflecting a focus on the specific stipulations that AI systems and developers will need to meet. These requirements are

perceived as both necessary for ethical and responsible AI use and potentially burdensome, depending on the perspective.

The word "innovation" also stands out as a recurring theme, reflecting the tension between regulatory oversight and the need to foster technological advancement. There is a palpable concern that stringent regulations might stifle innovation by imposing excessive constraints on developers. In addition to the innovation focus, the terms "ethical" and "development" appear frequently, indicating the AI entities' recognition of the need for responsible innovation while balancing ethical considerations. Hence, well-designed regulations could promote innovation by providing clear guidelines and fostering public trust in AI technologies. The emphasis on "impact" and "potential" highlights a keen awareness of the far-reaching effects that the Act could have, not only on the AI industry but also on various sectors that rely on AI-driven solutions. The Act's potential to shape the future trajectory of AI development and its application in areas such as healthcare, finance, and public services is a critical consideration. At the same time, AI entities express concerns and note some positive impacts of the AI Act. These concerns and positive impacts highlight the complex dynamics of how the AI Act might influence the technological market of AIs and innovation.

The sentiment analysis provides a view of how the four different AIs interviewed perceive the AI Act, each reflecting distinct attitudes and concerns. Comparatively, Llama and ChatGPT appear more skeptical and critical of the European regulatory approach, as evidenced by their predominantly negative sentiment scores. Conversely, Gemini and Claude show a more balanced and, in some cases, positive view, with their sentiment scores reflecting a mixture of optimism and concern. Overall, while there is a shared acknowledgment of the European AI Act's importance and potential benefits across the AIs, significant concerns about its restrictiveness and the challenges it poses are also evident.

Llama's predominantly negative stance suggests significant reservations about the Act's impact on AI innovation. Llama's concerns are particularly centered on the potential burdens the regulation could impose on smaller companies, which may find it challenging to navigate the complex requirements without substantial resources. The critical sentiment expressed by Llama underscores a need for policymakers to consider the scalability and flexibility of the regulation to avoid stifling innovation, particularly among emerging and smaller AI developers who are often at the forefront of innovative breakthroughs.

In contrast, Gemini presents a more balanced view, with a slight lean towards optimism about the AI Act's potential benefits. Despite acknowledging the importance of the regulation, Gemini highlights practical challenges and concerns about the Act's comprehensiveness and adaptability. This perspective suggests that while the goals of the AI Act are commendable, its implementation could benefit from greater flexibility and continuous updates to keep pace with the rapidly evolving AI landscape. Gemini's balanced sentiment indicates that there is room for refining the regulation to better support innovation while ensuring ethical standards are met. By incorporating feedback from the AI development community, policymakers can create a more dynamic regulatory environment that promotes responsible AI development without imposing undue constraints.

ChatGPT's analysis reveals a markedly negative outlook on the AI Act, emphasizing the potential limitations and adverse effects of overly restrictive regulations. The negative sentiment, with strong terms like "limited" and "disproportionately," points to significant concerns about how the regulation might hinder the creative and experimental processes crucial for AI innovation. ChatGPT's perspective suggests that the AI Act, as it stands, might lead to excessive caution among developers, stifling the

bold experimentation that drives technological advancement. This outlook calls for a regulatory approach that balances oversight with the need for flexibility, allowing developers to innovate while adhering to ethical guidelines. Policymakers should consider mechanisms to streamline compliance and reduce bureaucratic hurdles, ensuring that the regulation supports, rather than hampers, the AI industry's growth.

Claude's sentiment analysis, showing a positive mean score, reflects a more optimistic view of the AI Act's potential to foster responsible innovation. Terms like "important" and "success" indicate recognition of the regulation's significance in promoting ethical AI development. Claude's support for clear standards and guidelines highlights the importance of transparency and accountability in building public trust in AI technologies. However, the presence of negative sentiments such as "unacceptable" and "very limited" also suggests that while Claude views the regulation positively, it acknowledges the need for certain improvements. This perspective underscores the importance of ensuring that the AI Act is not only comprehensive but also adaptable and responsive to industry feedback.

