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Sentiment analysis of Indonesia's new digital Tax Administration System (Coretax)

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ABSTRACT

This study explores public sentiment toward Indonesia's new digital tax administration system, known as Coretax, by analyzing conversation among tax-savvy users in a WhatsApp Group. Public sentiment was analyzed by examining more than 53,000 messages using a lexicon-based approach to classify them into positive, negative or neutral categories. The findings reveal that negative sentiment dominates (39%), indicating frequent technical issues, procedural confusion, and access problems during Coretax's early implementation phase in 2025. However, neutral (31.5%) and positive (29.5%) messages show that users also shared information and expressed appreciation, especially during successful interactions. Spikes in communication occurred during major events such as webinars and statutory tax filing deadlines. This study provides a novelty using real-time peer-to-peer digital conversations to capture how knowledgeable users experience tax digitalization in its earliest months. The findings suggest that user-oriented design, clearer guidance, and responsive communication are essential for improving user experience in digital tax reforms.

Introduction

Tax systems in many developing countries often face persistent challenges, including low levels of taxpayer compliance, limited digital infrastructure, and weak public trust in fiscal institutions (Alm, 2023). In response to these issues, the Indonesian government launched the Core Tax Administration System (CTAS), which is commonly referred to as Coretax, as part of its digital transformation agenda in tax administration. The system is intended to enhance transparency, efficiency, accountability, and flexibility in the delivery of public taxation services (Direktorat Jenderal Pajak, 2025).

Prior to Coretax, Indonesia operated DJP (Direktorat Jenderal Pajak) Online, a digital platform for tax administration systems (Arianty, 2023). However, DJP Online had significant limitations, particularly its inability to fully integrate core tax administration functions end-to-end (Wildan, 2024). The DJP Online's limited integration capability prompted the need for a more modern and centralized system. The development of Coretax was formally planned as early as 2018, as outlined in Presidential Regulation No. 40 of 2018, which laid the foundation for a comprehensive update of Indonesia's tax administration infrastructure.

Despite its ambitious goals, the implementation of Coretax has generated mixed reactions, particularly among taxpayers. Numerous media reports and public commentaries have revealed widespread difficulties in accessing and operating the system, ranging from login failures to unresponsive reporting modules (Rachman, 2025). Internal stakeholders, including tax officers, have also reported operational limitations and integration bottlenecks (Aisah, 2025). On the other hand, system developers and government officials have publicly framed Coretax as a major leap toward a modern, data-driven tax administration (Puspapertiwi & Adhi, 2025).

This divergence in narratives between official policy claims and the lived experiences of users raises an important question regarding the actual impact of Coretax on taxpayer satisfaction and compliance. Instead of simplifying processes, the system is perceived by some taxpayers as overly complex and burdensome, which may inadvertently undermine the very objective it seeks to achieve.

To explore this issue, the present study conducts a sentiment analysis of public discourse surrounding Coretax, drawing from taxpayer discussions on digital platforms such as group chats. While there is a growing body of literature on digital taxation and taxpayer behavior, limited empirical studies have examined the perceptions and emotional responses of users toward a national-level digital tax reform in real time. Furthermore, existing studies

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in the Indonesian context largely focus on technical performance or legal frameworks (Mauleny et al., 2020), without systematically capturing the voice of taxpayers. This study offers novelty by employing a sentiment analysis approach to explore specific public perceptions among tax-savvy users. Tax-savvy users are people who possess knowledge, skills, and practical expertise in understanding and effectively using the tax system, including within a digital context. The primary focus is to understand how this group responds to and evaluates the implementation of Indonesia's new digital tax administration system, introduced in 2025 and known as Coretax. Unlike previous studies that tend to broadly capture the opinions of the general public, this research emphasizes insights from directly engaged users, thereby providing a more focused and substantive view of the system's effectiveness, challenges, and early reception. Therefore, the research question of this study is how do tax-savvy users evaluate the performance and usability of Indonesia's newly implemented Coretax system based on real-time online discussions?

By analyzing real-time conversations within digital communities, the study uncovers authentic user experiences that often remain invisible in conventional evaluations. The findings are expected to deliver evidence-based insights that can inform more responsive policy adjustments and support continuous improvement in Indonesia's digital tax administration system. Ultimately, this study contributes to the broader discourse on digital transformation in public services, particularly in promoting tax compliance and user-centered reform.

Literature Review

Digital Tax Administration in Developing Countries

The digitization of tax administration has emerged as a critical reform agenda for many developing countries seeking to improve tax compliance, efficiency, and transparency (OECD, 2023). Digital systems promise to simplify processes, reduce human errors, and limit opportunities for corruption. Recent studies highlight that the potential of digital tax technologies extends beyond automation, as they can enhance taxpayer services, enable data-driven decision-making, and foster accountability in revenue collection (Bassey et al., 2022; Nose, 2023). However, the success of such systems hinges not only on technological sophistication but also on user acceptance and institutional readiness.

