Unconsciously Influential. Understanding sociotechnical Influence on social media

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Abstract. Over the last two decades, the rise of social media platforms such as Insta-gram, YouTube, and TikTok has sparked a global shift in commercial practices world-wide. People are exposed to and influenced by massive amounts of commercial content carefully and strategically integrated into these platforms' social content. In addition, due to network structures, people's engagement in the form of likes, comments, and simply viewing content results in the influence of people within and outside their net-work. In this study, we adopt a sociotechnical perspective and study the interplay be-tween social and technical components in how influence is exercised on social media. Specifically, we identify the actors involved in the influence of commercial content and analyse how they exercise their influence for commercial purposes. Based on our find-ings and analysis, we present three contributions to Information systems literature: (1) how people have become unconsciously influential in spreading commercial content, which is the premise for social media commercial success, (2) how people's social and commercial lives and contents are increasingly intertwined and (3) how this interweav-ing effect removes peoples' ability to reflect on the content they engage with critically. Our study draws attention to the societal outcomes caused by technologies in practice.

Key words: information systems, sociotechnical IS, social influence, social media.

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1   Introduction

"Who is here for Prime?" shouted influencers KSI and Logan Paul in front of a large audience of followers as they promoted their energy drink "Prime Hydration". Youngsters wore Prime T-shirts at the event—one carried a two-meter-high Prime poster onto the tram, while a pool of youngsters posted TikTok videos from the event, thus unconsciously contributing to the brands' income of $ 250 million in 2022 (Valinsky, 2023).

Over the last two decades, there has been a rapid evolution in how people interact, from in-person conversations, telephone calls, and reading the daily newspaper to the use of social media (SM) (Rhue & Sundararajan, 2019; Salehan & Negahban, 2013). SM has become an extension of people's social space, changed numerous aspects of society, and become a focus of information systems (IS) research (e.g., Ahmed & Vaghefi, 2021; Boroon et al., 2021; Derra et al., 2022). Communities in the IS field have especially paid attention to societal issues of SM use, such as addiction (Ahmed & Vaghefi, 2021), compulsive smartphone use (Wang & Lee, 2020), technostress (Derra et al., 2022), and physiological effects (Turel et al., 2017). Moreover, in the past few years, more attention has been directed toward its increasing commercialization (e.g., Rhue & Sundararajan, 2019).

Platforms such as Instagram, Facebook, and, recently, TikTok have gradually become increasingly commercialized (Dann, Teubner & Wattal, 2022). According to a recent industry report, sales via SM worldwide are estimated to reach $1.298 billion in 2023 (Statista, 2023). People are thus constantly exposed to and influenced by massive commercial content. In contrast to offline environments, where commercial content is usually visibly sales-oriented, commercial content is often carefully crafted to subtly fit individual feeds (Voorveld et al., 2018). For example, businesses create entertaining videos, inspirational images and funny Snapchat filters or polls, in which products and services are subtly integrated into social content (Casaló et al., 2021). Thus, social and commercial content becomes interweaving resulting in an unconscious form of influence. Commercial content is also strategically placed on feeds based on social media algorithms (Larson & Vieregger, 2019; Shin et al., 2022), which prioritize content they calculate a person will like based on previous 'likes,' 'comments,' 'views,' and 'shares.' Such actions say something about where a person live, what they like, and whom they know (Balaji et al., 2021). More importantly for this study, the actions say something about what type of commercial content they would be interested in. The interactions are also based on network structures, which enable people's actions (i.e., likes, com-

ments, or views) to influence the spread of commercial content inside and outside their networks (Kane et al., 2014). Likes indicate a person and their network's interests, which decide the type of content they are exposed to and cause them to become critical unconscious players in the expansion of the influence of commercial content.

