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Social Media Content Analysis within the Framework of the Sustainable Development Goals: The Case of Bilecik Municipality

Sürdürülebilir Kalkınma Hedefleri Çerçevesinde Sosyal Medya İçerik Analizi: Bilecik Belediyesi Örneği

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ABSTRACT

This study aims to examine how local governments demonstrate their understanding of sustainable development through digital communication practices. Accordingly, a total of 955 posts shared by Bilecik Municipality on Instagram between April 2, 2024, and December 1, 2025, were evaluated using the content analysis method from a sustainability perspective. The posts were classified within the framework of social, economic, and environmental sustainability dimensions as well as the United Nations Sustainable Development Goals (SDGs), and were further analyzed through thematic analysis. The findings indicate that the municipality's social media communication is significantly concentrated on the dimension of social sustainability. While 92.8% of the posts were coded under social sustainability, it was observed that economic (26.7%) and environmental (18.5%) sustainability dimensions were represented to a relatively limited extent. In the social content, services for vulnerable groups, health-based solidarity practices, and child-oriented cultural activities stand out. Examining the distribution of Sustainable Development Goals, it is observed that the posts predominantly cluster around SDG 11 (Sustainable Cities and Communities), SDG 4 (Quality Education), SDG 16 (Peace, Justice, and Strong Institutions), and SDG 3 (Good Health and Well-being). The thematic analysis results reveal that the municipality's sustainability discourse is structured around the themes of social solidarity and welfare, urban life, economic accessibility, and environmental sensitivity. This study contributes to the literature by demonstrating that the sustainability performance of local governments can be systematically analyzed not only through policy documents but also through social media content.

Keywords - Sustainable Development Goals, Local Governments, Social Media Content Analysis, Corporate Sustainability, Municipal Communication

Highlights

- This research reveals that the municipality’s digital communication serves as a strategic tool reflecting sustainability priorities, predominantly shaped around social sustainability within the SDG framework.
- Findings indicate that social sustainability is dominant in the municipality's social media communication, while economic sustainability plays a supportive role and environmental sustainability has relatively limited representation.
- SDG 11 (Sustainable Cities and Communities), SDG 4 (Quality Education), SDG 16 (Peace, Justice, and Strong Institutions), and SDG 3 (Good Health and Well-being) stand out prominently in the distribution of posts.
- Thematic analysis results show that the digital sustainability discourse is structured around themes of social solidarity, urban life, economic accessibility, and institutional governance.
- The study contributes to the literature by demonstrating that local governments' sustainability performance can be systematically analyzed through social media content, rather than solely through policy documents.

Sürdürülebilir Kalkınma Hedefleri Çerçevesinde Sosyal Medya İçerik Analizi: Bilecik Belediyesi Örneği

ÖZ

Bu çalışma, yerel yönetimlerin sürdürülebilir kalkınma anlayışını dijital iletişim pratikleri üzerinden nasıl görünür kıldığını incelemeyi amaçlamaktadır. Bu doğrultuda, Bilecik Belediyesi tarafından 2 Nisan 2024 – 1 Aralık 2025

tarihleri arasında Instagram platformunda paylaşılan toplam 955 gönderi, sürdürülebilirlik perspektifinden içerik analizi yöntemiyle değerlendirilmiştir. Paylaşımlar; sosyal, ekonomik ve çevresel sürdürülebilirlik boyutları ile Birleşmiş Milletler Sürdürülebilir Kalkınma Hedefleri (SKH) çerçevesinde sınıflandırılmış ve tematik analiz yoluyla çözümlenmiştir. Elde edilen bulgular, belediyenin sosyal medya iletişiminin belirgin biçimde sosyal sürdürülebilirlik boyutunda yoğunlaştığını göstermektedir. Paylaşımların %92,8'i sosyal sürdürülebilirlik kapsamında kodlanırken, ekonomik (%26,7) ve çevresel (%18,5) sürdürülebilirlik boyutlarının görece daha sınırlı temsil edildiği tespit edilmiştir. Sosyal içeriklerde; kırılgan gruplara yönelik hizmetler, sağlık temelli dayanışma uygulamaları ve çocuk odaklı kültürel etkinlikler ön plana çıkmaktadır. Sürdürülebilir Kalkınma Hedefleri dağılımı incelendiğinde ise paylaşımların ağırlıklı olarak SKH 11 (Sürdürülebilir Şehirler ve Topluluklar), SKH 4 (Nitelikli Eğitim), SKH 16 (Barış, Adalet ve Güçlü Kurumlar) ve SKH 3 (Sağlık ve İyi Oluş) hedefleri etrafında yoğunlaştığı görülmektedir. Tematik analiz sonuçları, belediyenin sürdürülebilirlik söyleminin sosyal dayanışma ve refah, kent yaşamı, ekonomik erişilebilirlik ve çevresel duyarlılık temaları etrafında yapılandığını ortaya koymaktadır. Çalışma, yerel yönetimlerin sürdürülebilirlik performansının yalnızca politika belgeleri üzerinden değil, sosyal medya içerikleri aracılığıyla da sistematik biçimde analiz edilebileceğini göstermesi bakımından literatüre katkı sunmaktadır.

