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Navigating the Digital Sphere: Exploring Websites, Social Media, and Representation Costs—A European Union Case Study

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Abstract: In the intricate and multifaceted landscape of the European construction process, where the development and governance of the European Union take shape through a myriad of policies, institutions, and stakeholders, this study delves into the role of lobbies affiliated with the European Transparency Register. It focuses on the relationship between the utilization of social media platforms and the representation costs among interest groups. Analysis of data from 12,430 groups, encompassing website presence, social media engagement, and declared representation costs, reveals that 97.14% of groups maintain websites, while 67.52% actively use social media platforms. Among groups disclosing representation costs, the mean is EUR 181,333, with a median of EUR 74,999. Multiple linear regression analysis uncovers a positive association between Twitter and YouTube usage and representation costs, while Facebook usage demonstrates a negative correlation. However, no statistically significant relationships are observed for Instagram, TikTok, and LinkedIn. These findings offer insights into the potential impact of social media on representation costs for interest groups.

Keywords: social media; interest groups; communication strategy; lobbying; European Transparency Register



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1. Introduction

The evolution of the European project has witnessed an active interplay between institutional dynamics and the engagement of diverse social organizations. As the European Union (EU) emerged, the involvement of citizens and civil society gained significance, prompting initiatives to foster inclusivity and enhance their role in the EU's policymaking processes (Dür and Mateo 2012). One pivotal outcome of these endeavors was the creation of the Register of Interest Representatives, a mechanism designed to facilitate the engagement of lobby groups and provide citizens and their representative entities a platform for influencing policy formulation (Greenwood and Dreger 2013). In the backdrop of an increasingly connected world where digital platforms wield considerable influence, the presence of official websites and the strategic use of social media platforms have become paramount in the realm of contemporary organizational communication.

Acknowledging the changing landscape, the EU's Transparency Register, as envisioned in 2023, defines lobbying as encompassing "any organization or individual, irrespective of their legal status, engaged in activities carried out with the objective of directly or indirectly influencing the formulation or implementation of policy and the decision-making processes of the institutions of the Union, irrespective of where these activities are undertaken and of the channel or medium of communication used" (European Commission 2014). This definition encapsulates the multifaceted interactions that bridge the gap between interest groups and the mechanisms of governance. Nevertheless, it is necessary to consider that the interests represented by the lobbying groups affiliated with this register are

not always linked to promoting their initiatives for potential influence in the legislative process. Sometimes, their objectives may be oriented towards other strategies, such as obtaining information, pursuing professional activities, or positioning themselves within the European context. Therefore, it should be noted that the use of social networks varies depending on the strategies, which, as previously discussed, can be dependent on the organization's typology. This implies a broad perspective of the European Transparency Register, which can serve as a tool that brings together various actors with both direct and indirect intentions of influencing the public construction process of the EU through social networks (Arifon and Vanderbiest 2016; Greenwood and Dreger 2013).

In an era where traditional barriers to citizen participation persist, and European institutions might seem remote, lobby groups are adapting their strategies to surmount these obstacles and connect more effectively with stakeholders. Within this transformation, lobby groups have adopted strategies that transcend traditional engagement models, incorporating digital means and financial allocations. Moreover, the strategic use of digital communication strategies has gained prominence among lobby groups, with the utilization of social media platforms assuming a critical role in shaping their outreach efforts. In this interconnected landscape, lobby groups recognize the potential of social media to amplify their messages, mobilize support, and engage with an audience. Simultaneously, the budget allocated by these groups to representation costs in the EU becomes instrumental in driving their digital communication strategies.

The EU's commitment to transparency is further underscored by mechanisms such as the Commission Decision of 25 November 2014, mandating the publication of information about meetings between Commission members and organizations or self-employed individuals. This commitment to openness ensures that the interactions between institutions and interest groups remain visible and accountable.

Within these interactions, this study embarks on a journey to explore the evolving social media and websites landscape of lobby groups within the European context. It seeks to unravel the nature of relationships these groups forge to understand how they navigate the web of contemporary communication strategies. Central to this exploration is the dynamic interplay between digital outreach strategies and financial allocations, shedding light on how these factors collectively influence the landscape of contemporary advocacy.

1.1. Interest Groups Categorization and EU Transparency Register

In the continually evolving modern era, marked by a profound digital transformation of communication and engagement, the dynamics governing the participation of interest groups in policy making have undergone a significant and consequential shift. Within the framework of the European Union (EU), a beacon of transparency emerges in the form of the European Transparency Register, a platform that captures the intricate interplay between interest groups and the multifaceted policymaking process. Against this backdrop of complexity and evolution, the strategic deployment of digital platforms, with a notable emphasis on official websites, has emerged as a striking and transformative element that is redefining the very essence of communication, representation, and the exertion of influence (Hernández et al. 2009; Hung et al. 2011).

Understanding the categorization of interest groups within the EU Transparency Register is essential for grasping the multifaceted landscape of EU engagement. These classifications provide a systematic framework for characterizing the various entities involved in activities related to the European Union. Each category represents distinct clusters of interest groups, each with its own unique attributes and roles. This detailed categorization contributes to the tapestry of EU advocacy and engagement, highlighting the diverse nature of these interactions. It is important to note that the number of organizations can change over time, and when an interest group fails to renew its registration in the register, it is removed from the list. Therefore, it is essential to consider that the analysis is based on the present situation rather than providing a comprehensive historical overview.