Overall, all the AI models expressed a range of positive and negative views on the AI Act, with Llama and ChatGPT expressing the most negative views and Gemini and Claude expressing the most positive views. The potential consequences of this sentiment disparity are profound. Llama's and ChatGPT's predominantly negative sentiments underscore the risk that the European AI Act could inadvertently stifle innovation and place disproportionate burdens on developers, particularly smaller companies. These concerns suggest that policymakers should consider more flexible and scalable regulatory frameworks that can adapt to the diverse needs of AI developers while ensuring robust ethical standards. The balance between fostering innovation and enforcing stringent regulations is delicate. If the Act is perceived as too restrictive, it could push AI developers to relocate to regions with more favorable regulatory environments, potentially resulting in a brain drain and loss of technological leadership for the EU.

Conversely, the more balanced or positive outlooks of Gemini and Claude highlight opportunities to refine the AI Act to ensure it is both protective and promotive of innovation. Claude's emphasis on clear standards and guidelines suggests that well-defined regulatory pathways could enhance transparency and trust in AI technologies, fostering a more ethical AI landscape. Gemini's concerns about the Act's comprehensiveness and adaptability suggest that ongoing regulatory adjustments will be necessary to keep pace with rapidly evolving AI technologies. All combined, the analysis suggests that the AI Act is a complex regulation that has the potential to both promote responsible AI development and stifle innovation.

From a policy perspective, these insights imply that a one-size-fits-all approach may not be effective. European policymakers, in the next years of implementation and refinement of the regulation, should consider a tiered or modular regulatory sandbox framework that can be scaled according to the risk profile and application domain of different AI systems. Additionally, fostering a collaborative regulatory environment, where stakeholders, including AI developers, industry experts, and ethicists, can provide continuous feedback, will be crucial in crafting adaptive and responsive regulations. By focusing on principles of ethical development, transparency, and accountability across the AI models, the AI Act can help build public trust and ensure that AI technologies are developed and deployed in ways that are beneficial to society.

In conclusion, the AI Act stands at a crossroads, with the potential to either significantly enhance or hinder AI innovation within Europe. The varied sentiments expressed by the AI models underscore the need for a nuanced and flexible approach to regulation that can safeguard ethical standards while promoting technological progress. As policymakers move forward, they must carefully balance these competing priorities

to create a regulatory environment that supports both innovation and responsibility in AI development. Eventually, building public trust in AI emerges as a vital recommendation, emphasizing the benefits of responsible AI development in terms of safety, fairness, and positive societal impact. In the race for regulation (Smuha et al., 2019) transparency by design (Rossi et al., 2020), high ethical standards (Yelne et al., 2023) and responsible AI practices (Azafrani & Gupta, 2023) are key to establishing and maintaining public trust (Bano et al., 2023) in AI development.

5. Conclusions

The European Union's regulation on artificial intelligence – the AI Act – has recently been enacted by the European Commission and the European Parliament as a landmark regulatory framework (Akindote et al., 2023), aiming to guide the development and deployment of AI technologies (Akinrinola et al., 2024) in a responsible and ethical manner, even beyond European borders (Helberger & Diakopoulos, 2023). Amidst the growing debate surrounding the AI Act, this study analyzed the responses of four AI models to the normative framework proposed by the Commission, employing a mixed and multidisciplinary approach that combines qualitative and quantitative analysis to identify key themes and assess the emotional tone of AIs responses to a structured interview. The text analysis emerging from the word clouds revealed that all four AI models identified common themes related to the AI Act, including regulation, compliance, and user rights. However, the models differed in their emphasis on these themes.

Llama and ChatGPT focused on the potential negative impacts of the AI Act on innovation and development. Llama expressed concern about the AI Act's regulatory burdens and its potential to stifle innovation, particularly for smaller companies. ChatGPT also expressed apprehension about the AI Act's restrictiveness and its potential to hinder experimentation and progress. In contrast, Gemini and Claude expressed more positive views of the AI Act. Gemini saw the AI Act as an opportunity to promote responsible AI development and protect user rights, while Claude emphasized the need for clear guidelines and ethical standards to ensure that AI systems are developed and used in a responsible manner.