Anahtar Kelimeler - Sürdürülebilir Kalkınma Hedefleri, Yerel Yönetimler, Sosyal Medya Içerik Analizi, Kurumsal Sürdürülebilirlik, Belediye Iletişimi

Öne Çıkanlar

- Bu araştırma, yerel bir yönetimin sosyal medya paylaşımlarının, sürdürülebilir kalkınma hedefleri çerçevesinde ağırlıklı olarak sosyal sürdürülebilirlik ekseninde şekillendiği ve dijital iletişimin belediyenin sürdürülebilirlik önceliklerini yansıtan stratejik bir araç olarak kullanıldığını ortaya koymaktadır.
- Bulgular, belediyenin sosyal medya iletişiminde sosyal sürdürülebilirliğin baskın, ekonomik sürdürülebilirliğin destekleyici, çevresel sürdürülebilirliğin ise görece sınırlı bir temsile sahip olduğunu göstermektedir.
- Paylaşımların Sürdürülebilir Kalkınma Hedefleri dağılımında SKH 11 (Sürdürülebilir Şehirler ve Topluluklar), SKH 4 (Nitelikli Eğitim), SKH 16 (Barış, Adalet ve Güçlü Kurumlar) ve SKH 3 (Sağlık ve İyi Oluş) hedeflerinin belirgin biçimde öne çıktığı tespit edilmiştir.
- Tematik analiz sonuçları, belediyenin dijital sürdürülebilirlik söyleminin sosyal dayanışma, kent yaşamı, ekonomik erişilebilirlik ve kurumsal yönetişim temaları etrafında yapılandığını ortaya koymaktadır.
- Çalışma, yerel yönetimlerin sürdürülebilirlik performansının yalnızca politika belgeleri üzerinden değil, sosyal medya içerikleri aracılığıyla da sistematik biçimde analiz edilebileceğini göstermesi bakımından literatüre özgün katkı sunmaktadır.

I. INTRODUCTION

Sustainable development has become a defining framework for local governments in policy-making and the delivery of public services in recent years. The Sustainable Development Goals (SDGs), adopted by the United Nations, address sustainability not merely as an environmental issue but as a holistic transformation process encompassing social welfare, economic inclusion, environmental responsibility, and governance dimensions. This multidimensional structure has made the question of how sustainability policies are implemented, communicated, and made visible at the local level an important research area in the social sciences. Local governments, in particular, hold a critical position in the localization of the SDGs, acting both as implementers of sustainability-oriented policies and as actors that raise public awareness.

With digitalization, the ways in which local governments communicate with the public have also transformed significantly. Social media platforms have become important channels through which municipalities inform citizens, increase institutional visibility, support transparency, and communicate public services. Previous studies indicate that the use of social media by public institutions follows a gradual process, moving from initial experimentation to the formation of norms and institutionalization. In the municipal context, social media use can strengthen institutional transparency, although e-participation has not always developed to the same extent (Bonsón et al., 2012; Mergel & Bretschneider, 2013).

The theoretical framework of this study is built upon two complementary approaches. First, the New Public Governance approach emphasizes that public services should be conducted within multi-actor structures based on participation, cooperation, and interaction (Osborne, 2006). The interaction of local governments with citizens through social media can be considered one of the concrete reflections of this approach in the digital environment. Second, the Triple Bottom Line (TBL) model developed by Elkington (1997) offers a holistic assessment framework that addresses sustainability through its social, economic, and environmental dimensions. Municipal social media posts therefore constitute a functional observation area for examining the extent to which these three dimensions are represented in institutional communication.

A review of the existing literature reveals a significant body of research focusing on the use of social media and digital communication practices by municipalities in Turkey (Er & Taydaş, 2024; Eryeşil et al., 2021; Kaygısız & Sarı, 2015; Şenyurt, 2016). A considerable part of this literature examines social media as a tool for corporate communication and public relations, particularly by analyzing the content, communication styles, visibility, interaction patterns, and participatory functions of municipal accounts on platforms such as Twitter/X (Aydın, 2018; Karakoç, 2019; Küçükşen & Firidin, 2021; Sayılganoğlu, 2018). More recent studies have also produced comparative analyses at the metropolitan municipality level, focusing on dimensions such as digital visibility, citizen interaction, and local participation (Göçoğlu & Aydın, 2023; Güregen & Karaöz, 2021; Tarhan et al., 2022). However, most existing studies do not classify municipal social media content systematically and holistically within the framework of the SDGs. Similarly, research discussing how local governments make sustainability practices visible through digital platforms and how this visibility contributes to the construction of sustainability discourse remains limited. This study addresses this gap by examining municipal social media communication through the combined lens of sustainability dimensions and the SDG framework.

Accordingly, this study analyzes the sustainability understanding of local governments through their social media content. The main objectives of the research are: (i) to reveal the distribution of the content shared by Bilecik Municipality on Instagram according to social, economic, and environmental sustainability dimensions; (ii) to determine the relationship of this content with the Sustainable Development Goals; and (iii) to evaluate the quality of the municipality's sustainability discourse by analyzing the posts within a thematic framework.

The study examines multifaceted content ranging from social assistance and solidarity practices to cultural and artistic events, economic support mechanisms, environmental activities, and institutional communication through a systematic content analysis approach. Beyond identifying the distribution of sustainability-related content, the study treats municipal digital communication as an observable component of local sustainability performance. Sustainability at the local level is not only implemented through policies, projects, and strategic plans; it is also constructed, prioritized, and made publicly visible through communication practices. Therefore, municipal social media posts provide insight into which sustainability issues are institutionally emphasized, which stakeholder groups are addressed, and how local governments frame their responsibilities within the SDG agenda. In this regard, the study contributes to the literature by linking digital municipal communication with sustainability discourse and offers a practical framework for assessing whether local governments communicate sustainability in a balanced way across social, economic, and environmental dimensions.

II. LITERATURE REVIEW

The relationship between sustainable development and local governments has become significantly more prominent in academic and policy literature, particularly following the adoption of the Sustainable Development Goals (SDGs) by the United Nations. The multi-level and multi-stakeholder implementation approach of the SDGs makes local governments key actors in the localization of sustainability policies (UN General Assembly, 2015; UN-Habitat, 2022).