Among these categories, “Trade and Business Associations” serve as platforms for sector-specific collaboration, facilitating collective advocacy for shared industry concerns. In the “Companies and Groups” category, corporate entities hold prominent positions, wielding influence over EU policies pertaining to their respective sectors. The categorization of “Non-Governmental Organizations (NGOs), Platforms, Networks, and Similar” underscores the crucial role played by non-profit entities dedicated to advancing causes spanning societal, environmental, and human rights issues. The category titled “Other Organizations, Public or Mixed Entities” recognizes the presence of entities with diverse interests that intersect with EU matters, often transcending conventional classifications. “Trade Unions and Professional Associations” advocate for labor rights and industry-specific concerns, representing the interests of workers and professionals within the EU framework. “Law Firms” act as intermediaries, leveraging legal expertise to navigate EU regulations, while “Associations and Networks of Public Authorities” foster collaborative efforts among public entities across different governance levels, contributing to discussions on EU-related matters. “Think Tanks and Research Institutions” are acknowledged for their contribution of data-driven insights and intellectual discourse, enriching EU policy deliberations. “Academic Institutions” impart scholarly expertise, research, and education, shaping and influencing the development of EU policies. “Professional Consultancies” guide clients through the landscape of EU regulations, providing specialized guidance in navigating policy complexities. “Organizations Representing Churches and Religious Communities” bring religious perspectives to EU policy dialogues, emphasizing the significance of cultural and moral considerations. “Self-Employed Individuals” play an essential role, directly engaging with EU matters as experts. Lastly, the presence of “Entities, Offices, or Networks Established by Third Countries” underscores the global dimension of EU engagement, with non-EU entities contributing to discussions on EU policies, often in diplomatic and trade contexts.

By delving into the categorization of these diverse interest groups, the theoretical framework effectively situates us within the dynamic operational landscape of these entities. This comprehension serves as the foundation for conducting a comprehensive analysis that explores the interplay between organizational attributes, the utilization of websites and social media platforms, and the strategic communication approaches adopted by these groups within the context of the European Union. As is evident from the categorization of interest groups, their nature defines the interests they advocate for. In some cases, they advocate for their own interests or those of their internal members, as is the case with companies and groups. In other cases, the interests they defend belong to the clients of the organizations. In yet other instances, especially when the economic component does not play a central role in the organization’s development, they do not advocate for interests directly. This research adopts a holistic perspective, encompassing all types of interests represented by entities affiliated with the European Transparency Register.

1.2. Website Utilization by Interest Groups

The digital revolution, particularly the advent of the World Wide Web, has ushered in a wave of technological advancements that have bestowed upon interest groups an unprecedented range of capabilities that transcend the limitations of geographical boundaries and temporal constraints. This empowerment has enabled interest groups to establish seamless connections with a diverse and ever-expanding audience. Within this dynamic and fluid digital environment, websites have become indispensable tools for any interest group operating within the European Union landscape (Liao et al. 2006; Robbins and Stylianou 2003). Amidst the myriad of digital communication modalities available, it is the establishment of official websites by these interest groups that assumes a position of particular prominence. These websites represent a strategic and deliberate endeavor aimed at harnessing the immense potential of the digital ecosystem for the purposes of advocacy, the dissemination of crucial information, and the cultivation of meaningful engagement.

While the existing body of scholarly work has illuminated various facets of interest group dynamics, there exists a notable divergence across different categories of interest groups. While a comprehensive systematic analysis of these categories in the context of the ongoing digital revolution is currently lacking, certain studies have delved into the transformation of specific categories, yielding intriguing insights.

For instance, within the realm of company groups, a substantial volume of research has extensively explored the active governing interactions between businesses and consumers (Arvidsson and Colleoni 2012; Esrock and Leichty 1998; Geissler et al. 2006; Kaplan and Haenlein 2010). Similarly, scholarly attention has been directed towards non-governmental organizations (NGOs), shedding light on their adeptness in deploying communication strategies and their efficacy in fostering donor engagement (Porter and Whiteford 2014; Shumate and O'Connor 2010; Ibáñez 2011). Concurrently, research inquiries have meticulously examined the communication strategies employed by trade unions, uncovering their multifaceted approaches in the digital age (Carneiro and Costa 2022; Hodder and Houghton 2020; Stokes et al. 2021).

Nevertheless, despite these commendable research endeavors, a significant gap persists, primarily in the form of a comprehensive exploration of website utilization among interest groups listed in the EU Transparency Register. This uncharted territory underscores the pressing need for a more comprehensive and inclusive perspective to discern how distinct interest groups leverage websites to achieve their objectives. In this context, the study establishes a dual objective: to uncover the frequency of websites among interest groups in the EU Transparency Register and to analyze usage patterns based on organizational nature. This research aims to bridge the previously mentioned gap in understanding how these interest groups utilize websites as tools for advocacy and engagement. By conducting a comprehensive examination of website utilization and its variations across different types of interest groups, this study seeks to provide valuable insights into the changing strategies employed by interest groups within the EU for communication and outreach.

1.3. Social Media Platforms as an Outside Lobbying Tool

In the dynamic landscape of contemporary digital communication, the dynamics governing the interaction between interest groups and the policymaking process have experienced a profound metamorphosis (Klüver 2013; Whitesell 2019). This transformation is particularly pronounced within the European Union (EU), where the Transparency Register assumes a pivotal role in unveiling the relationship between interest groups and policy decisions, serving as a systematic repository for this purpose (Greenwood and Dreger 2013). The Register plays a central role as an indispensable repository, meticulously cataloging and providing context to the multifaceted engagements of interest groups. In the vast array of available digital communication channels, the strategic embrace of social media platforms, with a notable emphasis on platforms like Facebook and Twitter, emerges as an enticing avenue for interest groups to amplify their voices and cultivate robust engagement (Figenschou and Fredheim 2020; Hobbs et al. 2020; Kreiss and McGregor 2018; Seibicke 2017; Warren et al. 2014).

In this era, characterized by pervasive digital interconnectedness where online platforms wield significant influence, the strategic utilization of social media platforms stands as a potent instrument for interest groups. This strategic approach, often referred to as “outside lobbying”, empowers these groups to shape discourse, mobilize support, and assert their influence effectively (Arifon and Vanderbiest 2016; Brown 2016; Chalmers and Shotton 2016; Figenschou and Fredheim 2020; Stürmer et al. 2023; Tresch and Fischer 2015; Widner et al. 2022).

Amidst the diverse landscape of digital communication channels, the deliberate adoption of social media platforms, particularly Facebook and Twitter, stands out as a compelling avenue for interest groups to amplify their voices and cultivate engagement (Figenschou and Fredheim 2020; Hobbs et al. 2020; Kreiss and McGregor 2018; Seibicke 2017; Warren et al. 2014). Notably, within the domain of social media studies, a conspicuous research gap

exists concerning the European Union landscape, especially in relation to platforms such as TikTok, LinkedIn, and YouTube. This gap is further accentuated when considering that the majority of studies examining the nexus between interest groups and social media predominantly focus on the United States, as observed in the works of [Begkos and Antonopoulou \(2020\)](#) and [McBeth et al. \(2012\)](#).

