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# Facebook Content Metrics for the Analysis of University Social Responsibility: The Case of the Technical University of Ambato

## Métricas de Contenido en Facebook para el Análisis de la Responsabilidad Social Universitaria: Caso Universidad Técnica de Ambato

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### Abstract

This study aims to analyze the metrics of reach and impact of content related to University Social Responsibility (USR) in the social network Facebook, particularly in the profile of the Technical University of Ambato. Based on a positivist paradigm with a simple descriptive approach, a comparative analysis was made of the increase in reaction to the publications on USR, measuring the emotional impact of the messages issued and the increase in followers from this awareness. In order to offer improvements in the interaction between the university and the university community and in the university-society link, achieving a reach and awareness of its USR actions, at the same time, it generates belonging and commitment in the university community to them. Among the remarkable results, the need for improvement in the application of digital platforms for measurement to increase the reach and impact of the publications of Facebook posts on USR is highlighted. In conclusion, contributions are presented to improve the effectiveness of communication strategies in university social networks based on the quantitative measurement of existing metrics with platforms such as FanPage Karma, NVivo software and Google Analytics.

**Keywords:** University Social Responsibility, content metrics, digital interaction, university community, social engagement.

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## Resumen

El presente estudio tiene por objetivo analizar las métricas de alcance e impacto de contenido referente a la Responsabilidad Social Universitaria (RSU) en la red social Facebook, particularmente, en el perfil de la Universidad Técnica de Ambato. Realizado a partir de un paradigma positivista con enfoque descriptivo simple, se analizó de manera comparativa el aumento de reacción sobre las publicaciones en torno a la RSU, midiendo el impacto emocional de los mensajes emitidos y el aumento de seguidores a partir de esa sensibilización. Con fin de ofrecer mejoras en la interacción entre la universidad y la comunidad universitaria y, en el vínculo universidad-sociedad, logrando un alcance y una sensibilización sobre sus acciones de RSU, al mismo tiempo, se genera pertenencia y compromiso en la comunidad universitaria para con las mismas. Dentro de los resultados destacables, se realza la necesidad de mejoramiento en la aplicación de plataformas digitales para medición para aumentar el alcance y el impacto de las publicaciones de los post de Facebook sobre RSU. Como conclusión, se presentan aportes para mejorar la eficacia de las estrategias de comunicación en redes sociales universitarias en base a la medida cuantitativa de métricas existentes con plataformas como FanPage Karma, el software NVivo y Google Analytics.

**Palabras clave:** Responsabilidad Social Universitaria, métricas de contenido, interacción digital, comunidad universitaria, compromiso social.

## Introduction

Universities in Ecuador have implemented actions of University Social Responsibility (USR), but there are challenges to adequately evaluate their impact. USR has become a fundamental value in the university trajectory, but the scarcity of tools and delimitation of metrics to measure the impact of its messages on digital platforms, such as Facebook, can hinder its measurement and, consequently, the improvement in its application. Today, we live in the digital era and, although universities are present in social networks, they must implement standardized methods to objectively measure the reach and effectiveness of their actions. Improving the implementation of RSU communication in university social networks can be done with personnel specialized in network analysis and variability in the types of content shared.

This lack of specialized staff makes it difficult to compare results and future data-driven organization, a structured and standardized approach would give universities the possibility to develop data-driven communication strategies using the information generated in digital platforms, metrics analysis, to strengthen their actions in society and contribute to their socioeconomic development. Some universities use basic social media analysis tools such as FanPage Karma and NVivo software as the most recent, see Table 1 (p. 10), applying superficial metrics such as reach and number of interactions, yet they do not specialize these tools to measure engagement, audience sentiment and traffic analysis applied to track the effectiveness of RSU publications.

The lack of specialization in the application of these tools hinders the effective implementation of University Social Responsibility (USR) strategies, which prevents the construction of a participatory university community in networks and the increase of tangible impacts of their initiatives. For example, not measuring the impact of USR events (lectures, workshops, campaigns) cannot determine if the visibility generated is the desired one, it is necessary to know how many people attend, the level of satisfaction, or how the news is disseminated in social networks. In addition, if a university does not measure and disseminate the impact of its USR projects among the student body that participates (tutoring, community work, networking projects), it prevents it from promoting these activities and measuring their metrics to expand the universe of USR in the institution.

