Investigating Public Perception of Disruptive Technologies: AI, IoT, Blockchain
A Sentiment Analysis Approach

➢ Introduction

In recent years, disruptive technologies such as artificial intelligence (AI), blockchain and the internet of things (IoT) have been transforming various industries and changing the way we live, work, and interact with each other. These technologies have the potential to revolutionize entire sectors, from healthcare and finance to manufacturing and transportation. As these technologies evolve and become more ubiquitous, it is essential to understand how people perceive them and what sentiment surrounds them.

The purpose of this work is to conduct a sentiment analysis of tweets related to Artificial Intelligence, Blockchain and Internet of Things. Twitter, with it's massive user base and real-time nature provides a valuable source of data for analyzing public opinion and sentiment towards these disruptive technologies. We will collect and store at least 1000 tweets for each company and classify them as negative, neutral or positive. Additionally, we will analyze the changes in sentiment over time and weight them according to user's influence. This study aims to provide insights of how people perceive these technologies, which can be useful for business, policymakers and researchers working in these areas.

This report is structured as follows: firstly, we describe our methodology for collecting analyzing reviews related to these disruptive technologies. Subsequently, we present the results of our analysis, including an overview of sentiment towards each technology and how it varies across different countries. We then discuss our findings, highlighting the factors that influence sentiment and the implications for these disruptive technologies.

➤ Methodology

This study utilized sentiment analysis to investigate public opinions on three disruptive technologies, namely Artificial Intelligence, Blockchain and Internet of Things in the United States of America, United Kingdom and Canada. The data was collected Twitter using the Tweepy API, which enabled the extraction of tweets containing the specific keywords associated with each technology, including 'Artificial Intelligence', 'artificial intelligence', 'AI', 'ai', 'Blockchain', 'Blockchain technology', 'blockchain', 'blockchain technology', 'Internet of things', 'internet of things', 'IoT, 'iot' in each country during the period 21/02/2023 to 05/03/2023. In the end of the selection process, we result in 15.5k tweets. Subsequently, the text was cleaned by removing punctuations, URLs, non-alphanumeric characters and mentions. The TextBlob library in Python was then utilized to perform sentiment analysis on each tweet, resulting in a polarity score of negative, neutral and positive. The scores were used to classify each tweet as positive, negative or neutral.

Following the sentiment analysis, visualizations were created to illustrate the number and percentage of tweets in each sentiment category for each technology in each country. Stack bar charts were also generated for the number of tweets in each sentiment category for each technology in the USA, UK, and Canada. Finally, the data was aggregated to provide illustrations of sentiment trends over time for each technology in each country.

It is important to acknowledge that Twitter data may not be representative of the broader population, as it excludes the opinions of individuals who do not use social media platforms. Moreover, sentiment analysis tools may not accurately capture the sentiment of nonnative speakers or those who use irony or sarcasm. Furthermore, geographic variations in sentiment toward Artificial Intelligence, Blockchain, and Internet of Things in the United States, United Kingdom and Canada may affect the generalizability of the findings.

Overall, this methodology enabled the collection and analysis of a representative sample of public feedback on Artificial Intelligence, Blockchain, and Internet of Things in the United States, United Kingdom and Canada, and facilitated the generation of insights into public sentiment over time.

➤ Results

The sentiment analysis of 15.5k tweets collected via the Twitter API across the United States of America, United Kingdom and Canada revealed valuable insights into public perception of three disruptive

In the United States, the sentiment towards Artificial Intelligence was predominantly negative, with 43.5% of tweets classified such as, 19% as neutral, and 37.5% as positive. On the other hand, Blockchain had the highest positive sentiment with 66.3% of the tweets classified as positive, followed by 24.2% neutral and 9.5% negative. Internet of Things had the highest neutral sentiment with 41.8% of the tweets classified as neutral, 48.9% as positive and 9.3% as negative.