In light of this contextual backdrop, a compelling imperative emerges for undertaking a thorough examination of the landscape of interest groups operating within the sphere of social media. Such an endeavor holds the promise of unveiling the dynamics, shedding light on underexplored platforms, and providing insights into innovative strategies employed by interest groups. Through the execution of a nuanced analysis, this research aims to bridge the extant research gap, thus facilitating a more profound comprehension of the interplay between digital communication and interest groups, with a particular focus on determining the primary social media platforms utilized by interest groups within the European Union Transparency Register.

1.4. Budgeting for Influence in the Digital Era

The financial dimension plays a crucial role, often determining the extent of influence exerted by interest groups ([Broscheid and Coen 2003](#); [Flöthe 2019](#)). Recognizing the significance of financial allocations in shaping narratives, mobilizing support, and influencing policy decisions is essential. The EU's Transparency Register underscores the diversity of financial commitments made by interest groups, making an analysis of these commitments concerning their utilization of social media platforms particularly relevant. In this digital landscape, where platforms like Facebook, Twitter, and others enable instant and widespread communication, the allocation of budgets for representation costs by interest groups reflects their understanding of contemporary communication paradigms ([Van der Graaf et al. 2016](#)).

Furthermore, it is noteworthy that the allocation of financial resources for communication and outreach serves as a direct indicator of interest groups' recognition of the evolving dynamics of influence. The modern policy context is significantly influenced by the rapid dissemination of information and narratives through digital platforms. As such, allocating funds to navigate this landscape effectively is not merely a financial consideration, but a strategic acknowledgment of the crucial interplay between communication and effective lobbying ([Dür and Mateo 2023](#)).

In essence, the financial commitment earmarked for representation expenses within the EU is intrinsically linked to the way interest groups position themselves in the digital sphere. It is a measure of their strategic prowess in harnessing the potential of social media platforms to amplify their voices, mobilize support, and impact policy outcomes. The correlation between financial allocations and social media engagement underscores the ever-evolving nature of advocacy, where successful engagement hinges on an astute understanding of both fiscal resources and the intricacies of modern communication channels. Therefore, the last objective of this study is to examine the correlation between the budget designated by interest groups for representation expenses in the European Union and their use of diverse social media platforms.

2. Objectives and Hypothesis

Objective 1: *Uncover the frequency of websites among interest groups in the EU Transparency Register and to dissect usage patterns based on organizational nature.*

Hypothesis 1: *A significant proportion of interest groups listed in the EU Transparency Register maintain active websites. Additionally, it is postulated that Companies, Trade Associations, and NGOs will demonstrate a greater likelihood of having a website presence compared to other organizational categories.*

Objective 2: *Determine the primary social media platforms utilized by interest groups within the EU Transparency Register.*

Hypothesis 2: *Interest groups enlisted in the EU Transparency Register will predominantly opt for Facebook and Twitter as their principal social media platforms.*

Objective 3: *Investigate the relationship between the budget allocated by interest groups for representation expenses in the European Union and their utilization of various social media platforms.*

Hypothesis 3: *There is a positive correlation between the budget designated by interest groups for representation expenses in the European Union and their engagement with a range of social media platforms.*

3. Materials and Methods

This study adopts a quantitative research approach to investigate the interplay between websites, social media usage and the cost of representation within the complete universe of interest groups registered in the European Union's Transparency Register. A fundamental aspect of the research design involves the meticulous data collection process and the development of custom code to extract crucial information from the transparency register and to gather social media data for each respective platform (Dogucu and Çetinkaya-Rundel 2021). The methodological framework is characterized by a synthesis of descriptive and predictive statistical analyses. Descriptive statistics are employed to comprehensively analyze the landscape of websites and social media usage among interest groups. In parallel, predictive statistics are harnessed to explore the potential relationships between the cost of representation and social media engagement.

3.1. Data Collection and Refinement

To gather essential data, a two-fold approach was adopted. The initial step involved the utilization of the Rvest tool, an acclaimed web scraping package developed by Wickham (2022). Customized code was devised to extract critical information such as the name of organization, categorical classifications, website and representation costs from the registered interest groups. This phase not only provided a foundational understanding of the financial aspects, but also laid the groundwork for subsequent analysis.

Subsequently, the Rselenium package, thoughtfully created by Harrison (2022), played a pivotal role. Through the design and implementation of code, the research team engaged with the web interfaces of the interest groups. This enabled the systematic extraction of data from six prominent social media platforms: Twitter, Facebook, LinkedIn, Instagram, TikTok, and YouTube. The comprehensive nature of this data collection process significantly enriched the dataset, capturing the diverse ways these groups interact with digital platforms.

The data collected underwent thorough processing and analysis using the R programming language, renowned for its statistical capabilities. The tidyverse package (Wickham et al. 2019) was judiciously employed to organize, structure, and refine the amassed data. This critical phase ensured data integrity and prepared the dataset for subsequent in-depth analysis.

Upon the culmination of the data accumulation phase, scholarly focus shifted towards the meticulous refinement of the dataset. Guided by the analytical acumen of R, the researchers adeptly navigated the complexities inherent in data transformation and cleansing processes. The culmination of these efforts yielded a meticulously refined dataset, poised for comprehensive analysis.

In summary, the research methodology harmoniously integrated technological tools, customized code development, and analytical rigor. Through the strategic deployment of these elements, the study aimed to decipher the interplay between interest groups, their digital presence, and financial dynamics within the European Union Transparency Register.

3.2. Statistical Methodology

Our research endeavors are underpinned by a methodological framework encompassing both descriptive analysis and multiple linear regression. These statistical approaches have been thoughtfully chosen to address our research objectives, ensuring an exploration of the dynamics between social media and representation costs within the realm of European Union interest groups.