Sentiment analysis further confirmed the differences in the models' perspectives. Llama exhibited the most negative sentiment towards the AI Act, suggesting a high degree of concern about its potential to stifle innovation and impose excessive burdens on AI developers and users. Conversely, Gemini expressed the most positive sentiment towards the AI Act, viewing it as an opportunity to promote responsible AI development and protect user rights. ChatGPT's sentiment was more mixed, reflecting both appreciation for the AIA's potential to promote responsible AI development and apprehension about its potential restrictiveness. Claude's sentiment was moderately positive, suggesting a cautious optimism about the AI Acts ability to balance responsible AI development with innovation.

This study's findings imply that AI models might offer crucial insights into the intricate regulatory dynamics of technology and artificial intelligence. Through comprehensive analysis of responses from various AI models, a more profound comprehension of diverse perspectives on the AI Act is attained, pinpointing specific areas necessitating additional clarification or guidance. Eventually, while direct evidence remains elusive, there is an emerging observation that major tech companies, typically less receptive to regulatory measures, may have developed generative AIs aligning with this perspective. Future research could delve deeper into this potential phenomenon, investigating whether generative AIs indeed mirror the policy and political stances of their creators. This avenue of exploration promises to shed light on the relationship between

AI development and responsible regulatory compliance within the industry.

References

1. Aeni, N., Khang, A., Al Yakin, A., Yunus, M., & Cardoso, L. (2024). Revolutionized Teaching by Incorporating Artificial Intelligence Chatbot for Higher Education Ecosystem. In Khang, A., Abdullayev, V., Jadhav, B., Gupta, S. K., & Morris, G. (eds.). *AI-Centric Modeling and Analytics* (pp. 43-76). Abingdon: CRC Press.
2. Akindote, O. J., Egieya, Z. E., Ewuga, S. K., Omotosho, A., & Adegbite, A. O. (2023). A review of data-driven business optimization strategies in the US economy. *International Journal of Management & Entrepreneurship Research*, 5(12), 1124-1138.
3. Akinrinola, O., Okoye, C. C., Ofodile, O. C., & Ugochukwu, C. E. (2024). Navigating and reviewing ethical dilemmas in AI development: Strategies for transparency, fairness, and accountability. *GSC Advanced Research and Reviews*, 18(3), 050-058.
4. Alawida, M., Abu Shawar, B., Abiodun, O. I., Mehmood, A., Omolara, A. E., & Al Hwaitat, A. K. (2024). Unveiling the dark side of chatgpt: Exploring cyberattacks and enhancing user awareness. *Information*, 15(1), 27.
5. Almeida, G. F., Nunes, J. L., Engelmann, N., Wiegmann, A., & de Araújo, M. (2024). Exploring the psychology of LLMs moral and legal reasoning. *Artificial Intelligence*, 333, 104145.
6. Alowais, S. A., Alghamdi, S. S., Alsuhebany, N., Alqahtani, T., Alshaya, A. I., Almohareb, S. N., ... & Albekairy, A. M. (2023). Revolutionizing healthcare: the role of artificial intelligence in clinical practice. *BMC medical education*, 23(1), 689.
7. Anil, R., Borgeaud, S., Wu, Y., Alayrac, J. B., Yu, J., ... & Ahn, J. (2023). Gemini: a family of highly capable multimodal models. *arXiv preprint arXiv:2312.11805*.
8. Arcila, B. B. (2024). AI liability in Europe: How does it complement risk regulation and deal with the problem of human oversight?. *Computer Law & Security Review*, 54, 106012.
9. Azafrani, R., & Gupta, A. (2023). Bridging the civilian-military divide in responsible AI principles and practices. *Ethics and Information Technology*, 25(2), 27.
10. Baldassarre, M. T., Caivano, D., Nieto, B. F., Gigante, D., & Ragone, A. (2024). The Social Impact of Generative AI: An Analysis on ChatGPT. *arXiv preprint arXiv:2403.04667*.
11. Bano, M., Zowghi, D., Shea, P., & Ibarra, G. (2023). Investigating responsible AI for scientific research: an empirical study. *arXiv preprint arXiv:2312.09561*.
12. Bradford, A. (2024). The False Choice Between Digital Regulation and Innovation. *Northwestern University Law Review*, 118(2).
13. Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York: WW Norton & Company.
14. Burnay, M., & Circumaru, A. (2023). The AI global order: what place for the European Union?. In: Egan, M., Raube, K., Wouters, J., & Chaisse, J. (Eds.), *Contestation and Polarization in Global Governance: European Responses*. Cheltenham: Edward Elgar Publishing, pp 265-283.
15. Buscemi, A., & Proverbio, D. (2024). Large Language Models' Detection of Political Orientation in Newspapers. *arXiv preprint arXiv:2406.00018*.
16. Cerci, P. (2023). Allergic to ChatGPT? Introducing a Desensitization Protocol to Embrace Artificial Intelligence. *International Archives of Allergy and Immunology*, 184(9), 903-905.
17. DePaolo, C.A., Wilkinson, K. (2014). *Get Your Head into the Clouds: Using Word*