The study by Rosano et. al. (2021) warns about the obstacles in communicational planning in the application and development of University Social Responsibility (USR). In addition to the lack of analysis of statistics and impact metrics in the publications on USR in social networks, the obstacles that arise are organizational inconsistencies and the interests at stake within the USR, for example, the greater promotion of activities within the faculties that have a direct productive character than those that do not. Consequently, there is a disparity between the format and the impact on USR sought by the University. Therefore, the analysis of metrics should be carried out to develop a strategic improvement in the scope and impact based on trust and innovation and to minimize risks in the effectiveness of future planning.

At the national level, Tamayo's research (2025) concludes that not all higher education institutions have formalized USR policies, and some do not even have university engagement projects. Even so, many incorporate it into their essential functions. However, in all of them, difficulties are encountered in the effective measurement of impacts and campaigns, and in the strategic communication of these initiatives, which can disseminate the existing ones and broaden the adherence to USR activities.

The key actors in this process, such as academic referents, university administrative staff and students, need accurate measurement tools that allow not only to evaluate the scope of the initiatives, but also to increase student participation in the activities and information on the actions of University Social Responsibility, positively encouraging the processes of university-society feedback because it can motivate students to be part of the actions of RSU, in making decisions in communication campaigns to improve metrics and scope of publications regarding RSU.

This article seeks to have accurate indicators to measure USR as a fundamental digital analysis to measure the collective impact of USR actions and to ensure better results in future applications of campaigns through social networks. The impact of USR on the development of the institution directly affects the relationship between universities and the context they inhabit, leading scientific knowledge to interrelate with society, generating feedback in the theory of the university and in the practice of transformation in the streets.

Several studies have addressed the importance of developing and applying these indicators to optimize the management of University Social Responsibility in higher education institutions, generating a university with socially conscious professionals and students. The study published by Baca et al. (2017), was conducted with a systemic approach based on two measurement instruments: a 90-item checklist and a 30-item structured survey. Both instruments are based on a model of University Social Responsibility that contemplates five dimensions and seventeen sub-dimensions, which allows for a complex analysis of university management on USR. It successfully concluded that in a private university in Lima, Peru, the effectiveness in measuring the social commitment of educational institutions increases student commitment and the permanence of the audience of the student body and the university community.

On the other hand, a research published by Fausti et al. (2024), highlights that generating sustainability reports based on indicators facilitates public accountability, creating credibility in the university community, and allows comparisons with the results of other universities that can be used to acquire new communication strategies on USR. In addition, it is possible to carry out a self-comparison on behalf of the institution in different periods of time. This not only promotes a culture of transparency but also increases the effectiveness of USR strategies by ensuring an effective link between the university, its environment and its commitment to social and sustainable development.

On the other hand, the literature review study written by Rodríguez, Gamboa Orozco, and Cuji Chacha (2018), before reaching the field research phase, focused on the analysis of web pages of different universities in which it was possible to identify which are their actions referring to University Social Responsibility. It is indicated in the results that in 100% of the cases, the words "university social responsibility" are not explicitly presented in the foundation of the universities but coincide in their texts in acting for the commitment with society and the context that surrounds them. In addition, they mention giving answers through university research to social problems of the nearby territory, generating local leaders in the university classrooms, contributing to the socioeconomic development of the country in a responsible socioeconomic and environmental manner. Therefore, the optimization of practice in USR activities meets the objectives of several researches and the mission of many universities.

The study by Rodríguez, Tamayo, A., (2025) is carried out with a qualitative methodology in public universities in Ecuador. The information available on their web pages on USR and university social responsibility actions was analyzed. Although the words of USR were not explicitly mentioned, but in their mission and vision they make mention of the aspects of USR such as the committed relationship of the university community with the social and natural context and in the socioeconomic development in a responsible manner. Accordingly, Borja (2022) emphasizes that the entire university community should be involved in a continuous self-evaluation of university actions, with appropriate diagnostic and recording tools to ensure credibility, participation and continuous improvement in social, human and ecologically sustainable development. In a more recent diagnosis, Chávez (2023) determines that the impacts generated within the university in the professional training trajectories directly cross the professional

action of graduates and, if variables for measuring USR actions are implemented, the social commitment of universities can be increased.