Descriptive statistics are utilized to provide a comprehensive overview of the number of groups of interest by category, the use of the website by category of said groups, and an overview of utilization of social media by category. To scrutinize potential associations, the study employs multiple linear regression analysis to examine the correlations between social media engagement on distinct platforms—Twitter, YouTube, Facebook, Instagram, TikTok, LinkedIn—and the corresponding representation costs. This methodology enables a holistic exploration of the potential influence of social media on the financial dynamics of representation costs for all interest groups within the European Union, contributing to a nuanced understanding of this multifaceted relationship. In pursuit of comprehensive insights into the dynamics of interest groups registered within the European Union Transparency Register, a methodical approach was meticulously employed. The research process comprised several distinct phases, each tailored to address specific aspects of the investigation.

3.3. Multiple Linear Regression Model (MLR)

The model used to conduct the research is:

$$\begin{aligned}
 (1) \quad x_{i1} &= \begin{cases} 1 & \text{if } i\text{th Group of Interest with Twitter} \\ 0 & \text{if } i\text{th Group of Interest without Twitter} \end{cases} \\
 (2) \quad x_{i2} &= \begin{cases} 1 & \text{if } i\text{th Group of Interest with Facebook} \\ 0 & \text{if } i\text{th Group of Interest without Facebook} \end{cases} \\
 (3) \quad x_{i3} &= \begin{cases} 1 & \text{if } i\text{th Group of Interest with Instagram} \\ 0 & \text{if } i\text{th Group of Interest without Instagram} \end{cases} \\
 (4) \quad x_{i4} &= \begin{cases} 1 & \text{if } i\text{th Group of Interest with LinkedIn} \\ 0 & \text{if } i\text{th Group of Interest without LinkedIn} \end{cases} \\
 (5) \quad x_{i5} &= \begin{cases} 1 & \text{if } i\text{th Group of Interest with Youtube} \\ 0 & \text{if } i\text{th Group of Interest without Youtube} \end{cases}
 \end{aligned}$$

$$\begin{aligned}
 (6) \quad y_i &= \beta_0 + \beta_1 x_i + \varepsilon_i = \begin{cases} \beta_0 + \beta_1 + \varepsilon_i & \text{if } i\text{th Group of Interest with Twitter} \\ \beta_0 + \beta_2 + \varepsilon_i & \text{if } i\text{th Group of Interest with Facebook} \\ \beta_0 + \beta_3 + \varepsilon_i & \text{if } i\text{th Group of Interest with Instagram} \\ \beta_0 + \beta_4 + \varepsilon_i & \text{if } i\text{th Group of Interest with LinkedIn} \\ \beta_0 + \beta_5 + \varepsilon_i & \text{if } i\text{th Group of Interest with Youtube} \end{cases} \\
 (7) \quad y_i &= \beta_0 + \beta_1 \cdot x_{i1} + \beta_2 \cdot x_{i2} + \beta_3 \cdot x_{i3} + \beta_4 \cdot x_{i4} + \beta_5 \cdot x_{i5} + \varepsilon
 \end{aligned}$$

where: - β_0 is the intercept term, - β_1 is the coefficient for the Twitter Account, - β_2 is the coefficient for the Facebook Account, - β_3 is the coefficient for the Instagram Account, - β_4 is the coefficient for the LinkedIn Account, - β_5 is the coefficient for the YouTube Account.

3.4. Ethical Considerations

Throughout the study, we took ethical considerations into account to ensure compliance with relevant data protection regulations and guidelines, including the General Data Protection Regulation (GDPR) (European Commission 2023). A pilot study was conducted with a small sample size to ensure the validity and reliability of the data.

This methodology represents an approach to data collection and analysis in the field of social media research. The findings of this study are expected to contribute significantly to the field of social media research and have the potential to inform public policy and practice.

3.5. Data Credibility and Reliability

In our pursuit of upholding data credibility and reliability, our study operates with a deliberate focus on enhancing visibility and quantifiability. This emphasis is particularly evident across the three distinct datasets central to our analysis. The first dataset encompasses the diverse groups of interest registered within our scope, capturing a comprehensive snapshot of their characteristics and affiliations (Castillo-Esparcia et al. 2023a). The second dataset delves into the realm of social media, meticulously documenting the utilization patterns across various platforms (Castillo-Esparcia et al. 2023b). Finally, the third dataset serves as the foundation for our regression model, encompassing relevant variables that allow us to explore the relationships between social media and the cost of representation (Castillo-Esparcia et al. 2023c).

4. Results

4.1. Groups of Interest Categorization

The European Union Transparency Register presents a comprehensive view that encompasses a total of 12,464 distinct organizational groups (Castillo-Esparcia et al. 2023a), as outlined in Table 1. Unmistakably, the most predominant group is composed of Non-governmental Organizations (NGOs), platforms, and networks, constituting a substantial 27.5% (3437 registered entities). This notable presence indicates a clear predilection for civil society and advocacy-oriented organizations within the framework of the European Union.

Table 1. Distribution of interest groups by organizational categories.

Category	Groups of Interest	Average Budget
Academic institutions	315	117,007.87 EUR
Associations and networks of public authorities	152	162,229.33 EUR
Companies & groups	3108	205,164.21 EUR
Entities, offices or networks established by third countries	2	-
Law firms	85	79,038.04 EUR
NGOs, platforms and networks and similar	3437	154,875.36 EUR
Organizations churches and religious communities	45	151,666.22 EUR
Other organizations, public or mixed entities	466	171,707.95 EUR
Professional consultancies	543	100,200.55 EUR
Self-employed individuals	134	34,999.69 EUR
Think tanks and research institutions	564	195,429.29 EUR
Trade and business associations	2643	188,748.62 EUR
Trade unions and professional associations	970	112,035.01 EUR
Cumulative	12,464	179,500.7 EUR

Continuing down this path, companies and groups establish their significance by registering in substantial numbers, amounting to 24.9% (3108 registrations). This prominence highlights the significant involvement of private sector entities that aim to engage with EU institutions, underlining their desire to influence EU policies and processes.

Progressing along this trajectory, Trade and business associations come to the fore, with an impressive tally of 21.2% (2643 registered groups). This underscores their pivotal role as conduits for representing business interests and forging connections within various industries.