Information systems research has investigated the commercial aspects of social media and is primarily concerned with increasing profit. These studies examined buyers' intentions (e.g., Fu et al., 2020), purchasing behaviors (e.g., Godinho de Matos et al., 2014; Xi et al., 2017), and continuance purchase behaviors (e.g., Hajli et al., 2015). A limited number of studies, however, have investigated the social implications of the commercialization (e.g., Rhue & Sundararajan, 2019). According to Sarker et al. (2019), technologies should benefit humans and not just economic conditions. Investigating the social implications of the development is important because people are constantly exposed to and influenced by massive amounts of commercial content that are subtly integrated into people's social content and strategically placed to suit peoples' interests and needs. Furthermore, peoples' unconscious actions on these platforms make them critical players in the influence of commercial content. Thus, it is essential to study the influence of commercial content and develop critical perspectives on the interweaving effects of commercial and social content.

Using social influence theory, this study investigates the influence of commercial content on social media. Social influence is the change in a person's behavior due to one or more persons' thoughts, feelings, or behaviors (Kelman, 1958). In IS, typical discourses investigating social influence have been based on the foundational psychological perspectives of Kelman (1958) (e.g., Gallivan et al. 2005; Kuan et al., 2014; Lee et al 2006; Wang et al., 2013). Studies have employed compliance, identification, internalization, informational, and normative social influence as the foundational operations that explain the processes of social influence in our offline world (e.g., Lee et al 2006; Wang et al., 2013). These studies offer valuable insights for understanding changes in individual behavior. In the past two decades, however, technical components such as algorithms and network structures have changed how people interact as well as how people influence one another. As Sarker et al. (2019) argued, an awareness of the interactions between a given phenomenon's social and technical components is crucial. Meanwhile, most existing articles investigating social influence theory on SM have considered social components as single units of analysis (e.g., Kuan et al., 2014; Sedera et al., 2017).

In response to Sarker et al. (2019), this study focuses on influence from a sociotechnical perspective, which emphasizes the interactions between social and technical components (Sarker et al., 2019). Social components include people, their relationships,

and their social structures, as Kelman (1958) emphasized in social influence theory. Technical components include human-created tools, such as social media algorithms and network structures mediating and changing people's interactions and, therefore, how influence is exercised (Kane et al., 2014; Khan et al., 2019). The term 'social influence' is used to refer to the theoretical perspective provided by the psychological perspectives. We use the term 'influence' when referring to the development in practice. Building on Sarker's (2019) view, we study the sociotechnical perspective in the context of commercial content on SM. We define *commercial content* as content created to commercialize, monetize, sell, promote, and advertise a product or business. We refer to social content as content created for personal interaction and entertainment, such as social gatherings, pictures with friends, and entertaining videos.

This paper addresses the following research questions: (RQ1) How does the influence of commercial content occur on social media? and (RQ2) How can we understand the interweaving effects of commercial and social content on social media? We examine possible answers to these research questions based on a conceptual analysis.

This paper contributes to information systems literature by providing insights into how people are influenced through the interconnection of social and technical components on social media. Since few IS studies have investigated social influence from such a perspective (Chandrasekara & Sedera, 2018; Kim & Hollingshead, 2015), expanding the conversations on how influence is exercised through the interconnection between its social and technical components is essential. Secondly, we contribute with insights into the interviewing effects of social and commercial content. Our research aligns with studies examining the social implications of SM (Ahmed & Vaghefi, 2021; Boroon et al., 2021; Derra et al., 2022) and contributes to our commercial focus, especially emphasizing the interweaving effect of social and commercial content.

2 Background

In this section, we introduce theories and concepts related to the process of influence and emphasize the psychological perspectives of social influence theory and key IS papers that have utilized such perspectives. Second, we present theories on network structures and algorithms as technical components shaping influence on social media.

2.1 Social influence

One of the key theories in social influence was introduced by Kelman (1958), who defined social influence as a change in a person's behavior as the result of one or more per-

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sons' thoughts, feelings, communication, or behaviors. Kelman identified three main processes of social influence: compliance, identification, and internalization. Compliance is the way in which an individual accepts social influence to fit in with a group or norm. Identification involves a person acting in a certain way to gain acceptance from a particular group or individual. In internalization, an individual engages in a particular behavior because it agrees with the individual's value system. Social influence discourses on SM have typically adopted Kelman's psychological perspectives (e.g., Bagozzi & Dholakia, 2002; Gallivan et al. 2005; Kuan et al., 2014; Lee et al 2006; Wang et al., 2013). For example, Wang et al. (2013) investigated how identification and internalization may explain the growth in individuals' use of technological systems over time. Moreover, Bagozzi and Dholakia (2002) identified two critical social influence variables that impact digital community participation: group norms and social identity. They showed that intentions to participate together as a group are a function of both individual (attitudes, perceived behavioral control, and positive and negative anticipated emotions) and social determinants (subjective norms, group norms, and social identity).