For instance, evidence from Ghana shows that organizational culture, infrastructure gaps, and digital literacy shape the maturity and outcomes of e-tax initiatives (Acquah, 2025). Similarly, research on Indonesia underscores that fragmented integration and uneven adoption of advanced analytics limit the transformative potential of digital tax reforms (Rahayu & Kusdianto, 2023). In Africa, debates around the implementation of digital service taxes and VAT on digital platforms further illustrate the tension between revenue opportunities and risks of discouraging digital adoption (Mpofu, 2022a, 2022b). Collectively, these findings emphasize that while digital tax administration holds great promise, its effectiveness is deeply conditioned by local context, institutional capacity, and taxpayer readiness to embrace digital change. In the Indonesian context, Coretax represents a flagship initiative under this digital reform, but systematic evaluations of its reception among taxpayers remain scarce.

Coretax is a service administration system of the Directorate General of Taxes that provides convenience for users. The development of Coretax is part of the Tax Administration Core System Update Project (PSIAP) regulated in Presidential Regulation No. 40 of 2018. The Tax Administration Core System Update (PSIAP) is a project to redesign the tax administration business process through the development of a COTS (Commercial Off-the-Shelf) based information system accompanied by improvements to the tax database. The main objective of the development of Coretax is to modernize the current tax administration system. Coretax integrates all core business processes of tax administration, from taxpayer registration, SPT reporting, and tax payments, to tax audits and collection.

Public Perception and Taxpayer Compliance

Tax compliance literature has long emphasized the role of taxpayer perceptions, including fairness, complexity, and institutional trust, in influencing compliance behavior (Shelvi & Rachmawati, 2025). Research shows that negative experiences with digital tax systems such as technical failures or confusing user interfaces can discourage compliance, particularly in societies where digital literacy is uneven (Alm & Soled, 2017). Conversely, user-friendly digital systems can foster greater voluntary compliance, especially when taxpayers feel respected and supported by the system (Hauptman et al., 2024).

In addition to being supported by a user-friendly system, research underlines the complexity of other factors influencing tax compliance. Twesige et al. (2024) identified several determinants, including taxpayer knowledge of tax regulations, perceptions of government spending, the role and actions of tax authorities, the existence of tax sanctions, economic conditions, and applicable tax rates. These elements collectively shape taxpayer behavior, both encouraging compliance and encouraging resistance. However, the effectiveness of these factors can vary greatly across contexts. For example, a study in Vietnam by Thu (2024) showed that the influence

of tax authorities on taxpayer compliance was less pronounced, indicating a potential shift in dynamics in regions where trust in authorities may be limited. In addition, Nyantakyi et al. (2024) highlighted that service quality plays an important role in encouraging compliance. Their findings revealed a positive and significant relationship between high-quality tax services and taxpayers' willingness to comply. However, it is important to note that these findings mainly relate to forced compliance rather than voluntary compliance. This difference highlights the need for further exploration of the factors that drive voluntary compliance, as fostering intrinsic motivation among taxpayers is critical to building a sustainable and efficient tax system. However, these current findings relate to enforced rather than voluntary compliance.

Sentiment Analysis in Public Policy and Governance

Sentiment analysis, a subset of Natural Language Processing (NLP), has gained popularity as a tool to capture public opinion from unstructured textual data such as social media posts, news comments, or online forums. In public sector research, it is increasingly used to evaluate citizen satisfaction, detect service delivery failures, and support evidence-based policy. For instance, Yaqub et al. (2021) analyzed social media messages of nine U.S. government agencies to understand how sentiment patterns reflect public engagement, while Russell et al. (2024) demonstrated how mining social media sentiments can inform public health policy decisions. In the context of urban services, Chen et al. (2021) applied sentiment analysis to measure policy debate in a re-growing city, highlighting its role in gauging citizen perceptions of government interventions. Regionally, Kencono et al. (2025) investigated user sentiment toward Indonesian e-government applications Sapawarga and JAKI, illustrating how app reviews can serve as valuable feedback channels for local governments. Sapawarga is West Java's citizen service and communication app, while JAKI is Jakarta's official super-app that integrates public services, real-time information, and two-way interaction between residents and the government. Collectively, these studies confirm that sentiment analysis is not only a methodological innovation but also a practical instrument for improving transparency, responsiveness, and policy effectiveness in the public sector.

Despite its potential, sentiment analysis remains underutilized in taxation studies. Most existing works rely on surveys or administrative data, which may not fully capture emotional responses or spontaneous feedback. By analyzing public discourse surrounding Coretax, this study offers a novel contribution to the intersection of digital tax policy and computational social science

Conceptual Framework

The Technology Acceptance Model argues that users are more willing to adopt a digital system when they perceive it as useful, easy to navigate, and well supported. In the context of tax administration, a dependable and user-friendly platform such as Coretax is therefore expected to enhance taxpayers' perceptions of the tax authority and reduce both psychological and administrative burdens associated with fulfilling tax obligations (Siwi & Nawawi, 2023).

Behavioural tax compliance research further shows that taxpayers are more likely to comply voluntarily when they perceive the tax system as fair, trust the tax authority, and experience an appropriate balance between enforcement and opportunities for cooperation. Conversely, complex procedures, unclear rules, or inadequate service can weaken intrinsic motivation and push taxpayers toward enforced or even non-compliance (Ardhianto et al., 2022; Siwi & Nawawi, 2023).

Combining these perspectives, online sentiment toward Coretax is treated as an observable indicator of how taxpayers assess system quality, fairness, and trust. Positive sentiments suggest that Coretax is viewed as useful, easy to use, and well supported, potentially encouraging voluntary compliance. Negative sentiments indicate complexity, frustration, or distrust, which may reduce willingness to comply. Rather than testing specific hypotheses, this study adopts an exploratory approach, using sentiment analysis to map these perceptions and identify recurring themes in public reactions to Coretax.