Upon closer inspection, trade unions and professional associations emerge as a noteworthy fourth category, with a combined registration count of 7.8% (970 entities). This aspect accentuates the collaborative endeavors of labor groups and focused interest organizations, demonstrating their commitment to actively participating in EU processes and advocating for critical policy objectives.

Delving deeper, the panorama unfolds to unveil a diverse array of think tanks and research institutions, alongside professional consultancies and other organizations, whether

public or mixed in nature. Together, they form a multifaceted tapestry of intellectual engagement and guidance. The specific counts of 4.5%, 4.4%, and 3.7% (564, 543, and 466 registered entities, respectively) within these respective categories, underscoring their vital contribution to shaping policy discussions and enhancing well-informed decision-making processes.

Notably, a significant observation involves the amalgamation of academic institutions, in conjunction with associations and networks of public authorities, intricately interwoven with self-employed individuals. This amalgamation, marked by 2.5%, 1.2%, and 1.1% (315, 152, and 134 registrations, respectively), signifies a mutually advantageous connection between the realms of education and public administration. This connection fosters a collaborative exchange of knowledge and provides a platform for substantive policy deliberations.

In stark contrast, the minimal representation of entities, offices, or networks established by third countries is evident, with merely two registered entities, constituting 0.02%. Similarly, organizations representing churches and religious communities, alongside associations and law firms, demonstrate a purposefully measured presence, boasting 0.36% and 0.68% (45 and 85 registered entities, respectively).

In terms of budgetary considerations for activities included in the register, the majority of the average annual budgets of organizations in different categories fall within the range of 100,000 EUR to 200,000 EUR. The highest value is represented by companies and groups with an average of 205,164.21 EUR per year, and the lowest value is shown by self-employed individuals, with 34,999.69 EUR.

4.2. Websites Usage by Interest Groups

The analysis of Table 2 shows that the majority of the academic institutions (99.05%) have a website, while only 0.95% of them do not have a website. Similarly, the associations and networks of public authorities have a high percentage of websites (98.02%) compared to those without a website (1.97%). Companies and groups, non-governmental organizations, platforms, and networks, and similar also show a high percentage of websites, with 98.61% and 100%, respectively. On the other hand, entities, offices, or networks established by third countries have a lower percentage of websites with only 40% compared to those without a website at 60%. Law firms have a higher percentage of websites with 92.86%, while the organizations representing churches and religious communities have a lower percentage of websites with 86.54%. Other organizations, public or mixed entities, professional consultancies, think tanks and research institutions, trade and business associations, and trade unions and professional associations all have a high percentage of websites, ranging from 86.65% to 96.08%. Self-employed individuals have the lowest percentage of websites at 43.15%, with the majority (56.85%) not having a website. Overall, the data suggests that having a website is common among most types of groups of interest registered in the EU, with only a few categories showing a lower percentage of websites.

Table 2. Frequency and percentage of websites by type of group of interest.

Category	Number of Groups		% of Groups	
	Without Web	With Web	Without Web	With Web
Academic institutions	3	312	0.95	99.05
Associations and networks of public authorities	3	149	1.97	98.03
Companies & groups	42	3066	1.35	98.65
Entities, offices or networks established by third countries	0	2	0.00	100.00
Law firms	4	81	4.71	95.29
NGOs, platforms and networks and similar	65	3372	1.89	98.11

Table 2. *Cont.*

Category	Number of Groups		% of Groups	
	Without Web	With Web	Without Web	With Web
Organizations representing churches and religious communities	4	41	8.89	91.11
Other organizations, public or mixed entities	11	455	2.36	97.64
Professional consultancies	56	487	10.31	89.69
Self-employed individuals	66	68	49.25	50.75
Think tanks and research institutions	7	557	1.24	98.76
Trade and business associations	64	2579	2.42	97.58
Trade unions and professional associations	31	939	3.20	96.80
Cumulative	355	12,108	2.86	97.14

4.3. Social Media Usage by Interest Groups

In Table 3 and Figure 1, the distribution of the use of social media by interest groups is presented (Castillo-Esparcia et al. 2023b).

Table 3. Number of social media accounts per category and platform, including the percentage of usage of each social media by category.

Category	Twitter	Facebook	LinkedIn	Instagram	TikTok	YouTube
Academic institutions	166 19.92%	175 21.00%	150 18.00%	141 16.92%	34 4.08%	167 20.04%
Associations and networks of public authorities	77 27.59%	61 21.86%	34 12.18%	56 20.07%	1 0.35%	50 17.92%
Companies & groups	1429 21.37%	1255 18.77%	1030 14.40%	1614 24.13%	75 1.12%	1283 19.18%
Entities, offices or networks established by third countries	1 20.00%	1 20.00%	1 20.00%	1 20.00%	1 20.00%	0 00.00%
Law firms	32 25.39%	18 14.28%	18 14.28%	43 34.12%	0 00.00%	15 11.90%
NGOs, platforms and networks and similar Organizations	2058 25.27%	1970 24.18%	1184 14.53%	1405 17.25%	71 0.87%	1456 17.87%
Organizations representing churches and religious communities	18 25.00%	21 29.16%	11 15.27%	4 5.55%	0 00.00%	18 25.00%
Other organizations, public or mixed entities	231 24.78%	209 22.42%	127 13.62%	176 18.88%	8 0.85%	181 19.42%
Professional consultancies	205 30.14%	101 14.85%	58 8.52%	249 36.61%	1 0.14%	66 9.70%
Self-employed individuals	14 25.45%	6 10.90%	4 7.27%	27 49.09%	0 00.00%	4 7.27%
Think tanks and research institutions	321 26.57%	244 20.19%	155 12.83%	252 20.86%	7 0.57%	229 18.95%
Trade and business associations	1311 29.60%	773 17.45%	398 8.98%	1184 26.73%	9 0.20%	753 17.00%
Trade unions and professional associations	467 26.73%	408 23.35%	214 12.24%	337 19.29%	9 0.51%	312 17.85%
Cumulative	6330 25.12%	5242 20.80%	3384 13.43%	5489 21.78%	216 0.85%	4534 17.99%