The ability of local governments to manage environmental, social, and economic goals simultaneously is considered one of the key factors determining the success of sustainability at the local level (Guarini et al., 2022; OECD, 2009). This approach indicates that, in the sustainable cities literature, SDGs encompass a strong governance dimension beyond technical policy objectives (UN General Assembly, 2015).

Indeed, considering cities as actors that develop governance capacity in global policy arenas can be seen as a theoretical extension of the multi-level governance discussions put forward in the pre-SDG era (Bulkeley & Betsill, 2005). Glass & Newig (2019) draw attention to the decisive role of participation, policy consistency, institutional adaptability, and democratic structures in achieving sustainable development goals, emphasizing that sustainability is essentially a governance-based process. Similarly, Bulkeley and Betsill (2005) demonstrate that cities are positioned within multi-level governance networks in the context of climate policies, and that local governments are not only implementers of higher-level policies but also active policy actors. These approaches show that addressing sustainability at the local level is a theoretical necessity.

The processes by which local governments implement their sustainability goals are directly related to the public administration and governance literature. One of the key debates highlighted in this literature is that sustainability is a multidimensional transformation process requiring institutional capacity, managerial coordination, and policy integrity. Allen et al. (2018) demonstrate that the implementation of SDGs at the local and national levels depends on managerial capacity and institutional coordination; discontinuities in the implementation process significantly hinder the achievement of the goals. These findings show that it is not enough for sustainability to be merely included in policy documents; it must also be supported by implementation, monitoring, and communication processes.

When studies conducted in the context of Turkey are examined, it is seen that the relationship between local governments and SDGs has generally been addressed through strategic plans, institutional documents, and municipal activities. Aydın Özgür (2022) analyzed the strategic plans of Edirne Municipality and Edirne Provincial Special Administration within the framework of SDGs, revealing that Edirne Municipality contributed more to the SDGs, while the Provincial Special Administration's contributions were more limited. Similarly, Yereli & Ünal (2022), in their analysis conducted through ministries and metropolitan municipalities, showed that the integration of SDGs into strategic management processes has not yet been fully institutionalized. Haberal & Işık (2024) found that the most supported SDGs in the strategic plans of metropolitan municipalities were SDG 8, SDG 11, and SDG 16, and that reporting for some targets remained insufficient. In the study conducted by Şamat & Demirel (2024), it was determined that Bağcılar Municipality's strategic plan did not include SDGs and that its performance indicators were inadequate.

With the impact of digitalization on public administration processes, the communication strategies of local governments have also undergone a significant transformation. In this process, social media has evolved from being merely an information tool for municipalities to a digital communication space through which local governments can increase visibility, inform citizens, strengthen transparency, and support interaction. The evolution of public institutions' use of social media from an experimental phase to a regulatory and institutionalization process is clearly demonstrated in the public administration literature (Mergel & Bretschneider, 2013).

Studies examining the institutional impacts of social media use within local governments reveal that digital platforms have significant effects on transparency and accountability. Bonsón et al. (2012) showed that municipalities' social media use is related to their level of institutional transparency, while Song & Lee (2016) found that public institutions' social media use increases perceived transparency among citizens, and this perception is positively correlated with institutional trust. These findings demonstrate that social media can indirectly strengthen the quality of local governance.

However, the literature also shows that the existence of social media accounts does not automatically generate deep citizen participation or dialogic governance. Municipal social media use is shaped by organizational capacity, communication strategy, platform characteristics, content format, and the thematic focus of posts. Early studies emphasized that Web 2.0 and social media platforms could strengthen transparency, accountability, and citizen engagement in local governments (Bonsón et al., 2012; Mossberger et al., 2013). Nevertheless, subsequent empirical studies demonstrated that local governments often use social media primarily for information sharing,

service announcements, institutional visibility, and public relations rather than for sustained two-way participation (Bonsón et al., 2019; Graham, 2014; Sayılganoğlu, 2018; Tarhan et al., 2022).

This pattern is also visible in studies conducted in Turkey. Research on municipalities' social media practices shows that local governments frequently use digital platforms to announce services, promote activities, increase institutional visibility, and communicate with the public in a largely information-oriented manner. Studies focusing on Twitter/X and other social media platforms indicate that although these tools offer opportunities for interaction and participation, dialogic communication generally remains limited (Er & Taydaş, 2024; Güregen & Karaöz, 2021; Küçükşen & Firidin, 2021; Sayılganoğlu, 2018; Tarhan et al., 2022). Therefore, municipal social media communication should be evaluated not only as a technological innovation but also as an institutional communication practice shaped by administrative priorities, public relations strategies, and local service visibility.

Instagram has recently become an important platform for municipal communication because of its visual structure and its capacity to present local services, cultural activities, urban identity, social support practices, and institutional events in a highly visible way. Previous research shows that the type and format of municipal content play a decisive role in citizens' reactions; visual posts may generate more likes, while videos and issue-based content may stimulate more comments or discussion (Perea et al., 2021). This is particularly relevant for studies examining municipal sustainability communication, because sustainability-related content is communicated not only through formal policy documents, strategic plans, or reports, but also through daily visual and textual representations on social media platforms.

In order to clarify how previous empirical studies have addressed municipal social media use and digital communication practices, Table 1 presents selected studies in chronological order. These studies provide a basis for positioning the present research within the broader literature on municipal digital communication, institutional visibility, citizen interaction, and platform-based public communication.