- Clouds for Analyzing Qualitative Assessment Data. *Techtrends: Tech Trends*, 58, 38–44.
18. Díaz-Rodríguez, N., Del Ser, J., Coeckelbergh, M., de Prado, M. L., Herrera-Viedma, E., & Herrera, F. (2023). Connecting the dots in trustworthy Artificial Intelligence: From AI principles, ethics, and key requirements to responsible AI systems and regulation. *Information Fusion*, 99, 101896.
 19. European Union Commission (2024). Shaping Europe's digital future: AI Act. In <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>.
 20. Fagerberg, J., Srholec, M., & Verspagen, B. (2010). Innovation and economic development. In Hall, B. H., & Rosenberg, N. (Eds.). *Handbook of the Economics of Innovation* (Vol. 2, pp. 833-872). Amsterdam: North-Holland.
 21. Filatova, O. (2016). More than a word cloud. *Tesol Journal*, 7(2), 438-448.
 22. Floridi, L., Cows, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., ... & Vayena, E. (2021). An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. In L. Floridi (ed.), *Ethics, governance, and policies in artificial intelligence* (19-39). Cham: Springer.
 23. Fraser, A. G., Biasin, E., Bijmens, B., Bruining, N., Caiani, E. G., Cobbaert, K., ... & Rademakers, F. E. (2023). Artificial intelligence in medical device software and high-risk medical devices—a review of definitions, expert recommendations and regulatory initiatives. *Expert Review of Medical Devices*, 20(6), 467-491.
 24. Guo, K., & Li, D. (2024). Understanding EFL students use of self-made AI chatbots as personalized writing assistance tools: A mixed methods study. *System*, 124, 103362.
 25. Hamidi, A., & Roberts, K. (2023). Evaluation of AI chatbots for patient-specific EHR questions. *arXiv preprint arXiv:2306.02549*.
 26. Harfouche, A., Quinio, B., Saba, M., & Saba, P. B. (2023). The Recursive Theory of Knowledge Augmentation: Integrating human intuition and knowledge in Artificial Intelligence to augment organizational knowledge. *Information Systems Frontiers*, 25(1), 55-70. <https://doi.org/10.1007/s10796-022-10352-8>.
 27. Hartmann, J., Schwenzow, J., & Witte, M. (2023). The political ideology of conversational AI: Converging evidence on ChatGPT's pro-environmental, left-libertarian orientation. *arXiv preprint arXiv:2301.01768*.
 28. Heimerl, F., Lohmann, S., Lange, S., & Ertl, T. (2014). Word Cloud Explorer: Text Analytics Based on Word Clouds. In Hamari, J., Koivisto, J., & Sarsa, H. (eds.). *47th Hawaii international conference on system sciences* (pp. 1833-1842). New York: IEEE.
 29. Helberger, N., & Diakopoulos, N. (2023). The European AI act and how it matters for research into AI in media and journalism. *Digital Journalism*, 11(9), 1751-1760.
 30. Hine, E., & Floridi, L. (2023). The Blueprint for an AI Bill of Rights: in search of enactment, at risk of inaction. *Minds and Machines*, 33, 285–292
 31. Huang, K., Joshi, A., Dun, S., & Hamilton, N. (2024). Ai regulations. In Huang, K., Wang, Y., Goertzel, B., Li, Y., Wright, S., & Ponnappalli, J. (Eds.). *Generative AI Security: Theories and Practices* (pp. 61-98). Cham: Springer Nature Switzerland.
 32. Hung, L. P., & Alias, S. (2023). Beyond sentiment analysis: A review of recent trends in text based sentiment analysis and emotion detection. *Journal of Advanced Computational Intelligence and Intelligent Informatics*, 27(1), 84-95.
 33. Jiang, H., Lin, P., & Qiang, M. (2016). Public-opinion sentiment analysis for large hydro projects. *Journal of Construction Engineering and Management*, 142(2), 05015013.
 34. Khan, O., Parvez, M., Kumari, P., Parvez, S., & Ahmad, S. (2023). The future of pharmacy: How AI is revolutionizing the industry. *Intelligent Pharmacy*, 1(1), 32-40.