Research Method

This research employs a quantitative exploratory approach utilizing a Natural Language Processing (NLP)-based sentiment analysis method. The primary objective of this approach is to identify and classify public perceptions regarding the implementation of the Coretax system through the analysis of public conversation data collected from digital forums. Sentiment analysis was chosen due to its capability to capture public emotions, opinions, and perceptions in real-time and in a data-driven manner. The proposed methodology can be seen in the flowchart in Figure 1.

Data were collected from online conversation groups (Whatsapp group) discussing the implementation of Coretax. This WhatsApp group consists of tax-savvy users and it allows them to help each other, discuss, and share

information. The data collection process involved manual extraction, with careful consideration of ethical and privacy aspects.

The data analysis process comprised several stages: text preprocessing, sentiment analysis, and visualization and exploration of sentiment results. In the text preprocessing stage, the data was cleaned through several processes, including case folding, elimination of symbols, punctuation marks, and numbers, tokenization, and filtering of ambiguous words. Case folding is the process of converting uppercase letters into lowercase. The elimination of symbols, punctuation marks, and numbers is done because they often do not contribute to identifying sentiment in a sentence. Tokenization is the process of breaking text into tokens such as sentences, words, or others. In this study, tokenization was performed by splitting the text into words so that sentiment-related words could be identified. After that, filtering of ambiguous words in the Indonesian language was conducted to produce cleaner and more accurate text.

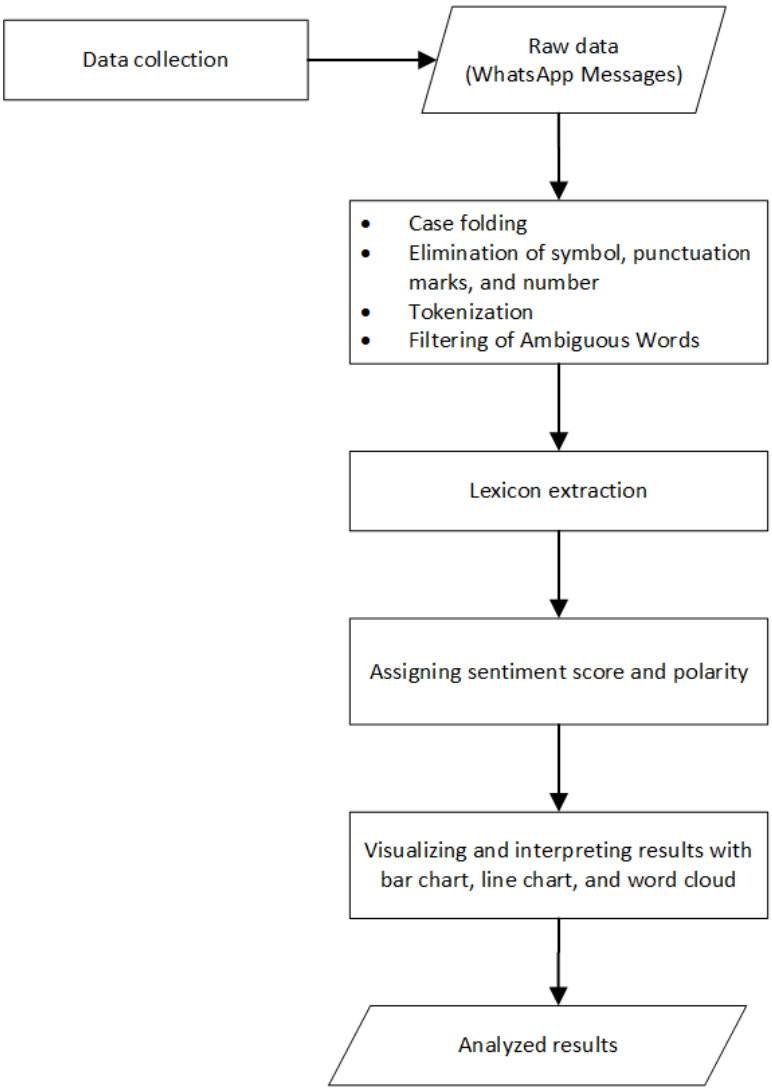


Figure 1. Proposed Methodology

After data preprocessing, the next step is sentiment analysis. Sentiment analysis was conducted using a lexicon-based method. The lexicon-based method involves sentiment analysis using a predefined set of word-polarity pairs (Mohri et al., 2018). This method enables rapid and consistent processing of large conversational datasets that will strengthen the efficiency and validity of the sentiment analysis. Automated dictionary methods reduce the time and inconsistency issues commonly found in manual annotation, aligning with observations by (van Atteveldt et al., 2021), regarding the efficiency benefits of automated sentiment classification.

The lexicon used in this study is a combination of several Indonesian sentiment lexicons to enrich the analysis: Inset (Indonesia Sentiment Lexicon) (Koto & Rahmaningtyas, 2017), SentiStrengthID (Wahid & SN, 2016), and swear words from Elang (Chan & Tjandra, 2020). The use of three Indonesian sentiment lexicons further enhances efficiency by providing a ready-to-use sentiment vocabulary suitable for the context of tax-related discussions. Systematic processing to reduce noise and conducting a human-in-the-loop verification on a sample of

the data was done to ensure the validity. This manual cross-check follows the recommendation from van Atteveldt et al. (2021), who highlight the importance of human judgment in evaluating automated classification. Through these steps, the sentiment analysis maintains both computational efficiency and methodological credibility.