Table 1. Studies on Municipal Social Media Use and Digital Communication Practices

Year	Author(s)	Content of the Study
2012	Bonsón et al.	Examined Web 2.0 and social media use by local governments and showed that these tools offer transparency potential, although e-participation remains limited.
2013	Mossberger et al.	Analyzed online interactivity in large U.S. cities and found that social media use does not automatically lead to deep citizen participation.
2014	Graham	Showed that social media transforms local government public relations, but many institutions continue traditional one-way communication practices.
2018	Sayılganoğlu	Found that Turkish municipalities use Twitter mainly for institutional information sharing and service announcements, with limited dialogic interaction.
2019	Bonsón et al.	Demonstrated that municipal Twitter engagement depends not only on municipal size but also on content type, media format, and communication strategy.
2021	Perea et al.	Analyzed Instagram posts from Andalusian municipalities and found that post format and content type influence citizen reactions.
2021	Küçükşen & Firidin	Showed that Trabzon Metropolitan Municipality used Twitter largely for information-sharing purposes, while dialogic interaction remained limited.
2022	Tarhan et al.	Found that metropolitan municipalities and mayors use Twitter primarily for public relations, announcements, and institutional visibility.
2024	Er & Taydaş	Examined Turkish municipalities' use of X/Twitter and emphasized that social media is mainly used for communication and public information purposes.
2025	Özen & Tekin	Evaluated Instagram interaction metrics of municipalities in Erzurum and highlighted Instagram as a visually oriented municipal communication platform.

Taken together, the studies summarized in Table 1 show that municipal social media has become an important part of local government communication, but its practical use is often concentrated on institutional visibility, information sharing, public relations, and service promotion rather than sustained dialogic participation. This pattern is important for the present study because Instagram posts are not treated merely as isolated announcements; rather, they are considered as digital traces of how a municipality prioritizes certain services, stakeholder groups, and policy themes. In this sense, municipal social media content provides an empirical basis for examining how local governments make their activities publicly visible and how such visibility may contribute to the construction of sustainability-related discourse.

This discussion also connects municipal social media research with the literature on sustainability and climate communication. Sustainability and climate communication studies place particular emphasis on framing, visibility, and perception management. Nisbet (2009) stresses that the way sustainability and climate policies are presented to the public is decisive in determining the level of individual participation. O'Neill & Nicholson-Cole (2009) state that while fear-based discourses may attract attention in the short term, they can weaken societal

commitment in the long term. These findings highlight the strategic importance of the language, themes, and communication formats used by local governments in their sustainability communication.

The literature on sustainability communication in local governments further shows that sustainability visibility is often uneven across social, economic, and environmental dimensions. Studies on online sustainability reporting by municipalities indicate that local governments differ considerably in the extent to which they disclose sustainability-related information, and that such disclosure may be shaped by demographic, institutional, financial, and administrative factors (Alcaraz-Quiles et al., 2015; García-Sánchez et al., 2013; Tirado-Valencia et al., 2016). This evidence indicates that sustainability communication is not merely a technical reporting practice, but also a governance activity influenced by local context, institutional capacity, and stakeholder expectations.

In the context of the SDGs, local governments are expected not only to implement sustainability-oriented policies but also to communicate these policies in ways that increase public awareness and institutional accountability. However, previous studies suggest that sustainability communication by municipalities may remain fragmented, with certain dimensions such as social welfare, urban services, or economic accessibility being more visible than environmental sustainability or climate-related goals (Boztepe Taşkıran, 2022; Čičmancová & Soviar, 2024; León-Silva et al., 2022). Similarly, studies focusing on municipal sustainability communication in Turkey indicate that sustainability-related content in local government communication may remain limited or unevenly distributed across themes, particularly in relation to environmental sustainability (Şimşek, 2024).

In order to show how previous studies have examined sustainability communication and SDG visibility in local governments, Table 2 summarizes selected empirical studies in chronological order. These studies provide a comparative background for evaluating how municipalities disclose, frame, and communicate sustainability-related activities through online platforms, websites, reports, and social media channels.

Table 2. Studies on Sustainability Communication and SDG Visibility in Local Governments

Year	Author(s)	Content of the Study
2013	García-Sánchez et al.	Examined sustainability disclosure by Spanish municipalities and discussed the determinants of online sustainability information.
2015	Alcaraz-Quiles et al.	Analyzed online sustainability reporting by local governments and showed that reporting is shaped by institutional and contextual factors.
2016	Tirado-Valencia et al.	Studied online sustainability transparency in European local governments and found that sustainability information remains at a moderate and improvable level.
2021	Marzouki et al.	Examined social media discourse on SDG 11 and showed that sustainable cities constitute a central theme in online sustainability discussions.
2022	Boztepe Taşkıran	Analyzed Turkish metropolitan municipalities' websites within the SDG framework and found that SDG-related activities exist but reporting lacks standardization.
2022	León-Silva et al.	Showed that sustainability disclosure by local governments remains limited and differs across economic, social, and environmental dimensions.
2024	Čičmancová and Soviar	Found that online sustainability communication by municipalities is related to institutional capacity, but the number of digital channels alone does not ensure high-quality sustainability information.
2024	Şimşek	Found that sustainability-related social media content by local municipalities remains limited, particularly in relation to environmental sustainability communication.

The studies summarized in Table 2 indicate that sustainability communication in local governments has mostly been examined through websites, strategic documents, sustainability reports, and online disclosure practices. These studies provide important evidence that sustainability-related communication is shaped by institutional capacity, administrative priorities, demographic structure, financial resources, and local governance conditions. However, they also show that sustainability visibility is not always balanced across social, economic, and environmental dimensions. Some dimensions may be communicated more strongly, while others may remain relatively less visible in municipal communication.