## Materials and methods

The approach of this study is quantitative descriptive, oriented to the evaluation of Facebook content metrics for the analysis of University Social Responsibility (USR) activities at the Technical University of Ambato (UTA). The delimitation by objective of this study is to examine how this institution uses the digital platform to communicate its actions and its approach in RSU, analyzing the reach, effectiveness of its publications and the creation of community of the same.

The population to be analyzed in this study will be UTA's Facebook publications related to RSU, in concept and practice. The population sample is composed of all publications made during a period of three months, between December 2024 and February 2025, allowing to obtain a representative data set for the analysis of the impact and reach of the publications.

The methodology applied will be guided by five stages. Firstly, a quarterly analysis period is delimited to collect data; secondly, data will be extracted from the UTA Facebook page, for which, information was collected through Fanpage Karma, NVivo, among others. Thirdly, the publications were organized and classified, categorized according to the type of content and their messages about RSU. Fourth, an analysis of the interactions and their reach was produced, evaluating the effectiveness of each type of publication.

The tools used to collect and analyze the data were the digital platforms Fanpage Karma, which allows obtaining detailed metrics on the performance of publications, including interactions, reach and frequency of publications, and NVivo, which facilitates the qualitative analysis of comments on publications, allowing identifying perceptions and patterns of public interaction. The data collected is applied to comparative charts and graphs for a better understanding of the data.

Data processing was carried out using digital platforms specialized in social network metrics, such as FanPage Karma and NVivo, which allow the information to be extracted and systematized in a precise manner. The main measurement axes are: Interactions (reactions, comments and shares), reach (number of people reached by publication), frequency of publications (publications per month on RSU), type of content (informative, visual, multimedia), sentiment by interactions (allows to determine the awareness of the target audience by the message conveyed on RSU).

For data analysis, patterns will be identified, in order to systematize them, of communication to assess the impact and scope, with all its subcategories of publications on Facebook of the Technical University of Ambato. The systematization will be done in comparative data differentiated into three main axes: evaluation of the frequency of publications on Facebook about RSU in the UTA; Relationship between the type of

content and awareness in the community; and, recommendations for improvements in the areas of communication on RSU in the digitality of the UTA.

## Results

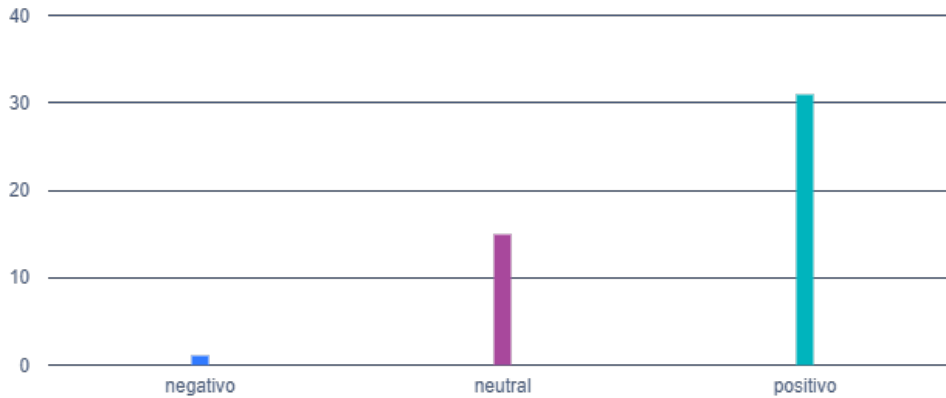
The results of the study are presented below. First, the summary of metrics on the social network facebook, specifically, the interpretations on the publications referred to University Social Responsibility in the profile of the Technical University of Ambato. In terms of quantitative graphs, the metrics of the account's reach, its increase in followers and keywords impact on the public, and the coding of the sentiments presented to the publications are presented.