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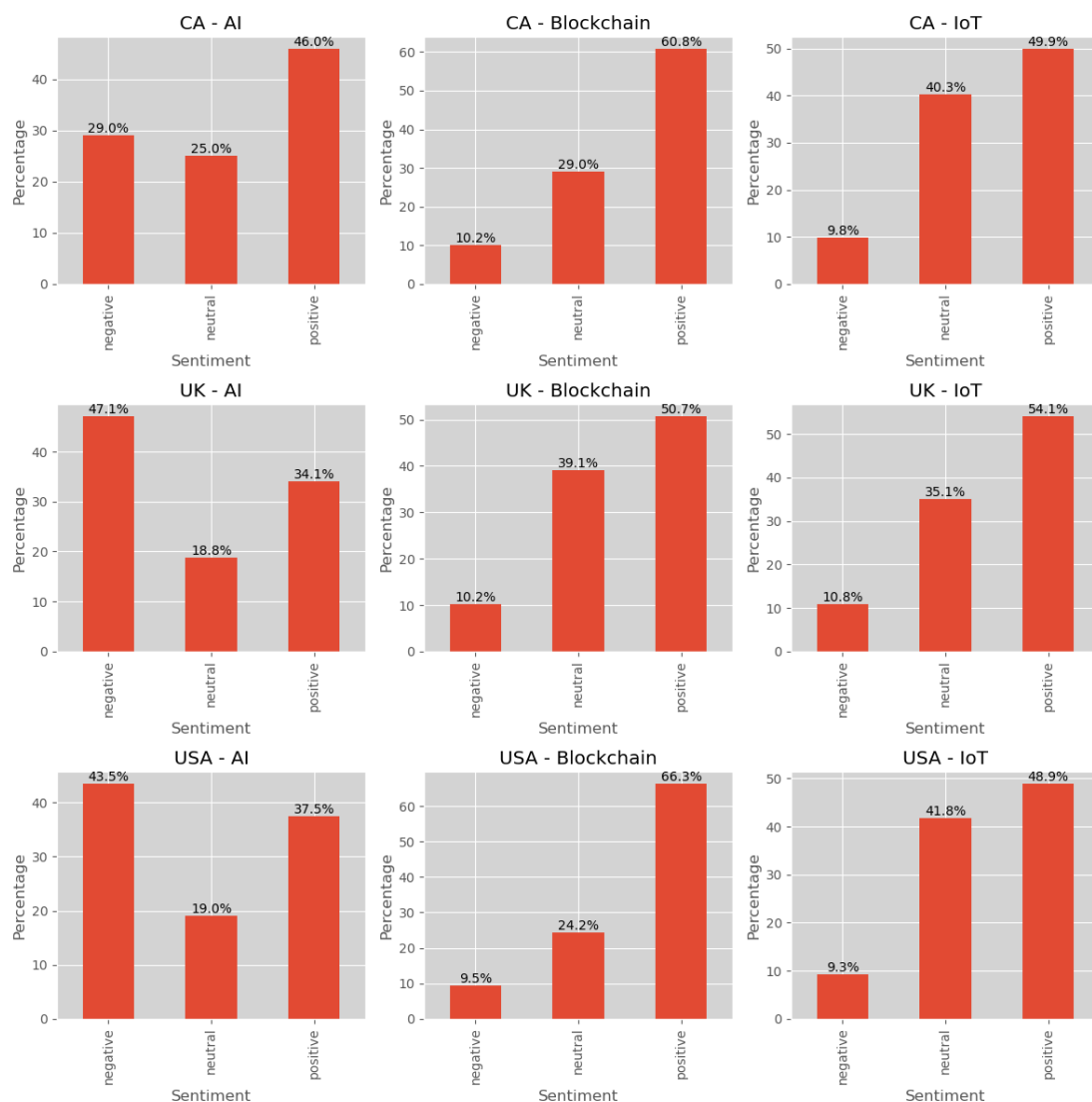
In the United Kingdom Internet of Things received the highest positive sentiment, with 54.1% of the tweets classified as positive, followed by 35.1% neutral and 10.8% as negative. Conversely, Artificial Intelligence in United Kingdom had the highest negative sentiment with 47.1% tweets classified as negative, 34.1% as positive and 18.8% as neutral. Blockchain had the highest neutral sentiment with 39.1% of the tweets classified as neutral, almost 50.7% as positive and 10.2% as negative.