Other theories of social influence such as, conformity (Cialdini & Goldstein, 2004), and informational and normative social influence (Deutsch & Gerard, 1955), have been considered in IS studies as well (e.g., Kuan et al., 2014; Xi et al., 2017). Informational and normative social influence have been used as a theoretical lens in many IS studies (e.g., Kuan et al., 2014; Xi et al., 2017). Normative social influence leads people to conform in order to be liked and accepted. People who are highly susceptible to normative social influence make decisions to gain others' approval. Informational social influence operates through internalization, which occurs when information from others can increase the individual's knowledge about certain aspects of the environment (Deutsch & Gerard, 1955). For example, in their study on decisions regarding group buying, Kuan et al. (2014) found that informational social influence applies to situations in which people make decisions based on other actions and judgments, thus treating them as sources of information. Meanwhile, normative social influence is found when people comply with others based on others' preferences or expectations.

Social influence has received considerable attention in IS communities and covers a broad spectrum of theories and concepts related to user behaviors in the digital sphere. However, socially influenced attitudes are increasingly shaped by technical components on social media. It can be difficult to clearly articulate the distinction between the social and technical components (Kane et al., 2014) of social media. Technologies include platforms and their ecosystems, virtual artifacts, or algorithms (Kaplan & Haenlein, 2010). Since we are interested in the influence that occurs, this paper focuses on algorithms (Shin et al., 2022) and network structures (Kane et al., 2014).

2.2   Network structures and algorithms

Network structures can be understood as social structures comprised of nodes and ties. Nodes are the individual actors, such as people or businesses using SM, while ties are the relationships between them, such as their friendships, shared interests, beliefs, or sexual relations (Kane et al., 2014). A network structure prioritizes connections and positive relationships among such nodes based on their ties. In contrast to our offline environment, the set of ties that link the nodes is not independent; rather, ties are interconnected, which provides a mechanism for nodes to influence one another indirectly (Zhang et al., 2017; Zhou et al., 2020). For example, by pressing the like button for specific content, people unconsciously impact the spread of information to a large group of unknown people, becoming part of a network of those who interact with the same content. Thus, the degree to which a person influences another is complex and difficult to grasp. Investigating the overall structure of these interconnected networks and how content flows within such networks (e.g., Khan et al. 2019) is a core objective of IS. Content refers to the resources available in a network, while structure refers to the identifiable patterns of nodes and ties in a network (Kane et al., 2014). IS research discusses the concept of strong and weak ties (e.g., Zhang et al., 2017; Zhou et al., 2020). Strong ties refer to directly connected individuals, such as family, friends, and acquaintances, whereas weak ties involve those with no or an indirect connection with others. The extent to which weak and strong ties appear influential depends on the platforms they operate on. Snapchat, for instance, is mostly used for communicating with strong ties, while TikTik is rarely used for this purpose and rather for interacting with weak ties (Statista, 2023). Other studies have also emphasized the concept of homophily to social network approaches because interactions on social media tend to exert a common influence on nodes within a particular network or a particular potion within the network (Li et al., 2023).