After the sentiment analysis, the next step was the visualization and exploration of the results using bar charts and word clouds to show the number of each sentiment, monthly sentiment trends, and the most frequently occurring words for each sentiment category. Based on these results, a sentiment analysis of the Coretax system was carried out.

Results and Discussion

Data Sources

The primary data in this research were obtained from the WhatsApp chat archive of the Coretax Series group, which is a text-based discussion forum used by webinar participants and the tax community to share information, documents, and to ask questions and provide responses. The collected data consists of the date each message was sent and the message content, which were then stored in .txt file format. This dataset includes a total of 53,144 messages, with a communication time span from October 25, 2024, to April 20, 2025, thus reflecting the communication activity of the tax community for nearly six months.

Sentiment Analysis Procedure: Workflow

Sentiment analysis in this study follows a systematic procedure based on a lexical approach, designed to quantitatively extract emotional meaning from the conversation text. The first stage of this process is data acquisition, which was carried out by downloading the chat archive from a WhatsApp group related to Coretax and then loading it into the R working environment for structured processing. Next, the text undergoes the removal of non-text elements such as emojis, punctuation marks, numbers, and other characters, as well as the conversion of all letters to lowercase.

The next step is tokenization, where each conversation sentence is broken down into individual word units or tokens, ready to be compared against the sentiment lexicon. Since the data were collected in Indonesia, this study includes original messages written in Indonesian. For example, the tokenization of the message *"Saya sudah kirim dokumennya via email, ya Pak."* ("I've already sent the document by email, Sir.") would result in ["*saya*" ("I"), "*sudah*" ("have"), "*kirim*" ("sent"), "*dokumennya*" ("document"), "via", "email", "*ya*" ("yes"), "*pak*" ("sir")]. After tokenization, the next step is filtering ambiguous words.

Within the context of the Coretax group, there were several words that frequently appeared due to the informal communication structure, did not have significant sentiment value, or had dual meanings depending on the sentence context (e.g., *"ya"* [yes], "file", *"bu"* [madam/Ms.]). Words like these were explicitly excluded from the tokenization process to avoid distorting the scores and classification results. This step aimed to improve the accuracy in mapping the emotional atmosphere of the conversations. In this conversation data, the following words were identified as ambiguous words (*"nih", "pt", "kah", "xml", "nik", "kali", "edited", "ar", "fpk", "wira", "pmk", "lb", "no", "des", "op", "hahahaha", "stkwawebp", "imgwajpg","nya", "bu", "this", "fp", "kak").*

The filtered tokens were then compared against the available sentiment lexicon. This analysis uses a modified and adapted sentiment lexicon, which was compiled from several Indonesian language lexicon sources and enhanced with numerical weights to reflect the emotional value of each word. The structure of this lexicon includes the word in its base (lowercase) form, the sentiment weight associated with that word, and the number of words in the phrase (with most consisting of a single word). An example of word categories for each sentiment can be seen in Table 1.

Table 1. Example Word for Each Sentiment Category

Sentiment Category	Example Words (in the context of Coretax)
Positive	"*terima*" (accept), "*bagus*" (good), "*lancar*" (smooth), "*jelas*" (clear), "*bermanfaat*" (beneficial), "*terima kasih*" (thank you)
Negative	"error", "*gagal*" (failed), "*terlambat*" (late), "*tidak jelas*" (unclear), "*menyulitkan*" (difficult)
Neutral	Common words like "*ya*" (yes), "*tanggal*" (date), "*bu*" (madam/Ms.), "*file*", etc. – these were removed from the final analysis as they were considered ambiguous or lacking significant emotional content.

Source: Processed by Researcher

Each message was assigned a sentiment score by summing the weights of all the words recognized in the sentiment lexicon. Words in the message that match the lexicon contribute either a positive or negative value. If a

message does not contain any matching words, its sentiment score is 0. Messages with a score greater than 0 are classified as positive sentiment, while messages with a score less than 0 are classified as negative sentiment. If the score is equal to 0 or if there are no matching words in the lexicon, the message is classified as neutral sentiment. An example of sentiment analysis results can be seen in Table 2.

Table 2. Example of Sentiment Analysis Results

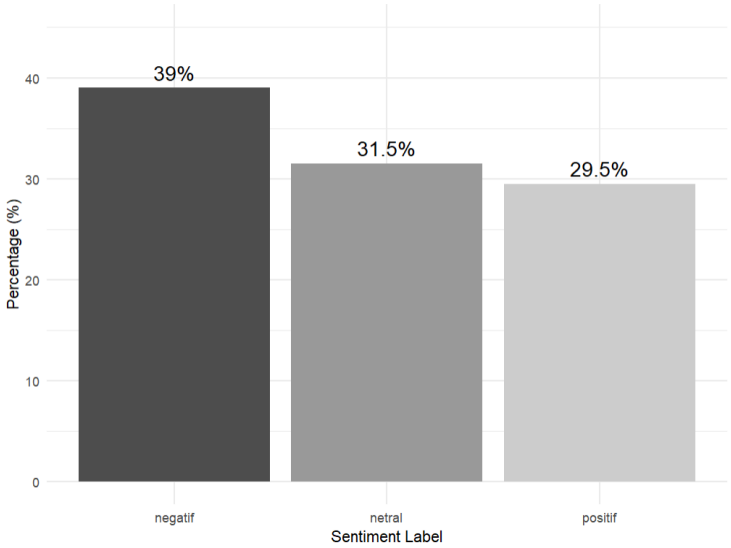
Message	Matching Tokens and Score	Total Score and Sentiment
"Maaf Pak, tadi saya sempat error saat buka link-nya." (Sorry Sir, earlier I had an error when opening the link.)	*"maaf"* (-1), "error" (-2)	Total Score: -3 Label: Negative