**Table 1.** Summary of metrics

Interpretation of metrics		
Metric	Value	Interpretation
Page Performance Index	16%	Indicates the overall level of page performance compared to others, probably based on interaction and growth.
Followers	113k (113,000 )	Total number of followers of the page.
Follower growth (%)	0,62%	The page has increased its followers by 0.62% in the period analyzed. If the period is monthly, it means that in one month it gained about 700 new followers.
Interaction rate of publications	0,14%	Indicates that only 0.14% of the people reached interact with the publications (likes, comments, shares). This is a low rate, suggesting that the content could use further optimization.
Posts per day	1,8	On average, the page posts almost 2 times per day.

Source: Own elaboration

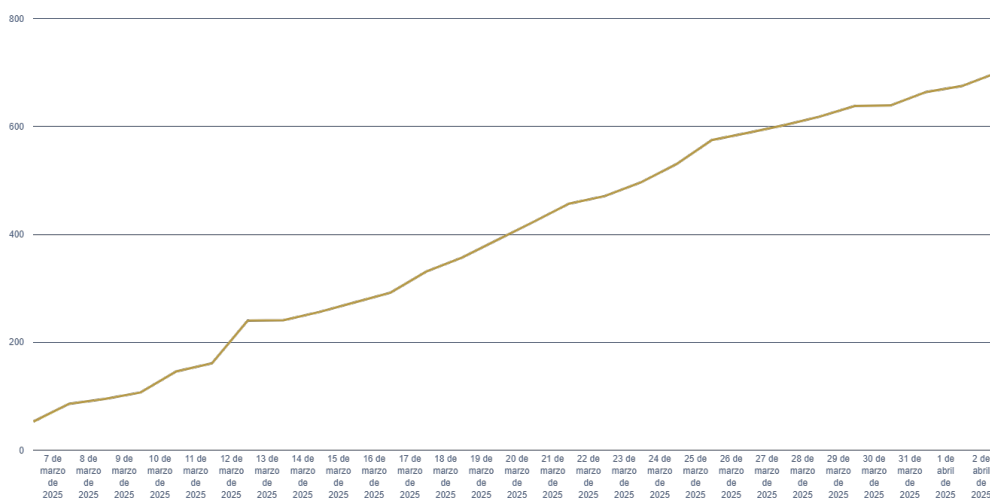
**Graph 1.** Sentiment of publications



Source: Own elaboration: Own elaboration

This suggests that the dissemination of RSU content on Facebook has an optimistic communicative approach, which may favor acceptance and engagement by the digital community. Neutral content probably corresponds to institutional information, such as calls, dates or informative data. Although useful, these publications may have a lower emotional reach and less organic dissemination, so their impact may be more limited in terms of interactions. The low number of publications with a negative tone indicates good content management and institutional communication in RSU. This favors the image of the university and minimizes possible adverse or controversial reactions in social networks.

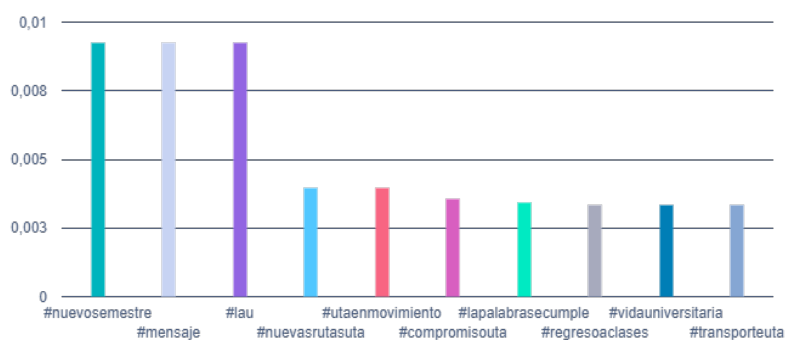
**Figure 2.** Growth of followers



Source: Own elaboration

The analysis of the growth of followers on the Facebook page of the Technical University of Ambato (UTA) between March 7 and April 2, 2025 reveals a sustained growth trend, with a phase of accelerated growth followed by stabilization. The number of followers increased from 93 on March 10 to 337 on March 18, representing a remarkable 262% increase in just 8 days, suggesting the presence of factors such as strategic campaigns, major events or high impact publications that captured the public's attention. From March 19 onwards, growth was more moderate, reaching 585 followers on March 28, before stabilizing at 647 followers by April 2. This growth pattern may be linked to the promotion of activities related to the beginning of the semester, as indicated by the hashtags used, such as #nuevosemestre, which probably boosted interest in the page. In addition, analyzing this impact can generate data for improvement in the implementation of digital communication campaigns at UTA or other universities on RSU.