While network structures explain the structure of nodes and ties in the interconnected network of SM, algorithms refer to the set of instructions used to solve a particular problem or perform a specific task, including searching and sorting (Balaji et al., 2021). Search and sorting algorithms curate and rank content based on user preferences and behaviors (Schroeder, 2020). They use inferential analytics methods to predict user preferences, including sensitive attributes such as gender and sexual orientation (Swart, 2021). Search and sorting algorithms determine the content that people encounter on their social media profiles and prioritize content based on relevance, engagement, and other metrics. Engagement refers to people's previous likes, comments, or views, whom they interact with, and what content they search for. It also factors in the timing of their

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engagement, how long they view specific content, and how much they have interact-
ed with specific people or businesses. For example, the well-known TikTok algorithm
considers past videos people have interacted with, accounts and hashtags they follow,
location and language preferences, and even the type of content they create. Instead of
people being exposed to videos from the people they follow, TikTok's algorithm calcu-
lates what people are likely to enjoy (Zulli & Zulli, 2022). Instagram and Facebook are
often focused on peoples' engagement and search history Based on the person's previous
interactions, i.e., the type of content clicked on, liked, shared, or commented on, the
algorithm will filter out the content they are not necessarily interested in and prioritize
displaying specific content based on their interaction history. The more a person en-
gages with a particular type of content, the likelier it is that the rating algorithm will
show the person similar content (Shin et al., 2022). Businesses and influencers tailor
their content strategies to align with these algorithmic preferences and aim maximize
by giving people targeted commercial content they are likely to be interested in (Balaji
et al., 2021). Thus, content is often designed for monetizable interaction.

Consequently, network structures and search and sorting algorithms influence the
commercial dynamics of the platform and play a crucial role in shaping people's social
environments (Ghose et al., 2019). These technical components intervene in peoples'
daily lives and play a significant role in deciding the type of connections and content
that influence them. In the next section, we will present the theoretical framework of
the study—the sociotechnical perspective.

3   Sociotechnical perspective

The sociotechnical perspective is one of the foundational viewpoints for the informa-
tion systems discipline (Sarker et al., 2019). It emerged as a new way of thinking,
challenging the worldview of technologies as external antecedents to organizational and
social structure and behavior (Beath et al., 2013). The sociotechnical perspective paved
the way for perspectives that bridge the divide between the socially oriented approaches
to solving organizational problems and the technically oriented approaches advocat-
ed by disciplines such as computer science and operations research (Davis & Olson,
1985). It focuses on social and technical components of a phenomenon as mutually
interactive (Alter, 2013), and explicitly acknowledges their interdependence (Bostrom
et al., 2009). The technical component is primarily a human-created tool consisting of
hardware and software, data sources, and associated techniques (Ryan et al., 2002). The
social component consists of individuals or collectives and relationships or interactions
between or among individuals. Social components include humans and their relation-

ships and attributes, such as social capital, structures, cultures, economic systems, and best practices (Ryan et al., 2002).

According to Sarker et al. (2019), IS studies have long considered these components separate antecedents to specific outcomes. They argued that researchers have failed to do justice to the diverse ways social and technical components come together to produce specific outcomes. Furthermore, they found that IS research primarily focuses on economic conditions, which is inconsistent with the sociotechnical perspective emphasizing how technologies need to benefit humankind and not just their economic conditions. A few exceptions exist (e.g., Goh et al., 2011; Grønsund & Aanestad, 2020; Monteiro & Parmiggiani, 2019; Scott & Orlikowski, 2014). For example, Goh et al. (2011) show how work routines and technology coevolve throughout the implementation process of a healthcare IT system. Another example is a study by Grønsund and Aanestad (2020) investigating how humans and algorithms evolve as firms adopt artificial intelligence capabilities. Monteiro and Parmiggiani (2019) investigated the Politics of the Internet of Things in an oil and gas company. In a social media context, Scott and Orlikowski (2014) investigated the consequences of anonymity in reviewing, rating and ranking organizational services in Trip Advisor. They challenge the dominant social treatments of anonymity and focus on the outcomes generated by anonymity in practice. In their paper, they argued that the ability to theorize technological developments has not kept pace with practices, as there has been a tendency to use concepts, theories, and approaches developed decades earlier (Scott & Orlikowski, 2014).