Source: Processed by Researcher

After the sentiment results were obtained, the next step was to interpret the emotional dynamics of the tax community toward Coretax. This interpretation was supported by visualizations using bar charts and word clouds. The bar chart shows the proportion of messages categorized as positive, negative, and neutral overall. This visualization helps assess the dominant sentiment in the communication, whether it is more supportive (positive), neutral, or if there is a tendency for criticism and complaints (negative). Daily and weekly trends were used to observe changes in the volume and intensity of sentiment over time. This is useful for identifying periods of increased positive activity, such as after webinars, as well as spikes in negative messages, such as when technical issues or unclear information arise. Word clouds and keyword bar charts were used to help explore the most dominant words within each sentiment category. Word clouds provide an exploratory representation, while bar charts offer clearer quantitative information for each sentiment. The visualization process was carried out using RStudio, utilizing the ggplot library for precise visualizations, the wordcloud library for lexicon exploration, and lubridate for extracting temporal dimensions.

Sentiment Distribution

The sentiment classification distribution shows that the majority of messages have a negative tone, followed by neutral and positive.



Source: Processed by Researcher

Figure 2. Sentiment Distribution Result

Figure 2 presents the visualization results of sentiment distribution in the Coretax group. It is observed that the majority of messages have a negative tone (39%), followed by neutral messages (31.5%) and positive ones (29.5%). This indicates that communication in this group is quite active, especially when discussing issues or frustrations, particularly since the Coretax system became active in 2025. The high number of negative-toned messages could be because group members most of whom are also taxpayers experienced technical difficulties or were confused by the new service flow. Words like "error","*salah*" (wrong), "*pusing*" (confused), or "*hilang*" (gone) frequently appear when the system did not function as expected. The group also became a place to vent or ask questions when quick help or direct solutions were needed.

Meanwhile, neutral messages were also quite numerous. These typically contained information such as schedules, links, or technical instructions shared without a specific emotional tone. This suggests that the Coretax group was also utilized to disseminate important information practically and efficiently. Positive messages were indeed fewer, but their role was still noticeable. Expressions like "*lancar*" (smooth), "*sesuai*" (in line), or "*berhasil*" (success) often appeared when members felt helped or satisfied with the explanations provided. This signifies a sense of mutual help and support within the group.

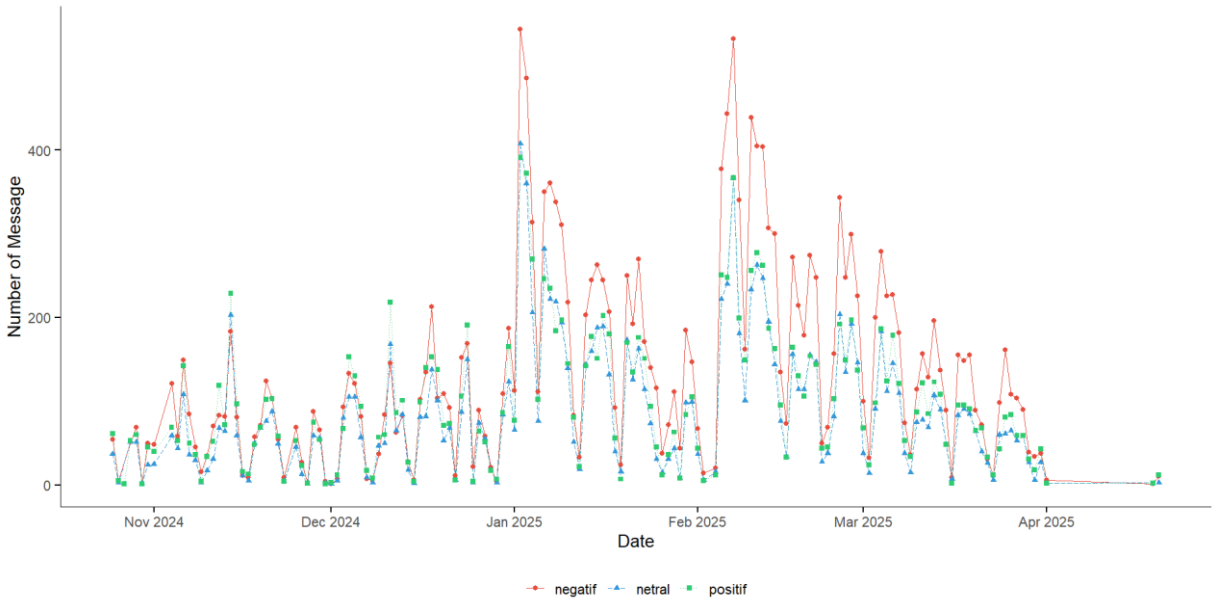
Overall, these three types of sentiment illustrate the dynamics of an active and lively group. Complaints serve as an alarm indicating areas needing improvement, neutral information forms the basis of regular communication, and positive messages maintain a spirit of togetherness. The Coretax group ultimately became not just a place to ask questions, but also a collaborative platform for learning and adapting together to the continuously evolving system.