Building on this literature, the present study addresses an important gap by examining municipal social media content through the combined framework of the Triple Bottom Line and the Sustainable Development Goals. While previous studies have mostly focused on social media use in terms of transparency, public relations, interaction, citizen engagement, or institutional visibility, fewer studies have systematically examined how municipal social media posts construct sustainability discourse. Similarly, while the existing sustainability communication literature has largely examined strategic plans, websites, reports, or policy documents, social media content remains a relatively underexplored source for understanding how local governments make sustainability visible in everyday digital communication. By analyzing Bilecik Municipality's Instagram posts according to social, economic, and environmental sustainability dimensions and matching them with the SDGs, this study contributes to the literature by showing how digital municipal communication can function as a visible arena of local sustainability performance.

III. METHODOLOGY

This study is a descriptive and explanatory content analysis research aiming to evaluate the digital communication practices of local governments from a sustainable development perspective. The research analyzes the extent to which the social, economic, and environmental dimensions of sustainability are represented in the social media posts of Bilecik Municipality; how these posts are related to the United Nations Sustainable Development Goals (SDGs); and how recurring thematic patterns are shaped within the content.

The data source for this research consists of content shared on the official Instagram account of Bilecik Municipality. Instagram was chosen primarily because the platform is widely used by municipalities for visual and text-based public communication and provides access to a large user base. To reflect the digital communication approach adopted by the current municipal administration since taking office, all posts made between April 2, 2024, and December 1, 2025, were analyzed. A total of 955 posts from this period were used. Thus, the dataset was created to comprehensively represent the municipality's social media communication during the relevant period. Data was collected by manually examining the posts on the Instagram account during the specified time period. Each post was evaluated considering its text, visual content, and context. Comments, likes, or user interactions were not included in the analysis; the research focused on the municipality's corporate discourse and content production preferences.

This research utilized both qualitative content analysis and quantitative descriptive analysis. The analysis process was carried out in three stages:

1. Classification According to Sustainability Dimensions: In the first stage, the posts were categorized into three main dimensions: social, economic, and environmental, within the framework of the Triple Bottom Line model. In this context, social sustainability includes services and practices aimed at increasing social welfare, health, education, and cultural content, social assistance mechanisms, support for disadvantaged groups, and posts that encourage participation. The economic sustainability dimension is associated with economic support programs, job creation activities, support for producers and entrepreneurs, accessible service provision, and practices aimed at strengthening local development. Environmental sustainability encompasses content related to environmental health, cleaning and waste management services, nature conservation efforts, environmental awareness activities, and climate-focused posts and messages.

A single post may be associated with multiple sustainability dimensions depending on the nature of its content. Therefore, the frequencies related to these dimensions can exceed the total number of posts.

2. Matching with Sustainable Development Goals (SDGs): In the second stage, each shared content was evaluated within the framework of the 17 Sustainable Development Goals defined by the United Nations. The shared content was matched with the SDG(s) to which its content was directly or indirectly related; this matching process was based on the official definitions and target scopes of the SDGs. This stage also allowed for the association of shared content with more than one SDG, thus preserving the multi-dimensional nature of the municipality's sustainability discourse. Through the obtained frequencies, it was quantitatively revealed which SDGs were more visible in the municipality's communication.

3. Thematic Analysis: In the third stage, a thematic analysis was conducted based on sustainability dimensions and SDG coding. This involved identifying recurring concepts, semantic patterns, and discourses in the shared content; similar content was grouped together to form overarching and sub-themes. The thematic analysis revealed overarching themes such as social solidarity, urban life, economic accessibility, environmental sustainability, and corporate governance. This stage allowed for a qualitative deepening of the quantitative findings and a holistic interpretation of the municipality's sustainability communication.

To enhance the internal validity of the research, the coding process was based on conceptual frameworks (Triple Bottom Line and SDGs) commonly used in the sustainability literature. Coding decisions were made considering the context and semantic integrity of the content. Furthermore, the clear presentation of quantitative findings through tables during the analysis process increased the traceability and transparency of the interpretations. The data used in the research was obtained from a publicly accessible social media account and does not contain any personal data or private information. Therefore, the study does not require ethical committee approval; the research process was conducted in accordance with scientific ethical principles.

IV. FINDINGS AND DISCUSSION

This section presents the findings obtained from the analysis of Bilecik Municipality’s Instagram posts within the framework of sustainability. The analysis focuses on three interrelated levels: the distribution of posts across social, economic, and environmental sustainability dimensions; their relationship with the Sustainable Development Goals (SDGs); and the thematic patterns through which the municipality constructs its sustainability discourse.

When the posts are classified according to the three fundamental dimensions of sustainability, the municipality's social media communication is predominantly concentrated in the social dimension. This distribution is presented in Table 3.

Table 3. Distribution of Shares According to Sustainability Dimensions

Dimension	Percentage (%)	Number of Posts (n)
Social Dimension	92,8	886
Economic Dimension	26,7	255
Environmental Dimension	18,5	177

Note: A single post may be coded under more than one sustainability dimension; therefore, the total percentage may exceed 100%.

The distribution in Table 3 indicates that the social dimension constitutes the main axis of Bilecik Municipality's Instagram communication. With 886 posts, corresponding to 92.8% of the total content, the social dimension shows that the municipality's communication language is largely structured around social welfare, solidarity, equality, and inclusive services. These posts particularly make visible services for vulnerable groups such as the elderly, children, low-income individuals, and citizens with special needs. For example, the post, "We provide hot meal support to elderly, special needs, and vulnerable citizens who are unable to come to our Ramadan tent," reflects the continuity of social care services. Similarly, the statement, "We continue to meet the needs of our vulnerable citizens with our in-home hairdressing service," shows that social support practices are not limited to basic needs but also include complementary services that improve quality of life.