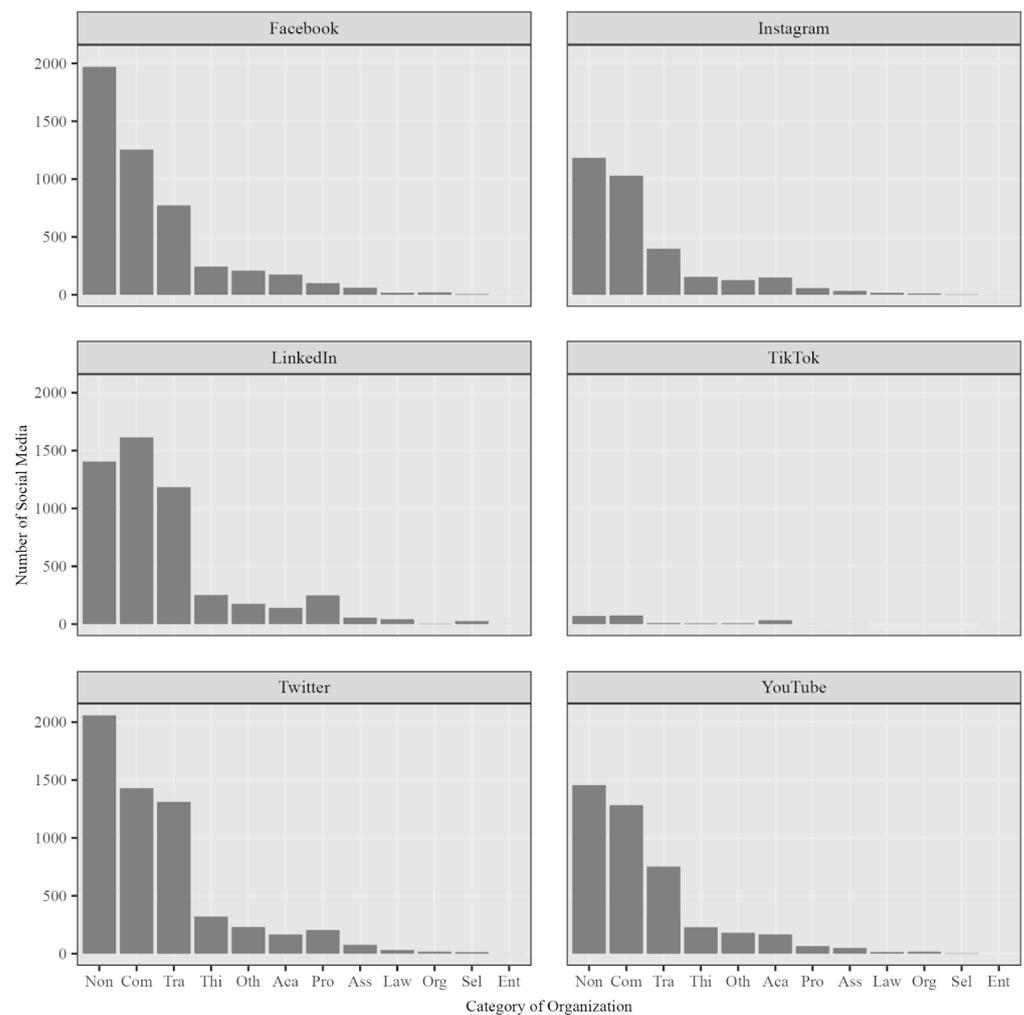


Figure 1. Number of social media accounts per category and platform.¹

Among academic institutions usage of social media platforms, Twitter has the highest frequency of use, with 166 groups having an account. This could be due to the platform's focus on real-time updates and the ability to engage with a wider audience. Facebook and LinkedIn are also widely used, with 175 and 150 groups having an account, respectively. Instagram, TikTok, and YouTube have lower usage rates, with only a few groups having an account. It is worth noting that social media presence may vary among academic institutions based on their field of study and target audience. Associations and networks of public authorities show a lower presence on social media platforms compared to academic institutions, with 98.03% of the analyzed groups having a website. Twitter is the most commonly used platform, with 77 groups having an account. Facebook and LinkedIn are also used, but with lower frequency, with 61 and 34 groups having an account, respectively. TikTok and Instagram have no presence among this group of interest. The lower presence on social media platforms could be attributed to the fact that public authorities may have different communication strategies and priorities.

Companies and groups have a high presence on social media platforms. Instagram is the most widely used platform, with 1614 groups having an account. Facebook, LinkedIn and YouTube are also frequently used, with 1255, 1030 and 1283 groups having an account, respectively. TikTok has lower usage rates, with only a few groups having an account. It is worth noting that the high presence of companies and groups on social media could be attributed to their marketing strategies and the need to engage with a wider audience. In the category entities, offices, or networks established by third countries, only one group has a presence on Twitter, Facebook, LinkedIn, Instagram and TikTok. This could be due to

the fact that these entities may not have the same need to engage with a wide audience, as their focus is on establishing relationships and cooperation with the European Union.

Law firms have a relatively low presence on social media platforms. Instagram is the most commonly used platform, with 43 groups having an account. Facebook and LinkedIn have lower usage rates, with 18 groups having an account. The lower presence on social media platforms could be attributed to the fact that law firms may prioritize other communication channels to interact with their clients. Non-governmental organizations, platforms, and networks, and similar entities have a high presence on social media platforms. Twitter is the most frequently used platform, with 2058 groups having an account. YouTube, Instagram, Facebook and LinkedIn are also widely used, with 1456, 1405, 1970 and 1184 groups having an account, respectively. TikTok has lower usage rates, with only a few groups having an account. The high presence of non-governmental organizations, platforms, and networks, and similar entities on social media could be attributed to their advocacy and awareness-raising strategies, as well as their need to engage with a wider audience.

The data shows that organizations representing churches and religious communities have a relatively low online presence. Their use of social media is also limited, with Twitter and Facebook being the most used platforms. However, their low use of LinkedIn may indicate a missed opportunity to reach a professional audience or potential partners.