These findings indicate that the Coretax system, while generally operational, is not entirely free from user-level issues. The obstacles encountered can be classified into technical such as bugs, system errors, or downtime, communication/customer relationship in the form of incomplete information or the use of non-intuitive language, and cognitive when users experience difficulty in understanding procedures, flows, or system expectations. Thus, these negative messages serve as early signals of friction points that can provide important input for the evaluation and improvement of the Coretax system's quality in the future. Therefore, this sentiment analysis aligns with the content of the conversations, which shows a dynamic between technical needs, collaborative communication, and expressions of problems faced within the Coretax community.

Daily trend

The daily trend graph in Figure 3 shows fluctuations in the volume of positive and negative messages over time. Positive spikes often coincide with the holding of webinars or important information sessions. The daily trend graph indicates that the number of messages in the Coretax group experienced several significant spikes, particularly in early January and early February. During these periods, the total daily messages even exceeded 3,000. These spikes occurred across all sentiment categories: positive, neutral, and negative, most likely related to intensive activities such as webinars or the launch of new features on the Coretax system. This is understandable considering that early January 2025 was the initial launch of Coretax and it faced various errors. This was followed by the second week of February 2025, which was the deadline for the periodic tax return (*SPT Masa*) filing.

In general, the daily trend shows that messages with negative sentiment often dominate daily conversations, followed by positive and neutral sentiment. Nevertheless, negative sentiment consistently appears, especially during activity spikes, which could indicate technical difficulties or user confusion in using the system. Thus, this pattern reflects the dynamics of an active and responsive digital community to changes. Communication within the group not only demonstrates collaboration and support among members but also serves as an honest channel for critical feedback. This is important as a basis for system improvement, service refinement, and enhancing the future user experience of Coretax.

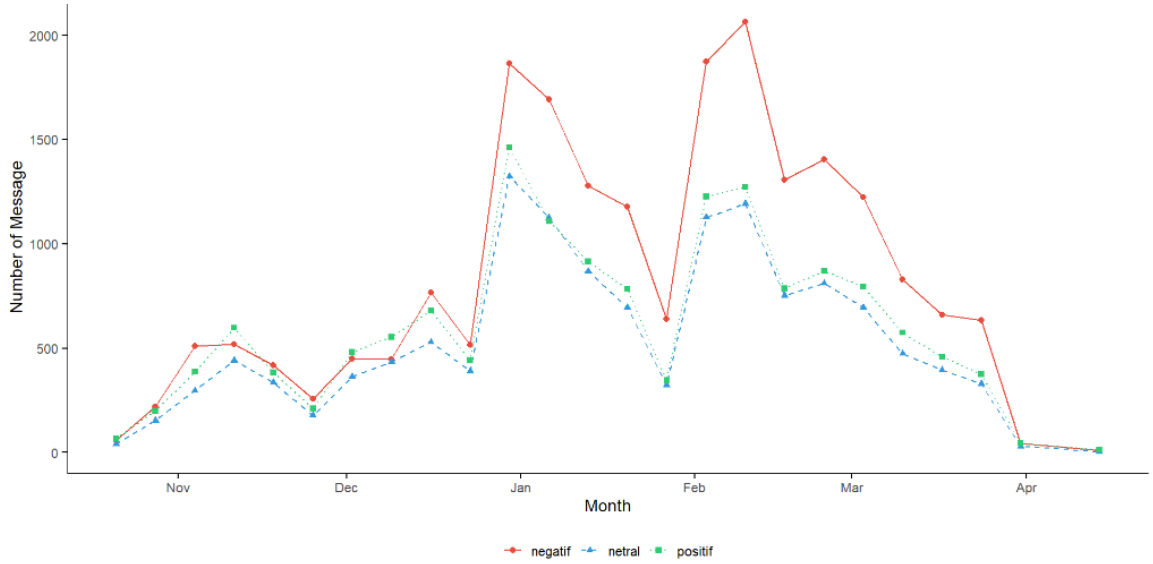


Source: Processed by Researcher

Figure 3. Daily Trend

Weekly trend

The weekly trend smooths out daily fluctuations and shows the stability of positive sentiment from week to week, with slight increases in negative sentiment occurring during technical disruptions (e.g., reports of "error", "wrong", and "gone").



Source: Processed by Researcher

Figure 4. Weekly Trend

The weekly trend in Figure 4 showed activity spikes in early January and February, which coincided with the active period of system usage. The weekly trend graph illustrates a dynamic communication pattern within the Coretax group, with two significant peaks occurring in the first week of January and early February. During these periods, the number of messages surged sharply, particularly those containing negative sentiment. These spikes likely correlate with the launch of the Coretax system at the beginning of the year or important activities such as webinars, policy announcements, or the distribution of technical documents. Following these periods, the number of messages gradually decreased, and communication became calmer towards April, reflecting reduced activity or system stabilization. Negative sentiment appears more dominant than the other two categories across almost the entire period. This indicates consistent technical challenges or complaints voiced by group members, especially when the new system was first implemented.