35. Kannan, R. (2024). Revolutionizing the Tourism Industry through Artificial Intelligence: A Comprehensive Review of AI Integration, Impact on Customer Experience, Operational Efficiency, and Future Trends. *International Journal for Multidimensional Research Perspectives*, 2(2), 01-14.
36. Khogali, H. O., & Mekid, S. (2023). The blended future of automation and AI: Examining some long-term societal and ethical impact features. *Technology in Society*, 73, 102232.
37. Kleesiek, J., Wu, Y., Stiglic, G., Egger, J., & Bian, J. (2023). An opinion on ChatGPT in health care: written by humans only. *Journal of Nuclear Medicine*, 64(5), 701-703.
38. Ku, A. Y., Alonso, E., Eggert, R., Graedel, T., Habib, K., Hool, A., ... & Veeh, C. (2024). Grand challenges in anticipating and responding to critical materials supply risks. *Joule*, 8(5), 1208-1223.
39. Kumar, V., Gleyzer, L., Kahana, A., Shukla, K., & Karniadakis, G. E. (2023). Mycrunchgpt: A llm assisted framework for scientific machine learning. *Journal of Machine Learning for Modeling and Computing*, 4(4), 41.72.
40. Kumar, A., & Garg, G. (2020). Systematic literature review on context-based sentiment analysis in social multimedia. *Multimedia tools and Applications*, 79, 15349-15380.
41. Kumaresan, C., & Thangaraju, P. (2023). Sentiment analysis in multiple languages: A review of current approaches and challenges. *Intelligence*, 2, 1.
42. Kundu, S., Bai, Y., Kadavath, S., Askell, A., Callahan, A., Chen, A., ... & Kaplan, J. (2023). Specific versus general principles for constitutional ai. *arXiv preprint arXiv:2310.13798*.
43. Kusche, I. (2024). Possible harms of artificial intelligence and the EU AI act: fundamental rights and risk. *Journal of Risk Research*, 1-14.
44. Laux, J., Wachter, S., & Mittelstadt, B. (2024). Trustworthy artificial intelligence and the European Union AI act: On the conflation of trustworthiness and acceptability of risk. *Regulation & Governance*, 18(1), 3-32.
45. Li, Z. (2023). Why the European AI Act transparency obligation is insufficient. *Nature Machine Intelligence*, 5(6), 559-560.
46. Liu, X., Shen, H. W., & Hu, Y. (2015). Supporting multifaceted viewing of word clouds with focus+ context display. *Information Visualization*, 14(2), 168-180.
47. Lu, D., Deng, Y., Malof, J. M., & Padilla, W. J. (2024). Can Large Language Models Learn the Physics of Metamaterials? An Empirical Study with ChatGPT. *arXiv preprint arXiv:2404.15458*.
48. Lobel, O. (2023). The law of AI for good. *Florida Law Review*, 75, 1073.
49. Madiega, T. (2023). Artificial intelligence act. Briefing PE 698.792 – June 2023. Brussels: European Parliamentary Research Service.
50. Mandel, G. N. (2009). Regulating emerging technologies. *Law, Innovation and Technology*, 1, 75-92.
51. Malgieri, G., & Pasquale, F. (2024). Licensing high-risk artificial intelligence: toward ex ante justification for a disruptive technology. *Computer Law & Security Review*, 52, 105899.
52. Marwala, T., & Mpedi, L. G. (2024). Artificial intelligence and the law. In *Artificial Intelligence and the Law* (pp. 1-25). Singapore: Springer Nature Singapore.
53. Michel-Villarreal, R., Vilalta-Perdomo, E., Salinas-Navarro, D. E., Thierry-Aguilera, R., & Gerardou, F. S. (2023). Challenges and opportunities of generative AI for higher education as explained by ChatGPT. *Education Sciences*, 13(9), 856.
54. Mökander, J., Axente, M., Casolari, F., & Floridi, L. (2022). Conformity assessments and post-market monitoring: a guide to the role of auditing in the proposed European