Professional consultancies have a strong presence on Instagram, with 249 groups having an account on the platform, and a smaller presence on Facebook and LinkedIn. Self-employed individuals have a very low presence on social media, with only 14 having a Twitter account and 27 having an Instagram account.

Think tanks and research institutions have a strong presence on Twitter, with 321 having an account on the platform, as well as a strong presence on YouTube, Instagram and Facebook, with 229, 252 and 244 accounts, respectively. They have a very limited presence on other social media platforms, such as TikTok. Trade and business associations have a very strong presence on Twitter, with 1311 groups having an account on the platform, and a strong presence on Instagram, Facebook and LinkedIn. They have a very limited presence on other social media platforms, like TikTok and YouTube.

Finally, trade unions and professional associations have a strong presence on Twitter, with 467 having an account on the platform, as well as a strong presence on Facebook and Instagram, with 408 and 337, respectively. They have a limited presence on TikTok, with nine accounts on each platform.

4.4. Relationship between Social Media Usage and Representation Costs of Interest Groups

In this part of the study, we focus on a comprehensive analysis of a substantial dataset comprising 8083 interest groups (Castillo-Esparcia et al. 2023c) despite some limitations. The dataset at our disposal, while serving as a valuable reservoir of information, possesses inherent limitations in its scope. Specifically, it is pertinent to underscore that the intended investigation pertains to the anticipated expenses associated with representation and is restricted to the realm of 8083 distinct interest groups.

Prior to embarking on the substantive analysis, it is crucial to expound upon several fundamental contextual conditions. First, it is important to point out a significant consideration. Our approach does not aim to create a highly complex model that covers everything, which is often known as an all-encompassing multiple linear model. Instead, we recognize that there are many different factors at play, like the people involved and how a company's money is allocated, which together help us understand representation costs more fully. Our main focus is on finding a reasonable and supported link between higher spending on representation costs and the use of various social media platforms at the same time.

Second, it is important to mention the existing limitations regarding the acquired data. The costs related to representation come from the European Transparency Register and not from the internal accounts of the analyzed organizations. As a result, there is no information verified by a third party, but rather the information provided in the transparency declaration by the entities. Likewise, there is also no information available

regarding the budget allocation for costs related to communication strategies through social media.

Finally, a relevant caveat necessitates clarification. Unfortunately, the inclusion of the TikTok social media platform within our methodological framework is unfeasible. This limitation primarily stems from an inherent constraint within our dataset, wherein a mere 114 registered accounts within the expansive cohort of 7927 interest groups are available for examination. This constrained sample size renders the systematic incorporation of TikTok data an impractical proposition within the confines of our existing methodological configuration.

The results of the analysis revealed that Twitter, Facebook, and YouTube were significant predictors of the cost of representation at the alpha level of 0.001 (see Table 4). Specifically, the coefficients of Twitter and YouTube were positive and significant at the alpha level of 0.001 ($p < 0.001$), indicating that an increase in the use of Twitter and YouTube was associated with an increase in the representative cost of the group of interest. On the other hand, the coefficient of Facebook was negative and significant at the alpha level of 0.001 ($p < 0.001$), indicating that an increase in the use of Facebook was associated with a decrease in the representative cost of the group of interest.

Table 4. MLR on social media and cost of representation.

Predictors	Cost of Representation (Euro)
Intercept	146,610.052 *** (<0.001)
Twitter	47,566.363 *** (<0.001)
Facebook	−36,986.255 *** (<0.001)
Instagram	10,535.525 (0.365)
LinkedIn	15,914.919 (0.111)
YouTube	39,785.383 *** (<0.001)
Num. Obs,	8083
R2	0.009
R2 Adj.	0.009
AIC	230,648.7
BIC	230,697.6
Log. Lik.	−115,317.326
F	15.267
RMSE	379,917.99

*** $p < 0.001$.

In this analysis, the inclusion of a limited number of TikTok links (216 out of 12,107) does not provide a sufficient basis for conducting meaningful linear regression. Moreover, the coefficients corresponding to Instagram and YouTube were found to lack statistical significance at the conventional alpha level of 0.05 ($p > 0.05$). Consequently, the evidence suggests that the utilization of these platforms does not exhibit a substantial correlation with the indicative cost of the studied group. As a result, the decision has been made to abstain from performing a linear regression analysis for these particular platforms.

The comprehensive multiple linear regression model yielded a modest R-squared value of 0.009, revealing that a limited fraction of the variation in the dependent variable could be elucidated by the incorporated independent variables. Despite this modest explanatory capacity, the model exhibited statistical significance, boasting an F-statistic of 15.267 ($p < 0.001$). This outcome underscores the model's capability to ascertain significant associations between the dependent variable and at least one of the independent variables at a notably stringent alpha level of 0.001.

5. Discussion

The primary objective of this study was to ascertain the extent to which interest groups listed in the European Union Transparency Register maintain a digital presence through websites. This investigation sheds light on the strategic significance of online

platforms within the operational framework of these interest groups. The initial hypothesis, as articulated in Hypothesis 1 (H1), posited a substantial presence of websites among the registered interest groups, guided by the contemporary understanding of the indispensable role that digital connectivity assumes in contemporary communication and political engagement. The empirical analysis undeniably aligns with this hypothesis, revealing that a significant majority of interest groups across diverse categories indeed possess active websites. However, it is noteworthy that while our hypothesis anticipated a pronounced tendency among companies, trade associations, and NGOs to lead in website adoption, the data reveals that this inclination transcends categories, encompassing a broad spectrum of interest groups—barring professional consultancies and self-employed individuals. This realization resonates with the assertions of (Hung et al. 2011), who postulates the ubiquity of websites as essential conduits for varied organizational objectives.

The implication of an online presence gains further momentum when evaluating the percentage of interest groups that do not maintain websites within specific categories. Notably, this proportion remains consistently low, frequently hovering around, or even below the 5% mark across various categories. This numerical pattern accentuates the notion that websites have evolved into an indispensable facet of interest groups' communication strategies. By securing their digital foothold, these groups can effectively communicate their narratives, engage stakeholders, and exercise their influence with agility.