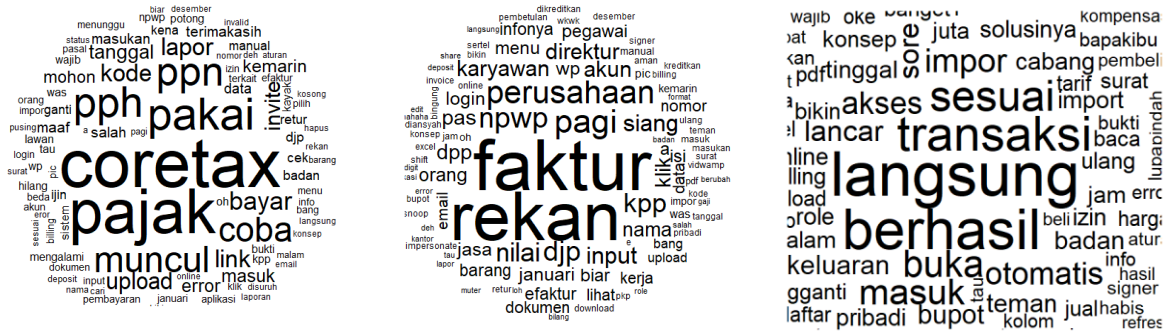
These technical issues arise primarily from the system's lack of readiness, which manifests in several forms (Puspita & Estherina, 2025). First, system access and performance issues include persistent difficulties in accessing Coretax, slow loading times, and frequent errors especially during peak usage periods. Second, data synchronization challenges between the legacy and new platforms have led to inconsistencies and limited accessibility. Third, account and registration errors are commonly reported, such as login failures, delays or missing OTPs (One-Time Passwords) particularly during NPWP registration for foreign nationals and confusion in completing enhanced data fields. Fourth, status mismatch and authorization errors include glitches in electronic certificate issuance and failures in facial verification processes.

Finally, technical and cognitive constraints emerge due to limited user training, poor data quality, suboptimal system preparedness, and concerns about cybersecurity risks and procedural misunderstandings. These challenges could be mitigated if the government adopted a more phased implementation strategy for Coretax, allowing users and institutions to adapt more gradually while the system matures.

Word Cloud per Sentiment

The visual word cloud provides a size representation based on frequency. The most prominent words in the positive word clouds are "*selamat*" (congratulations) and "*langsung*" (immediately), while in the negative one are coretax and "*pajak*" (tax).

As seen in Figure 5, the keyword visualizations showed how technical and administrative topics dominated the conversation content such as "*muncul*" (appear), "*coba*" (try), "*bayar*" (pay), upload, "*lapor*" (report), login, "*dokumen*" (document), "*bupot*" (withholding slip), "*akses*" (access), billing, "*efaktur*" (e-invoice)". These word clouds provide a more intuitive visual representation of the most frequently occurring words in each sentiment category.



(a) Negative (b) Neutral (c) Positive

Source: Processed by Researcher

Figure 5. Word Cloud for Each Sentiment

Panel (a) Negative shows emotionally strong words that are largely related to system obstacles. Words like "*pajak*" (tax), "*Coretax*", "*PPN*" (value-added tax), and "*PPh*" (income tax) appear very prominently. This reinforces the earlier finding that many complaints in the group relate to tax reporting and the document system. The words "*muncul*" (appear), upload and link also appear in a negative context, most likely because they are used in complaint sentences such as shown in Table 3.

Table 3. Example of Negative Sentiment Messages and The Translations

Messages (Original)	Translations (English)
"Karakter spesialnya coba diganti. Saya tadi juga gitu. Coba pakai titik ditolak, saya ganti pakai @"	"Try replacing the special character. I had the same issue earlier. When I used a period, it was rejected, so I replaced it with @"
"Iya saya pakai tanda tanya gabisa, pakai @ baru bisa"	"I used a question mark and it didn't work, but it worked when I used @ instead."
"Ya, pending dulu saja ini coretax. Mending kerjain yang lain karena memang belum bisa juga dipakai."	"Yeah, just put Coretax on hold for now. Better to work on something else since it still can't be used anyway"
"*sudah upload tapi tidak muncul*"	"Already uploaded but does not appear"
"Saya belum bisa. Setiap upload selalu statusnya saved invalid"	"I still can't. Every time I upload, the status always says "saved invalid."
"Tidak akan bisa coretax. Karena tidak ngelink untuk tahun sebelumnya. Bayar STP tahun 2024 saja tidak bisa muncul dicoretax"	"Coretax won't work. It doesn't link to the previous year. Even paying the 2024 STP won't show up in Coretax."

Source: Processed by Researcher

Panel (b) Neutral is dominated by the words "*faktur*" (invoice), "*rekan*" (colleague), and "*perusahaan*" (company), "*pagi*" (morning), "*siang*" (afternoon). Most words in this category indicate technical and informative communication, such as sending messages, discussing documents, or conveying instructions. There is no strong emotional content visible, suggesting that these conversations are functional and administrative such as shown in Table 4.