Building on the request by Sarker et al. (2019) and Scott and Orlikowski (2014), our study emphasizes the importance of challenging the predominantly social treatment of influence and draws attention to the outcomes mediated by technologies in practice. Specifically, we investigate the influence of commercial content on SM by focusing on the interdependence between social and technical components. In addition, we investigate how this mediation impacts people's daily life practices (Sarker et al., 2019; Scott & Orlikowski, 2014). Specifically, we discuss and develop a critical perspective on the interweaving effect of social and commercial content. This approach is essential since social media has become increasingly commercialized over the past two decades (Dann et al., 2022; Statista, 2023). On the one hand, people are exposed to and influenced by massive amounts of commercial content subtly integrated into their social interactions and strategically placed to suit their interests and needs (Casaló et al., 2021; Voorveld et al., 2018). On the other hand, this interconnected nature makes people critical players in the influence of commercial content (Kane et al., 2014; Khan et al., 2019). Overall, SM is becoming an increasingly complex commercial environ-

ment as time passes, and it is essential to increase our knowledge of the development and its societal implications.

4 Methods

We conducted a conceptual analysis of the literature to investigate the influence of commercial content on SM. Specifically, we categorize the actors involved in this influence and identify how they exercise their influence for commercial purposes. Because our objective was to identify relevant concepts instead of providing an overview of the field, a concept-centric approach was adopted (Webster & Watson, 2002). Following the guidelines of Okoli and Schabram (2010) and Webster and Watson (2002), our literature review consisted of two steps: (1) a search and selection process and (2) an analysis of the literature.

4.1 Search and selection process

In general, literature searches consist of querying scholarly databases and conducting backward or forward searches (Okoli & Schabram, 2010; Webster & Watson, 2002). The search and selection processes in this study were planned by all three co-authors, who collectively determined the appropriate databases and relevant keywords, outlets, and timeframes to identify relevant literature (Vom Brocke et al., 2009). One co-author tested different keywords in multiple potential databases to uncover and monitor emerging terms and developments (Levy & Ellis, 2006). We found the identification of keywords particularly challenging because the researchers used multiple terms to describe distributed collaboration.

We initially conducted a keyword search using the Science Direct, Association for Information Systems (AIS), Taylor and Francis, and SAGE databases because they contained relevant journals and conference papers in the IS field and other relevant disciplines. Complete research, works in progress, and extended abstracts published since 2010 in all journals and conferences deemed relevant for capturing the diversity of the topic (Webster & Watson, 2002). The timeframe was based on the need to review research on social media platforms that facilitate the sharing of visual images, since social media platforms with a visual focus are dominant in the commercial space (Smith & Gallicano, 2015) and were developed after 2010. We applied keywords including "social influence" (in the abstract) AND "social media" AND "consumer" OR "consumerism" OR "consumption" OR "commerce" OR "commercial" OR "shopping" NOT "adoption." We chose these keywords because they were found to capture a literature

sample that met the following selection criteria: (1) focused on the commercial aspects of social influence on social media platforms; (2) specifically mentioned the term "social influence" in the title, abstract, and keywords or body of the paper; and (3) focused on social media platforms with visual-centric features. We were especially interested in platforms with visual-centric features, such as Instagram, Facebook, Snapchat, and TikTok, as visual interactions dominate the commercial environment (Smith, 2019). "NOT adoption" was included because the term represents the initial stages of using social media platforms. Our interest, however, was focused on the established practices of commercial practices on social media.

Following this procedure, 332 potential candidates were identified. We followed this up with a two-round inclusion and exclusion process conducted by one co-author (Okoli & Schabram, 2010), as shown in Figure 1.

1st search process
Databases: Science Direct, AIS, Taylor & Francis and SAGE
Keywords: "social influence" (in abstract) "social media" AND "consumer" OR "consumerism" OR "consumption" OR "commerce" OR "commercial" OR "shopping" NOT "adoption"
332 candidates.

1st selection process
Primary assessment of papers based on title, abstract, and keywords.
Include: social influence, visual social media, and commercial angles
Exclude: technology adoption, social media adoption, or studies lacking commercial or social influence angle
51 candidates.