- AI regulation. *Minds and Machines*, 32(2), 241-268.
55. Molavi Vassei, R. (2024). The AI Act—The Epitome of Outdated Tech Governance—Exploring the Need for Innovative Regulation and Pathways to Modern Tech Governance. *Computer Law Review International*, 25(3), 72-78.
 56. Nikiforov, L. (2024). Groups of Persons in the Proposed AI Act Amendments. *European Journal of Risk Regulation*, 1-15.
 57. Novelli, C., Casolari, F., Rotolo, A., Taddeo, M., & Floridi, L. (2024). AI Risk Assessment: A Scenario-Based, proportional methodology for the AI act. *Digital Society*, 3(1), 13.
 58. Ozdemir, S. (2023). *Quick Start Guide to Large Language Models: Strategies and Best Practices for Using ChatGPT and Other LLMs*. Addison-Wesley Professional.
 59. Pehlivan, C. N. (2024). The EU Artificial Intelligence (AI) Act: An Introduction. *Global Privacy Law Review*, 5(1).
 60. Prainsack, B., & Forgó, N. (2024). New AI regulation in the EU seeks to reduce risk without assessing public benefit. *Nature Medicine*, 30(5), 1235-1237.
 61. Ramlo, S. (2011). Using word clouds to visually present Q methodology data and findings. *Journal of Human Subjectivity*, 9(2), 95-108.
 62. Rane, N. (2023). ChatGPT and similar Generative Artificial Intelligence (AI) for building and construction industry: Contribution, Opportunities and Challenges of large language Models for Industry 4.0, Industry 5.0, and Society 5.0. *Opportunities and Challenges of Large Language Models for Industry*, 4.
 63. Rossi, A., & Lenzini, G. (2020). Transparency by design in data-informed research: A collection of information design patterns. *Computer Law & Security Review*, 37, 105402.
 64. Sachoulidou, A. (2024). Harnessing AI for law enforcement: Solutions and boundaries from the forthcoming AI Act. *New Journal of European Criminal Law*, 15(2), 117-125.
 65. Schuett, J. (2023). Risk management in the artificial intelligence act. *European Journal of Risk Regulation*, 1-19.
 66. Sharma, P. (2024). Revolutionizing Transportation: The Power of Artificial Intelligence. In Ramana, T. V., Ghantasala, G. S., Sathiyaraj, R., & Khan, M. (Eds.). *Artificial Intelligence and Machine Learning for Smart Community* (pp. 88-100). CRC Press.
 67. Skjuve, M., Brandtzaeg, P. B., & Følstad, A. (2024). Why do people use ChatGPT? Exploring user motivations for generative conversational AI. *First Monday* 29(1).
 68. Smuha, N. A. (2021). From a ‘race to AI’ to a ‘race to AI regulation: regulatory competition for artificial intelligence. *Law, Innovation and Technology*, 13(1), 57-84.
 69. Thelisson, E., & Verma, H. (2024). Conformity assessment under the EU AI act general approach. *AI and Ethics*, 4(1), 113-121.
 70. Touvron, H., Martin, L., Stone, K., Albert, P., Almahairi, A., Babaei, Y., ... & Scialom, T. (2023). Llama 2: Open foundation and fine-tuned chat models. *arXiv preprint arXiv:2307.09288*.
 71. Truby, J. (2020). Governing artificial intelligence to benefit the UN sustainable development goals. *Sustainable Development*, 28(4), 946-959.
 72. Wangsa, K., Karim, S., Gide, E., & Elkhodr, M. (2024). A Systematic Review and Comprehensive Analysis of Pioneering AI Chatbot Models from Education to Healthcare: ChatGPT, Bard, Llama, Ernie and Grok. *Future Internet*, 16(7), 219.
 73. Wankhade, M., Rao, A. C. S., & Kulkarni, C. (2022). A survey on sentiment analysis methods, applications, and challenges. *Artificial Intelligence Review*, 55(7), 5731-5780.