Moreover, the presence of websites within diverse interest group categories signifies a broader acknowledgement of the digital landscape's transformative potential in shaping policy dialogues and public perceptions. The holistic dataset, marked by the widespread adoption of websites, transcends categorical boundaries, illuminating the far reaching impact of online platforms on modern advocacy campaigns. This interconnectedness underscores the evolution of digital interfaces from being supplementary tools to becoming integral pillars of organizational communication frameworks.

The second objective, which aimed to identify the most commonly used social media platforms by interest groups registered in the Transparency Register of the European Union, reveals interesting insights into the social media preferences of these groups. Based on the analysis of the data, it was anticipated that interest groups within the European Union would predominantly favor Facebook and Twitter as their primary social media platforms, supported by all the studies of outside lobbying. This assumption was grounded in the widespread popularity and extensive usage of these platforms across the region.

The data provides a comprehensive overview of the number of social media accounts per search category and social media platform. Among the different categories of interest groups, it becomes evident that companies and groups, along with non-governmental organizations, platforms, networks, and similar entities, have established a significant presence on platforms like Facebook and Twitter. These platforms offer a broad reach and engagement potential, aligning with the objectives of interest groups to shape discourse and mobilize support.

At the same time, the use of YouTube and Instagram became more important for the groups of interest, introducing this social media to their communication strategies, supporting the theory of the importance of the direct constructing of independent narratives and the potential engagement of photo shares (Begkos and Antonopoulou 2020).

Overall, the findings of this analysis emphasize the prominent role that social media platforms, particularly Facebook and Twitter, play in the strategies of interest groups registered in the European Union Transparency Register. As these platforms continue to be instrumental in shaping public opinion and influencing policy discussions, interest groups are leveraging their capabilities to amplify their voices and assert their influence in the policy arena. The evolving landscape of digital communication is thereby intertwined with the strategies of interest groups, making social media a central avenue for their engagement and impact.

The third objective of our study was centered on investigating a potential correlation between the representative cost of specific interest groups within the European Union

and their engagement with social networks. To address this objective, we conducted a comprehensive multiple linear regression analysis. This analysis incorporated six independent variables, which represented the utilization of distinct social networks (Twitter, Facebook, Instagram, LinkedIn, and YouTube), while the dependent variable indicated the representative cost of the respective interest groups.

Our findings reveal a relationship between the increase in representative costs and the utilization of social media platforms such as Twitter and YouTube. Essentially, as interest groups allocate more resources to their representation costs, there is a corresponding surge in the number of groups engaging with platforms like Twitter and YouTube. Conversely, a compelling inverse relationship was identified between the utilization of Facebook and the representative costs. In essence, interest groups with lower representation costs tend to leverage Facebook more extensively within the European Union, whereas a rise in costs corresponds to reduced usage of Facebook among these groups.

These findings underscore the pivotal role of representation costs in shaping communication strategies. Contrary to the absolute data from each social media platform and the existing body of research, our study emphasizes the significance of considering organizational budgets in devising effective communication strategies. Additionally, our analysis highlights the noteworthy significance of YouTube and Twitter as strategic communication tools for interest groups within the European Union.

However, it is important to note that our study did not yield statistically significant evidence of a direct correlation between the usage of LinkedIn and Instagram among interest groups and their representative costs. In simpler terms, fluctuations in representation costs did not consistently align with substantial variations in the utilization of LinkedIn and Instagram within the groups under examination.

To summarize, the outcomes of our study suggest a potential link between the utilization of social networks and the representative costs of specific interest groups within the European Union. Precisely, heightened usage of Twitter and YouTube was observed to correspond with increased representative costs, whereas heightened Facebook usage aligned with decreased representative costs. Nonetheless, the relatively low R-squared value of the model indicates that additional factors, not covered in our analysis, are more important for the explanation of the cost of representation.

6. Conclusions

The culmination of our study reveals compelling insights that hold relevance not only for the specific context of European Interest Groups, but also for the broader landscape of digital engagement, representation costs, and strategic communication strategies. Our investigation into the digital presence of interest groups listed in the European Union Transparency Register underscores the integral role that websites play as essential conduits for communication and engagement. The prevalence of active websites across diverse interest group categories reinforces the significance of digital connectivity in contemporary advocacy efforts.

Moreover, our exploration into the realm of social media platforms elucidates a strong reliance on well-established channels such as Facebook and Twitter. These platforms, with their extensive reach and engagement potential, continue to be instrumental in shaping discourse and mobilizing support. The inclusion of platforms like YouTube and Instagram introduces an intriguing dimension, emphasizing the evolving nature of communication strategies that embrace multimedia avenues.

The multiple linear regression analysis provides valuable insights into the relationship between engagement with social networks and representation costs. The positive correlation between representative costs and the utilization of platforms like Twitter and YouTube highlights the influence of budget considerations on communication strategies. The inversely proportional relationship with Facebook usage further underscores the complex interplay between financial resources and social media preferences.

While our findings shed light on these dynamics, they also beckon further investigation. The nuanced nature of our results prompts the exploration of additional factors that could be contributing to the observed trends. Variables such as the specific content shared on different platforms, the target audience's preferences, and the overall strategic goals of interest groups could play a significant role in shaping the observed relationships. Thus, our study provides a stepping stone for future research to delve deeper into these facets.

In conclusion, our study offers a glimpse into the world of digital engagement, representation costs, and communication strategies for interest groups. As the digital landscape continues to evolve and shape modern advocacy efforts, our findings underscore the necessity for a comprehensive understanding of the dynamic interplay between online presence, financial resources, and strategic choices. This study not only contributes insights to the field of interest group dynamics, but also paves the way for further exploration, aiming to unravel the complexities of contemporary advocacy and its digital dimensions.

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Note

¹ Non: NGOs, platforms and networks and similar; Com: Companies & groups; Tra: Trade and business associations; Thi: Think tanks and research institutions; Oth: Other organizations, public or mixed entities; Aca: Academic institutions; Pro: Professional consultancies; Ass: Associations and networks of public authorities; Law: Law firms; Org: Organizations representing churches and religious communities; Sel: Self-employed individuals, Ent: Entities, offices or networks established by third countries.

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