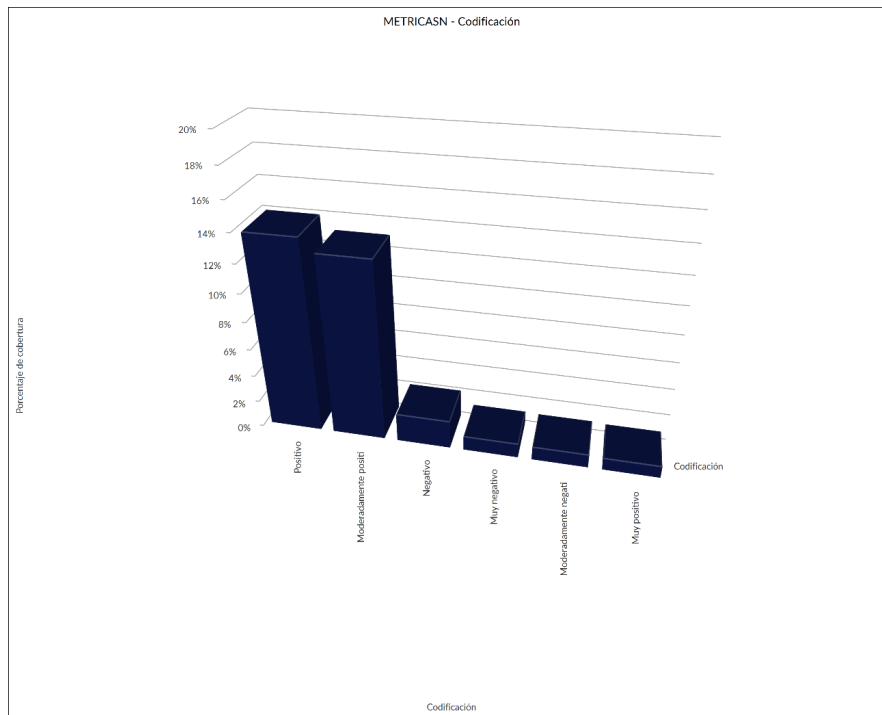
**Figure 3.** Top 10 hashtags



Source: Own elaboration

The most frequent hashtags such as #nuevosemestre, #mensaje and #lau count with a majority of 0.93% in presence in UTA's Facebook social networks revolve around the new university cycles and are issued by its community. In second place, there are those that refer to logistical issues and student mobility such as #nuevasrutasrutas, #utaenmovimiento and #transporteuta. In addition, tags such as #compromisouta and #lapalabrasedecumple stand out, showing interest in university commitment and university life. These hashtags may indicate a communication strategy that uses them in their peak periods or that creates its own to generate presence.

**Figure 4.** Coding of sentiments



Source: Own elaboration

The analysis of emotional coding carried out on the interactions on the Facebook profile of the Technical University of Ambato reveals a markedly positive trend of participation by the entire university community and society in general. The coding categories "Positive" and "Moderately positive" concentrate the greatest content coverage, indicating that the university's publications generate mainly favorable reactions, interest and acceptance. No polarization is found between positive and negative emotions, reactions representing positive ones as "Very Positive" does not reach high peaks nor does the representation of negative ones as "Very Negative", indicating a moderate reaction of emotional responses, as a safeguard when demonstrating them in networks on the part of the audience.

Social network activity reflects a positive institutional image and a relatively satisfied community, although with certain nuances that could point to areas for improvement or attention. This type of analysis can serve as a strategic tool to strengthen digital communication and better orient content towards the real interests of students, teachers and followers of the institution.





the published content. There is an opportunity to strengthen areas such as environmental sustainability, volunteering or community projects, which may not be sufficiently disseminated. In addition, reinforcing the use of emotional or narrative language in these publications could improve the connection with the community and generate greater interaction.