Health-focused solidarity and child-oriented cultural activities also occupy an important place within the social dimension. The call to "Donate the flowers and gifts you want to send for your congratulations and celebrations to Aydem, who has SMA" reflects a form of health-related social mobilization. Likewise, posts such as "We came together with our children at our April 23rd National Sovereignty and Children's Day events" and "We met with our little ones at the Bilecik Municipality Children's Social Facilities" indicate that children, education, culture, and social unity are recurring components of the municipality's digital communication.

The economic dimension, represented by 255 posts and 26.7% of the total content, remains more limited than the social dimension. However, economic content is generally integrated with social policy objectives. This suggests that economic sustainability is not presented as an independent communication category, but rather as a supportive component of social equality and local welfare. For example, the statement, "Our economy-friendly Public Grocery store branch has opened in the Bahçelievler Neighborhood Immigrant Housing area," points to practices aimed at increasing economic accessibility. Similarly, the post, "We are sharing the blessings of Eid al-Adha together, we provided a total of 803,900 TL in support to 643 citizens," shows that economic support is framed as a mechanism of social solidarity. Posts supporting women producers, such as "We contributed to the Bilecik City Council Women's Assembly bazaar," also indicate that economic participation is linked to gender-related and community-oriented objectives.

The environmental dimension appears more limited, with 177 posts corresponding to 18.5% of the total content. Environmental sustainability is represented mainly through environmental health, cleaning, waste management, and awareness-oriented content. The post, "We regularly carry out pest and mosquito control efforts in all our neighborhoods and streets," reflects the visibility of routine services related to public health and environmental hygiene. The announcement, "Only unopened and tagged clothing will be accepted at Güzel Market; used items can be left in the municipality's clothing donation bins," points to responsible consumption and reuse practices. In addition, the post, "We are meeting on all coasts on June 8th, Marmara Sea Day!" indicates that ecosystem-focused awareness campaigns are also included in the municipality's communication agenda.

Following the classification based on sustainability dimensions, the posts were matched with the SDGs in order to identify which goals were made more visible through municipal Instagram communication. The frequency distribution of the SDGs is presented in Table 4.

Table 4. Frequency Distribution of SDGs

SÜRDÜRÜLEBİLİR KALKINMA HEDEFLERİ	SDG Code	Number of Posts (f)	Description
11 SÜRDÜRÜLEBİLİR ŞEHİR VE YAŞAM ALANLARI	SDG 11	559	Shared perspectives on urban quality of life, social cohesion, public spaces, transportation, local services, and urban aesthetics within the framework of sustainable cities and communities.
4 NİTELİKLİ EĞİTİM	SDG 4	307	Educational activities, events for children and young people, cultural and artistic programs, and practices that support lifelong learning.

	SDG 16	270	Governance processes, corporate transparency, participatory management approach, access to public services, and information content regarding municipal activities.
	SDG 3	262	Services supporting public health include hygiene and sanitation efforts, health awareness campaigns, and practices aimed at improving quality of life.
	SDG 10	96	Social support for disadvantaged groups, inclusive services, and solidarity activities aimed at reducing social inequalities.
	SDG 8	95	Local economic activities, employment-supporting projects, support for producers, and practices that promote economic development.
	SDG 17	86	Inter-institutional collaborations, joint projects with civil society organizations, and partnerships with local and national stakeholders.
	SDG 9	64	Infrastructure investments, technological innovations, digitalization efforts, and innovative practices in municipal services.
	SDG 5	62	Awareness campaigns supporting gender equality, and social, cultural, and economic empowerment activities for women.
	SDG 13	62	Environmental awareness, sustainable practices, and climate-sensitive activities aimed at combating climate change.
	SDG 15	58	Conservation of green areas, afforestation efforts, support for biodiversity, and practices aimed at terrestrial ecosystems.
	SDG 12	42	Content that promotes efficient use of resources, waste management, recycling practices, and sustainable consumption habits.
	SDG 2	32	Food security, food assistance within the scope of social welfare, and activities supporting agricultural production.
	SDG 6	15	Water management, drinking water infrastructure, sanitation services, and initiatives supporting access to clean water.
	SDG 1	10	Social assistance programs, economic support schemes, and practices that increase access to basic necessities are aimed at combating poverty.
	SDG 14	3	Limited environmental awareness and education activities aimed at protecting aquatic ecosystems.
	SDG 7	2	Limited informational content on renewable energy, energy efficiency, and the use of clean energy.

Note: A single post may be coded under more than one SDG code; therefore, the sum of frequencies may exceed the total number of analyzed posts.

As shown in Table 4, SDG 11 (Sustainable Cities and Communities) has the highest frequency, with 559 coded posts. This indicates that urban life, public spaces, cultural activities, local services, and community-oriented practices occupy a central position in the municipality's Instagram communication. Posts such as "Our Atatürk Park Open Air Concerts have begun," "The 15-22 April Tourism Week celebration program was held at the Şeyh Edebali Culture and Congress Center," and "Our 3rd Traditional Lavender Harvest has begun" reflect an effort to present the city as both a physical and social living environment. Historical and identity-based messages, such as "Happy 100th anniversary of Bilecik becoming a province," also contribute to the reinforcement of urban belonging.

SDG 4 ranks second with 307 posts, showing that education, children, youth, culture, and lifelong learning are important components of the municipality's communication agenda. Posts such as "We met with our children at the Bilecik Municipality Children's Social Facilities," "We hosted students from the Interior Architecture and Environmental Design department of Bilecik Şeyh Edebali University's Faculty of Fine Arts at our municipal greenhouse as part of their 'Plant Identification' course," and "The Book Cafe, a meeting point for book lovers, is now open on our Art Street together with Semiha Göncü Bookstore" demonstrate the visibility of educational and cultural activities.