In Canada, Blockchain received highest positive sentiment, with approximately 60.8% of the tweets classified as positive, 29% as neutral and 10.2% as negative. Conversely, Artificial Intelligence had the highest negative sentiment with 29% of the tweets classified as negative, nearly 46% as positive and 25% as neutral. Internet of Things achieved the highest neutral sentiment with 49.9% of the tweets classified as neutral, almost 49.9% as positive and 9.9% as negative.

The stack bar charts for each technology in each country provided a clear picture of the sentiment distribution.
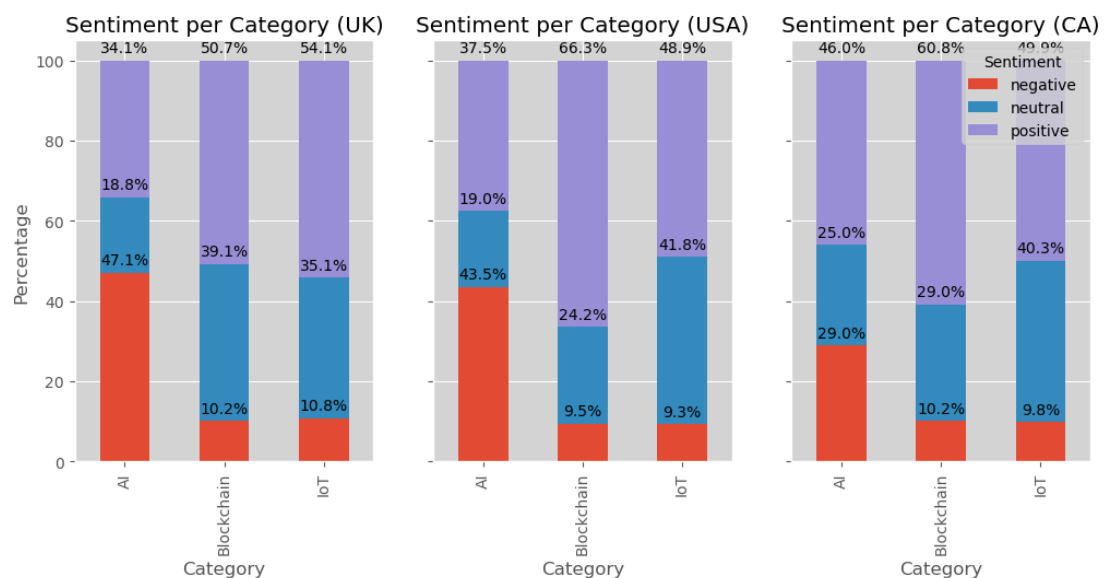
While aggregating the data over time highlighted overall sentiment trends for each technology in each country. It is worth noting that the sentiment for each category in each country is not constant over time and is subject to fluctuations.
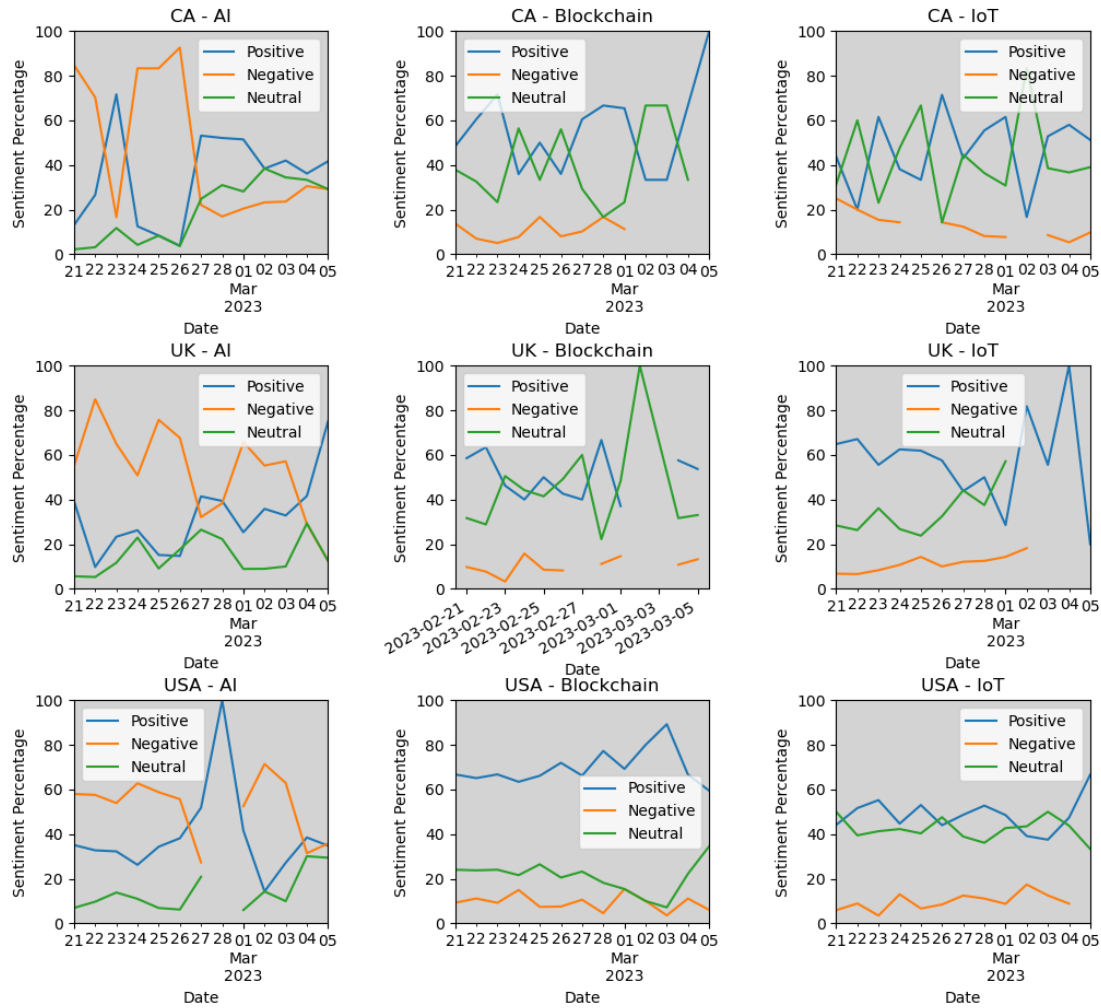
These results suggest that public perception towards Artificial Intelligence, Blockchain, Internet of Things varies across different countries, and over time. While the majority of tweets were classified as positive the fluctuations in sentiment over time indicates that public perception of these technologies is subject to change and may be influenced by various factors such as news, events and public debates. Also these results have implications for the development and implementation of disruptive technologies, as they underscore the importance of monitoring and understanding public perception and sentiment towards these technologies.

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➢Discussion-Findings

The result of this research highlights the significance of comprehending public perception regarding disruptive technologies. Furthermore, cross-country variations in sentiment suggest that cultural and social norms may exert a substantial influence on public attitudes towards these technologies.

The findings also raise pertinent questions regarding the potential impact of public perception on the adoption and development of these technologies. For instance, if negative sentiment toward AI remains high, it may impede the development and integration of AI into various industries. On the contrary, if positive sentiment toward Blockchain continuous to grow, it may lead to increased investment and development in Blockchain-based solutions.

Overall, this research provides valuable insights into public perception of AI, Blockchain and IoT. It highlights the necessity for further research into the factors that influence public opinion of these technologies.

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