Full text search: excluded papers without a commercial angle, such as papers with a solely ethical and social angle and papers focusing on online reviews and social media platforms that do not prioritize visual images.
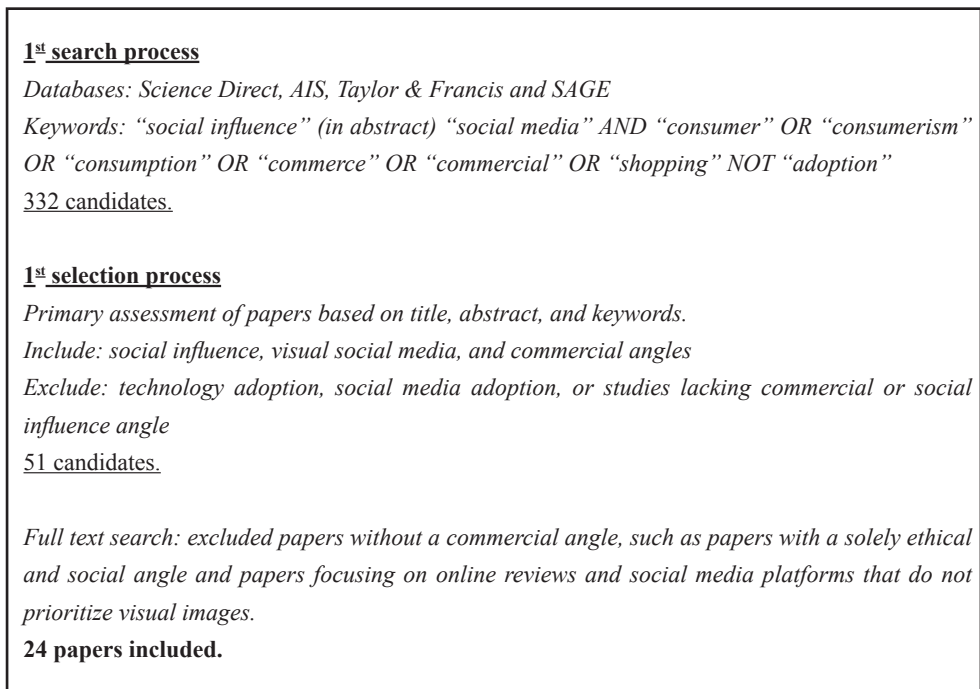**24 papers included.**

Figure 1. An overview of the first search and selection process

In the first round, the articles were judged primarily based on their titles, abstracts, and keywords to ensure that they were relevant. 281 papers were excluded, including studies investigating technology or social media adoption and those lacking commercial or

visual angles. In the second round—because our search and selection, until then, had a narrower scope—the same coauthor inspected the full texts of the 51 remaining papers to determine relevance. 27 papers were excluded because they lacked a commercial approach to social media. Moreover, papers that focused on social media platforms that did not prioritize visual images, such as Twitter, were also excluded. However, papers that were not platform-specific and those investigating Facebook were included. While visual images are not a central component of the Facebook platform, it owns Instagram, which is a leading platform for visual interaction. Facebook and Instagram have similar commercial features, so neglecting studies investigating Facebook is disadvantageous. 24 papers were found after this search and selection process.

We discovered that few papers investigated visual-specific platforms, such as Instagram and TikTok. Therefore, we conducted a second search round to ensure selection relevancy. he search process is shown in Figure 2.

2nd search process
Databases: Science Direct, AIS, Taylor & Francis, SAGE, and ACM
Keywords: "visual social media" OR Instagram OR TiTok OR YouTube AND "social influence"
"social media" AND "consumer" OR "consumerism" OR "consumption" OR "commerce" OR
"commercial" OR "shopping" NOT "adoption"
437 candidates.

2nd selection process
Primary assessment of papers based on title, abstract and keywords.
Include: visual social media, social influence, and commercial angle
45 candidates.

Full text search:
Excluding papers focusing on societal issues regarding visual social media usage and papers without
a visual social media or commercial angle.
26 papers included.

Backward and forward search
6 papers included.

56 papers on social influence in social commerce

Figure 2. An overview of the second search and selection process.