SDG 16 and SDG 3 are also among the high-frequency goals. Institutional information and transparency-oriented posts, such as "We held the first council meeting of the new term" and "Our collection and accrual units will be open between… hours due to Ramadan," reflect the governance dimension of municipal communication. At the same time, posts related to public health and welfare, such as "We are providing hot meal support to citizens who are unable to come to our iftar tent" and "We participated in the event organized for Aydem, a baby with SMA, and we have been by his side from the beginning of the process," show that health, solidarity, and municipal service provision are communicated in an integrated manner.

Posts related to SDG 10 and SDG 8 reflect the municipality's efforts to reduce social and economic vulnerabilities. The "People's Grocery Store" and "City Restaurant" initiatives, pre-holiday cash assistance, and fairs showcasing the products of women producers contribute to the visibility of social equality, economic accessibility, and local participation. Among the content coded under SDG 5, announcements supporting women's cooperatives and women producers stand out. Posts associated with SDG 13 and SDG 15 include disaster relief, post-fire aid campaigns, green spaces, and agricultural activities. SDG 12 appears particularly in posts related to clothing donation bins, product acceptance conditions, responsible consumption, and waste management. In contrast, the relatively limited representation of SDG 6, SDG 7, and SDG 14 indicates that water, energy, and marine ecosystem-related sustainability themes remain less visible in the municipality's communication.

These findings can be positioned within the broader literature on municipal social media use and sustainability communication. Previous studies indicate that municipalities often use social media primarily for information sharing, service announcements, institutional visibility, and public relations rather than for sustained dialogic participation (Sayılganoğlu, 2018; Küçükşen & Firidin, 2021; Tarhan et al., 2022; Er & Taydaş, 2024). The findings of the present study are consistent with this pattern, as Bilecik Municipality's Instagram communication makes municipal services, social support practices, cultural events, and urban life highly visible. However, this study extends the existing literature by interpreting these visible communication practices not only as public relations outputs, but also as indicators of how sustainability priorities are framed through digital municipal discourse. Similarly, the relatively limited visibility of environmental sustainability corresponds to previous findings suggesting that sustainability communication by local governments may remain uneven across social, economic, and environmental dimensions (Alcaraz-Quiles et al., 2015; Boztepe Taşkıran, 2022; León-Silva et al., 2022; Čičmancová & Soviar, 2024). Therefore, the case of Bilecik Municipality both supports the existing literature on the visibility-oriented use of municipal social media and contributes to it by showing how such visibility can be systematically evaluated within the SDG framework.

Following this literature-based interpretation of the quantitative results, the analysis was further deepened through thematic classification. While Tables 3 and 4 show which sustainability dimensions and SDGs are more visible in the municipality's Instagram communication, they do not fully explain the recurring semantic patterns through which sustainability is communicated. Therefore, the posts were also organized into broader thematic clusters in order to reveal how the municipality's sustainability discourse is structured. The resulting thematic summary framework is presented in Table 5.

Table 5. Thematic Summary Framework

Main Theme	Subtheme	Main Code Groups
Social Solidarity	Health Support	SMA donation, hygiene practices, pest control, health and welfare
	Vulnerable Groups	Home services for elderly, disabled, and special needs individuals.
	Disaster Relief	Post-fire assistance, material support, community solidarity.
	Social Unity	Holiday celebrations, national days, public events
City Life	Culture and Arts	Concerts, theaters, festivals
	Children and Youth	Facilities, school visits, children's festivals
	Participatory Management	Meetings with village heads, public meetings
Economic Accessibility	Socio-Economic Support	Public grocery stores, city restaurants
	Producer Support	Women's cooperatives, bazaars
	Tourism-Rural Life	Lavender harvest, rural production
Environmental Sustainability	Environmental Health	Pest control, city cleaning
	Climate Awareness	Marmara Sea Day, environmental awareness
	Agriculture-Nature	Village production, emphasis on natural resources

Corporate Governance	Transparency Services Representation	Official announcements, parliamentary meetings Transportation, facilities, social service points Protocol, institutional visits

The thematic framework presented in Table 5 shows that the municipality's sustainability discourse is structured around five main themes: social solidarity, city life, economic accessibility, environmental sustainability, and corporate governance. The first theme, social solidarity, is closely related to health support, services for vulnerable groups, disaster relief, and social unity. This theme is consistent with the high visibility of the social dimension and with the prominence of SDG 3 and SDG 10. The fundraising campaign for Aydem, home-based services, hot meal support for elderly and special needs individuals, and post-fire assistance announcements are concrete examples of this orientation.

The second theme, city life, is shaped mainly through cultural and artistic events, children's and youth activities, and participatory governance practices. This theme is particularly associated with SDG 11 and SDG 4. Open-air concerts in Atatürk Park, programs at the Şeyh Edebali Culture and Congress Center, children's theater performances, book cafés, art street initiatives, meetings with neighborhood heads, and neighborhood visits all contribute to the construction of urban life as a central component of sustainability communication.

The third theme, economic accessibility, appears through public grocery stores, city restaurants, pre-holiday cash assistance programs, and fairs supporting women producers. In line with SDG 1, SDG 8, and SDG 10, this theme reflects the municipality's effort to reduce economic vulnerability, support local production, and increase access to basic services. The emphasis on aid and sharing, expressed through the phrase "Blessings grow when shared," functions as a symbolic expression of this social-economic orientation.