The results of this study highlight evidence of the exercise of University Social Responsibility within the Higher Education Institution analyzed. This presence is part of the generalized tendency of Latin American universities to build a digital identity and interconnect it with face-to-face actions. However, it is observed that there is no constant communication about the USR, without its due categorization, labeling and consequent optimization of the communicational elaborations. As highlighted in the research by Rodríguez et al. (2018) and Tamayo (2025), several institutions do not explicitly make visible their USR actions in digital media, even when they are aligned with the institution's principles. This particularity, is visible at UTA, where the content on USR is socially relevant but is not positioned within the networks with relevant tags or hashtags.

Within the results, the hashtags with relevance are analyzed, showing that #nuevosemestre or #utaenmovimiento are the most relevant because they are rooted in communication strategies typical of the academic seasons. In this sense, the lack of application of these tags for University Social Responsibility actions prevents their visibility in UTA's social networks, limiting recognition by the public. In this way, the need mentioned by Fausti et al. (2024), to build specific reports and indicators that allow not only accountability, but also to consolidate a communicational culture that recognizes and promotes the USR from its digital identity, is confirmed.

The metrics collected on the UTA Facebook page allow identifying a stability between the metrics of followers, publications and audience sentiment. However, they continue to be superficial measures due to their application in principle, given that the use of indicators such as the interaction rate (0.14%) or the digital community growth (0.62%) allow visualizing a general overview but are not sufficient to assess the true impact of RSU's communicational campaigns. In this line, authors such as Rosano et al. (2021) and Fausti et al. (2024) stress the need to go beyond traditional metrics to break the limitations and loss of opportunities when building communication without evidence bases.

On the other hand, UTA does not fully translate into its digital publications the commitments that are present in its digital publications. Although there are contents related to inclusion, disability, culture or welfare, they are disjointed and without a common narrative that is pigeonholed within a USR policy. Borja (2022) and Chávez (2023) have already raised this problem in their research, warning that USR should be transversal to all university life, including its digital projection. The lack of this specific narrative means that the university community does not perceive USR as an articulating axis of institutional identity.

Within the sentiment analysis shown, institutional publications tend to generate positive reactions, but there is a lack of use of this metric due to the scarcity of emotional or inspirational content regarding USR. According to Fausti et al. (2024), effective communication regarding USR must balance transparency with emotionality, appealing to empathy and human storytelling where social networks become spaces where emotive content generates greater impact. Therefore, the human face of the UTA can be made visible and disseminated by incorporating testimonies, life stories or experiences of RSU actions.

Finally, the analysis shows that, although there is a digital community around UTA, communication strategies are not developed to establish loyalty and active participation of the university community. In this sense, Chávez (2023) argues that University Social Responsibility requires an engaged and critical community that should be developed from two-way communication with active participation of both parties. Interactive communication strategies such as surveys, student-generated content or live transmissions with chat or other feedback spaces can be implemented.

## Conclusions

University Social Responsibility exercised in the context of Latin American universities, such as those in Ecuador, is of utmost importance considering the context marked by economic, social, cultural and environmental inequalities. The USR takes on a leading role in the intervention on reality that academic knowledge can have.

The most relevant results of this study establish that the evaluation of metrics on USR in UTA social networks can measure the effectiveness of understanding, dissemination and breadth of publications to establish a systematized, structured and quantifiable approach. Therefore, it has been found that the areas of less dissemination in the RSU publications need to be improved and that publications related to specific topics of social impact and university-society interaction have greater relevance; however, since they are not systematized or timed, they are lost in the universe of messages and contents of the profile. This implies an improvement in the frequency of publications of specific content and the inclusion of them in a message that gives a sense of belonging and highlights attractive content to strengthen the presence of the brand, UTA, in the digital universe.

The study of metrics of the USR content also has significant practical implications. Since from its results it is possible to specialize the staff that intercedes in the content of UTA's social networks to make its impact and reach effective. This implies a collaborative approach that not only makes academic content more accessible, but also reinforces the social and cultural development of the university universe and its feedback with society at large.

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