Table 4. Example of Neutral Sentiment Messages and Translations

Messages (Original)	Translations (English)
"Pagi rekan, just info faktur pajak sudah berhasil upload dini hari tadi setelah seharian kemarin error gagal upload dan data2 hilang gaib. Maafkan saya jaga shift 3 jadi jagain coretax biar gak hilang secara gaib lagi"	"Good morning, colleagues. Just an update the tax invoice was successfully uploaded early this morning after a whole day of errors and failed uploads yesterday, with all the data mysteriously disappearing. Apologies, I was on the third shift last night, keeping watch over Coretax to make sure it didn't vanish mysteriously again."
"Semoga besok ada jalan informasi terbaik untuk coretax dan faktur"	"Hopefully tomorrow there will be a clear solution or information for Coretax and the invoice."

Source: Processed by Researcher

In panel (c) Positive, words such as "*selamat*" (congratulations), "*langsung*" (directly), "*berhasil"* (successful), "*transaksi"* (transaction), and "*akses*" (access) are most prominent. This indicates that positive sentiment arises when users successfully use features within the Coretax system or when expressing appreciation for smoothly running services. Words like "*otomatis*" (automatic), "*lancar*" (smooth), and support reinforce the impression that positive interactions often occur when users feel helped or when the system responds well. Several positive messages can be seen in Table 5.

Table 5. Example of Positive Sentiment Messages and The Translations

Messages (Original)	Translations (English)
"Tapi saya justru di awal Bulan malah langsung berhasil upload data Faktur Pajak Keluaran dengan info TIN di kolom identitas"	"But actually, at the beginning of the month, I managed to successfully upload the Output Tax Invoice data right away, with the TIN info in the identity column."
"Tapi sebelum nya pas awal coretax ini saya bisa langsung upload faktur pajak, tapi semenjak tanggal 9 tiba tiba gak bisa upload"	"But at the beginning of Coretax, I was able to upload tax invoices right away, but since the 9th, I suddenly haven't been able to upload."
"Tanggal 14 saya import bisa dan langsung sukses. Kan di keterangan gagalnya ada karena apa, nah dibenerin aja"	"On the 14th, I was able to import successfully right away. The error message usually states the reason, just fix that part"
"Barusan saya iseng tes buat Bupot 21 bulanan dengan sekali klik terbitkan BuPot langsung selesai"	"I just casually tested creating the monthly Article 21 withholding slip, and with one click to issue it, it was done instantly"

Source: Processed by Researcher

Overall, these word clouds demonstrate that communication within the Coretax group is dense with technical and administrative terms, yet still reflects diverse emotional dynamics. These three word cloud panels serve as a strong visual reflection of how users express successes, confusion, and obstacles in using the system. This confirms that communication in the group not only conveys information but also contains the perceptions and real experiences of its members regarding Coretax. The Coretax group functioned as a discussion and mutual help space. Despite many complaints, several conversations showed supportive responses among members, sharing solutions, and technical clarifications. This indicates that this digital space served as a place for collaborative learning.

The sentiment analysis of public conversations shows that many users face not just technical issues but also communication problems when using the system. This highlights the need for clearer instructions, more user-friendly communication, and ongoing education. These findings are a strong signal for the government to improve the non-technical side of digital tax policies. User guides should be simpler and more practical, help channels must be responsive and human-centered, and public education should explain not only how the system works but also why it matters. These efforts will help users better understand the goals of Coretax and improve its overall effectiveness.

Conclusion

The implementation of Coretax has triggered active digital communication and facilitated knowledge sharing among tax-savvy users. However, during its first trimester, various challenges and system limitations hindered users from fulfilling their tax obligations effectively. Based on the sentiment analysis of conversations in the Coretax public group (late 2024 – April 2025), approximately 39% of messages were classified as negative, 31.5% as neutral, and 29.5% as positive. This indicates that conversations in the Coretax group tended to be filled with expressions of concern, obstacles, and frustration, although informative and appreciative nuances were also present.

The high proportion of negative sentiment indicates that technology alone is not sufficient—user adaptation is still influenced by procedural understanding, digital readiness, and the availability of adequate guidance. Consistent negative sentiment points to three main sources of problems: technical issues (system errors, access failures), communication issues (unclear information, confusing formats), and cognitive issues (difficulty understanding the flow). Therefore, the system not only needs to be technically stable but also designed to facilitate understanding for all user levels. On the other hand, the emergence of positive sentiment shows that this digital space also became a place for mutual help among members, which successfully strengthened the community's function as an informal support system. Users shared solutions and experiences, demonstrating a collective spirit to adapt. The fairly high neutral category reflects that many messages were administrative and informative, reinforcing that this group also functions as a coordination channel.

To improve user experience and system effectiveness, several recommendations are proposed. First, a user-based system design is essential particularly by enhancing the interface and system flow to be more intuitive and accessible, especially for novice users. Second, communication and visual guidance should be strengthened through the use of multimedia tools to convey procedures and formats more clearly. Lastly, the development of an AI-based assistant is recommended to support both general taxpayers and tax-savvy users with more targeted, responsive, and accurate guidance throughout the digital tax process.

One notable limitation of this study lies in unable to detect or accurately interpret sarcastic sentences, which may have affected sentiment classification. Additionally, the system currently lacks the ability to process informal or slang expressions, which are common in digital conversations and may carry important emotional cues. Future studies may consider incorporating advanced contextual language models to better capture these nuances.

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