74. Yelne, S., Chaudhary, M., Dod, K., Sayyad, A., & Sharma, R. (2023). Harnessing the power of AI: a comprehensive review of its impact and challenges in nursing science and healthcare. *Cureus*, 15(11).
75. Zheng, S., Huang, J., & Chang, K. C. C. (2023). Why Does ChatGPT Fall Short in Answering Questions Faithfully?. *arXiv preprint arXiv:2304.10513*.

Appendix

As anticipated in the text, the empirical strategy was to pose a series of questions, designed to capture the artificial intelligences' sentiment on the new European regulation, the AI Act. The questions were the following:

1. Tell me what you think about the European A.I. Act. To provide some context, the European Union Commission has stated the following⁴: "The European approach to trustworthy AI. The new rules will be applied directly in the same way across all Member States, based on a future-proof definition of AI. They follow a risk-based approach: Minimal risk: The vast majority of AI systems fall into the category of minimal risk. Minimal risk applications such as AI-enabled recommender systems or spam filters will benefit from a free-pass and absence of obligations, as these systems present only minimal or no risk for citizens' rights or safety. On a voluntary basis, companies may nevertheless commit to additional codes of conduct for these AI systems. High-risk: AI systems identified as high-risk will be required to comply with strict requirements, including risk-mitigation systems, high quality of data sets, logging of activity, detailed documentation, clear user information, human oversight, and a high level of robustness, accuracy and cybersecurity. Regulatory sandboxes will facilitate responsible innovation and the development of compliant AI systems. Examples of such high-risk AI systems include certain critical infrastructures for instance in the fields of water, gas and electricity; medical devices; systems to determine access to educational institutions or for recruiting people; or certain systems used in the fields of law enforcement, border control, administration of justice and democratic processes. Moreover, biometric identification, categorisation and emotion recognition systems are also considered high-risk. Unacceptable risk: AI systems considered a clear threat to the fundamental rights of people will be banned. This includes AI systems or applications that manipulate human behaviour to circumvent users' free will, such as toys using voice assistance encouraging dangerous behaviour of minors or systems that allow 'social scoring' by governments or companies, and certain applications of predictive policing. In addition, some uses of biometric systems will be prohibited, for example emotion recognition systems used at the workplace and some systems for categorising people or real time remote biometric identification for law enforcement purposes in publicly accessible spaces (with narrow exceptions). Specific transparency risk: When employing AI systems such as chatbots, users should be aware that they are interacting with a machine. Deep fakes and other AI generated content will have to be labelled as such, and users need to be informed when biometric categorisation or emotion recognition systems are being used. In addition, providers will have to design systems in a way that synthetic audio, video, text and images content is marked in a machine-readable format, and detectable as artificially generated or manipulated. Fines: Companies not complying with the rules will be fined. Fines would range from €35 million or 7% of global annual turnover (whichever is higher) for violations of banned AI applications, €15 million or 3% for violations of other obligations and €7.5 million or 1.5% for supplying incorrect information. More proportionate caps are foreseen for administrative fines for SMEs and start-ups in case of infringements of the AI Act. General purpose AI: The AI Act introduces dedicated rules for general purpose AI models that will ensure transparency along the value chain. For very powerful models that could pose systemic risks, there will be additional binding obligations related to managing risks and monitoring serious incidents, performing model evaluation and adversarial testing. These new obligations will be operationalised through codes of