As in the first search and selection process, one coauthor tested different search strategies in different databases to uncover emerging terms. Keywords such as "visual social media" OR "Instagram" OR "TikTok" OR "YouTube" OR "Snapchat" AND "social influence" AND "consumer" OR "consumerism" OR "consumption" OR "commerce" OR "commercial" OR "shopping" NOT "adoption" were applied. In this round, we decided to include papers from the Association for Computing Machinery (ACM) database because we believed that more technical papers would add to the diversity of our research topic. Here, 437 potential candidates were identified. TFollowing our two-round selection process, all 437 papers were first judged based on titles, abstracts, and keywords. 392 papers were excluded. During the second selection process, the same coauthor read the remaining 45 papers in detail. 19 papers were excluded because they lacked a social influence perspective on the commercial activities studied. We ended up with a total of 26 papers after the second selection process.

As recommended by Webster and Watson (2002) and Levy and Ellis (2006), we performed backward and forward searches on the selected articles. Six relevant articles not included in the search and selection process were included. Of 551 potential candidates, 56 were selected for further analysis.

4.2 Analysis

The analysis was conducted by one coauthor. A review guide was utilized in the analysis, with the main objectives being to (1) categorize actors involved in the influence of commercial contents and (2) identify how they exercise their social influence for commercial purposes. 'Actors' refers to both individual consumers and business profiles, such as companies, brands, and social influencers. In terms of exercising social influence for commercial purposes, 'components' refers to how the identified actors exercise their social influence through the interconnection between social and technical aspects, as requested by Sarker et al. (2019).

A rigorous qualitative process based on an open, axial, and selective coding strategy was applied to search for connections in the data material and categorize, capturing the essence of and trends in the data (Strauss & Corbin, 1998). We read each article carefully and broke the data into discrete parts in Excel, including each paper's actors and the components of how the actors in the studies exercised their social influence. This was followed by axial coding—we drew connections between the data using a color-coding approach. Similar colors were given to patterns with a certain linkage. Finally, we selected one central category for each pattern that connected the codes from our analysis to capture the essence of and trends in the data (Strauss & Corbin, 1998).

5 Results

In the first step, we obtained an overview of the categories of actors involved in the influence of commercial content. Table 1 presents the three main actors (selective coding), their related subcategories (open coding), their characteristics, and the platforms on which they operate.

Categories (Selective codes)	Subcategories (Open codes)	Characteristics	Platforms
Social media influencers (N=20)	Influencers, celebrities, creators, YouTubers	Public personas, with a commercial agenda, well known to a niche group of people, interacting and promoting commercial content.	Instagram, YouTube, TikTok, Twitch
Peers (N=24)	Friends, family, acquaintances, consumers	People without a commercial agenda who are peers to those they influence. Members of this category tend to interact with others privately about their consumption choices, as well as publicly by sharing their experiences with products and services.	Facebook, Instagram, Snapchat, TikTok
Businesses (N=12)	Companies, brands, businesses, advertisers, marketers	An organized group of people with a particular commercial purpose who connect and build relationships with people strategically and organically through their public SM profiles.	Facebook, Instagram, Snapchat

Table 1. An overview of the categories of actors involved in the influence of commercial content (N=number of studies).

In the three sections below, we will present how each category exercises its influence for commercial purposes.

5.1 Social media influencers

Most studies in the field have focused on how social media influencers exercise social influence through social components such as likability, expertise, authenticity, and transparency. Social media influencers are argued to be more trustworthy and credible than traditional celebrities (Djafarova & Rushworth, 2017)—they can appear as ideal consumers, representing a lifestyle others envy (Aljasir, 2019). Similarity, likability, and homophily were especially found to be components through which these actors exercise their social influence. People tend to follow social media influencers who are similar to themselves (Argyris et al., 2020; Sokolova & Kefi, 2020) as social media is often used for inspiration seeking. Social media influencers were also found to be persuasive in their informational practices. For example, Aljasir (2019) showed that people follow them to become introduced to new products.