The themes of environmental sustainability and corporate governance are represented through environmental health, climate awareness, agriculture-nature relations, transparency, service announcements, and institutional representation. Posts on pest control, Marmara Sea Day, lavender harvest, and village production make environmental and nature-related issues visible, although these themes are less dominant than social and urban content. Similarly, water card top-up points, collection and accrual unit operating hours, council meetings, and official visits reflect the governance-related dimension of municipal communication.

Overall, when the frequency of sustainability dimensions, SDG distributions, and thematic classification are considered together, Bilecik Municipality's Instagram communication appears to construct sustainability primarily through a social and community-oriented perspective. The dominance of the social dimension indicates that digital communication is used mainly to make welfare, solidarity, inclusion, and urban quality of life visible to citizens. Economic content appears mostly as a complementary component of this social orientation, particularly through practices aimed at economic accessibility, support for vulnerable groups, women's participation, and local production. Environmental sustainability is also included in the municipality's communication agenda; however, it remains less visible than social sustainability and is represented mainly through environmental health, cleaning, waste management, and awareness-oriented content. Taken together, these findings show that municipal social media is not limited to reporting existing services; it also contributes to the public framing of sustainability priorities. In this sense, digital communication functions as a strategic space through which local governments make their sustainability responsibilities visible, emphasize particular dimensions of sustainability, and identify areas that require stronger communicative representation.

V. CONCLUSION, LIMITATIONS AND RECOMMENDATIONS

This study aims to analyze Bilecik Municipality's social media posts from a sustainable development perspective, revealing which sustainability dimensions and Sustainable Development Goals (SDGs) local governments prioritize through digital communication. The results of a content analysis of 955 Instagram posts between April 2, 2024, and December 1, 2025, show that the municipality's sustainability communication is significantly shaped by the social dimension. The fact that a large majority of the posts fall under the scope of social sustainability demonstrates that the local government strongly reflects its understanding of social welfare, solidarity, and inclusive services in digital media.

The prominence of the social dimension is supported by the regular and visible sharing of services, particularly those targeting the elderly, children, individuals with disabilities, and economically vulnerable groups. This finding aligns with the participatory, transparent, and community-oriented municipal governance approach envisioned by the New Public Governance model. Content related to economic sustainability is positioned not as an independent policy area, but rather as a supportive tool aimed at reducing social inequalities. The "People's Grocery Store," "City Restaurant," holiday support programs, and initiatives supporting women producers stand out as social policy components aimed at increasing economic accessibility.

The relatively limited representation of the environmental sustainability dimension indicates that the municipality addresses environmental issues at a secondary level in its communication strategy. However, the

sharing of information regarding environmental health, cleanliness, waste management, and specific environmental awareness days reveals that environmental sustainability is not entirely ignored, but is an area open to improvement in terms of communication. The distribution of SDGs also supports this picture; in particular, SDG 11 (Sustainable Cities and Communities), SDG 4 (Quality Education), SDG 16 (Peace, Justice and Strong Institutions), and SDG 3 (Health and Well-being) are prominently featured.

Overall, the study demonstrates that Bilecik Municipality has built a strong social sustainability discourse through social media, following a digital communication strategy centered on themes of urban life, social solidarity, and governance. In this respect, the research contributes to the literature by showing that the sustainability performance of local governments can be analyzed not only through policy documents and practices but also through digital communication practices.

The findings of this study should be evaluated within the framework of certain limitations. First, the research is limited only to posts made through the official Instagram account of Bilecik Municipality. Content from the municipality's other social media platforms (X/Twitter, Facebook, YouTube, etc.) or its official website was not included in the analysis. This limits the holistic evaluation of sustainability communication across all digital channels.

Secondly, the data analyzed covers a specific time interval (April 2, 2024 – December 1, 2025). While this period reflects the beginning of the current municipal administration's term, it does not allow for a comparative assessment of longer-term trends or changes in administration. Thirdly, the study focuses on the quantitative frequencies and thematic distributions of the content; the levels of interaction (number of likes, comments, shares) or the impact on public perception of the posts are excluded from the analysis.

Finally, the matching and thematic coding of content with SDGs is based on researcher interpretation. Although a systematic coding framework has been established, the nature of content analysis inevitably involves a certain degree of subjective evaluation. This can be considered another factor limiting the generalizability of the findings.

Based on the findings of this study, several recommendations can be developed for both practical applications and future research. Firstly, it is important to make the environmental dimension more visible in the sustainability communication of local governments. Systematically addressing Sustainable Development Goals (SDGs) such as climate action, energy efficiency, water management, biodiversity, and renewable energy in social media content will contribute to creating a more balanced communication language among the three dimensions of sustainability.

Secondly, it is recommended that municipalities consciously and explicitly reference the SDGs in their social media strategies, and present posts in a way that links them to specific goals. This approach will both increase institutional awareness and strengthen citizens' knowledge of the sustainable development goals. Furthermore, supporting posts with engagement data will allow for the analysis of which sustainability themes resonate most with the public.

From an academic perspective, future studies focusing on comparative analyses encompassing different municipalities will allow for a broader-scale evaluation of the sustainability communication profiles of local governments in Turkey. Furthermore, supplementing quantitative content analysis with qualitative methods (in-depth discourse analysis, interviews, or focus group studies) can more deeply reveal the institutional motivations and strategic choices behind the digital sustainability discourse.

In conclusion, this study demonstrates that analyzing local governments' social media practices in relation to sustainable development goals holds significant potential from both academic and administrative perspectives. Municipalities' digital communication should be considered not only as an information tool but also as a strategic governance area where sustainability performance can be monitored, improved, and built in collaboration with the public.

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