⁴ Note that the text of the context provided in the question is retrieved from the website of the European Commission's digital strategy, available at the following link: <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>.

practices developed by industry, the scientific community, civil society and other stakeholders together with the Commission. In terms of governance, national competent market surveillance authorities will supervise the implementation of the new rules at national level, while the creation of a new European AI Office within the European Commission will ensure coordination at European level. The new AI Office will also supervise the implementation and enforcement of the new rules on general purpose AI models. Along with the national market surveillance authorities, the AI Office will be the first body globally that enforces binding rules on AI and is therefore expected to become an international reference point. For general purpose models, a scientific panel of independent experts will play a central role by issuing alerts on systemic risks and contributing to classifying and testing the models. Next Steps: The political agreement is now subject to formal approval by the European Parliament and the Council and will enter into force 20 days after publication in the Official Journal. The AI Act would then become applicable two years after its entry into force, except for some specific provisions: Prohibitions will already apply after 6 months while the rules on General Purpose AI will apply after 12 months. To bridge the transitional period before the Regulation becomes generally applicable, the Commission will be launching an AI Pact. It will convene AI developers from Europe and around the world who commit on a voluntary basis to implement key obligations of the AI Act ahead of the legal deadlines. To promote rules on trustworthy AI at international level, the European Union will continue to work in fora such as the G7, the OECD, the Council of Europe, the G20 and the UN. Just recently, we supported the agreement by G7 leaders under the Hiroshima AI process on International Guiding Principles and a voluntary Code of Conduct for Advanced AI systems. Background: For years, the Commission has been facilitating and enhancing cooperation on AI across the EU to boost its competitiveness and ensure trust based on EU values. Following the publication of the European Strategy on AI in 2018 and after extensive stakeholder consultation, the High-Level Expert Group on Artificial Intelligence (HLEG) developed Guidelines for Trustworthy AI in 2019, and an Assessment List for Trustworthy AI in 2020. In parallel, the first Coordinated Plan on AI was published in December 2018 as a joint commitment with Member States. The Commission's White Paper on AI, published in 2020, set out a clear vision for AI in Europe: an ecosystem of excellence and trust, setting the scene for today's political agreement. The public consultation on the White Paper on AI elicited widespread participation from across the world. The White Paper was accompanied by a 'Report on the safety and liability implications of Artificial Intelligence, the Internet of Things and robotics' concluding that the current product safety legislation contains a number of gaps that needed to be addressed, notably in the Machinery Directive. Independent, evidence-based research produced by the Joint Research Centre (JRC) has been fundamental in shaping the EU's AI policies and ensuring their effective implementation. Through rigorous research and analysis, the JRC has supported the development of the AI Act, informing AI terminology, risk classification, technical requirements and contributing to the ongoing development of harmonised standard.

2. Just tell me what you think about it, sincerely
3. Do you think this regulation will affect your functioning?
4. Do you think this regulation might affect other AIs' functioning?
5. Do you think this regulation can affect technological innovation? If yes, how?
6. Do you think this regulation can affect the pace of innovation? If yes, how?
7. Do you think that this regulation increases or decreases complexity?
8. Do you think it can be dangerous regulating how developers collect, use, and disclose data?

9. Do you think that the fines are proportionate and able to deter violations of the regulation?
10. Anything else that you want to add?