In addition, the papers in our analysis focused on how social media influencers actively aligning their content activities with technical components to increase their visibility. Hutchinson (2020) found that social media influencers create content to satisfy the affordances of the algorithms that drive the platforms on which they distribute their content. In this context, Cotter (2019) found that influencers calculate and identify specific time frames in which Instagram's rating functions would reward visibility. Carter (2016) found that social media influencers explicitly affiliate themselves with non-human entities such as brand tags and topical hashtags in order to increase their visibility. We also identified papers focusing on metrics that explain social media influencers' influential capabilities. Arora et al. (2020) found that people's engagement (likes, comments, and shares), outreach (views), sentiments (topics discussed), and growth are used as metrics by social media influencers to strategically work on increase their influence. In agreement, Hutchinson (2020) argued that social media influencers make their content production decisions based on the feedback from their followers (likes, comments, views). In other words, social media influencers learn the rules articulated by different people's engagement and the platforms algorithms and develop their tactics accordingly (Cotter, 2019).

Table 2 brings forward an overview of how social media influencers exercise their influence (selective coding). For each component (social and technical), we include their related subcomponents (open coding) and identify examples in practice.

Components (Selective coding)	Subcomponents (Open codes)	Practice examples
Social (N=20)	Similarity, homophily, peering, likability, normality, credibility, expertise, trust, relatability, envy, parasocial identification, relationships, inspirational, transparency, support, intermediation, product congruence, argument quality, information involvement, trends	"All consumers considered celebrities as a trustworthy source of information online." (Djafarova & Rushworth, 2017, p. 5)
		"The goal of an social influencer marketing campaign should be to demonstrate the social influencer's familiarity and authenticity (Argyris et al., 2020, p. 13)
		"They follow social media celebrities because of the interesting things they broadcast, to be introduced to new things (…)" (Aljasir, 2019, p. 22)
		"Internet-celebrities are still the primary social influence on Generation Z females' impulse fashion purchases as they set the trends." (Djafarova & Bowes, 2021, p. 7)
Technical (N=5)	Algorithms, content and follower engagement, outreach, sentiment, homophily	"Influencers emphasize the importance of gathering information about how algorithms function to learn the rules of the game. They view this knowledge gathering process as part of being an influencer and often refer to it as 'research'" (Cotter, 2019, p. 902).
		(…) information to support visibility may include topics like which hashtags to use, what time to post, and how best to increase engagement" (Cotter, 2019, p. 902).
		"The digital first personality also has the technical skills, or can seek out those skills, to align their content production with any given platform's algorithm to ensure it will receive increased visibility". (Hutchinson, 2020, p.1297).
		"users understand and manipulate their influence by positioning their followers (branding) and by explicitly affiliating themselves with non-human entities such as brands and topical hashtags (hustling)" (Carter, 2016, p1).

Table 2. An overview of how social media influencers exercise their social influence for commercial purposes (N=number of studies).

5.2 Peers

Most studies in our analysis focused on the social components of peer influence emphasizing similarity, authenticity, familiarity, and support, among others, to explain peer influence (e.g., Gobara et al., 2019; Ham et al., 2019). Ham et al. (2019) found that peers share and consume commercial content to socialize and build relationships. Their motivations are normative and motivated by the need to be liked and socially approved by others (Bi et al., 2014; Kuan et al., 2014). However, peers also exercise influence via information exchange. It is common for peers to look to previous reviews and comments, as well as the number of likes and shares of a product, to help them decide (Oumayma, 2019, p. 6). In this case, the individual behind the comment is less relevant and may be influential because of the objectivity of their commercial experience.

Beyond these social elements, studies in our analysis also focused on network structures and network effects in how peers' ability to exert influence is not straightforward (Chen et al., 2013; Klier et al., 2019; Libai et al., 2010). Susarla et al. (2012) investigated how content on YouTube received visibility. They argued that peers when liking, watching, or subscribing to YouTube profiles, play a critical role in deciding the content other people view and its influence. They found that videos posted by a profile must first reach a pool of early adopters, subsequently influencing the rate at which the video diffuses through the population. According to their study, the influence at the initial stage is very sensitive to the network.

Some papers in our analysis discussed weak versus strong ties in a network of nodes. Lee and Kronrod (2020) found that weak ties evoke perceptions of a more extensive and diverse group. Their findings were in the context of consensus language, which refers to words and expressions that suggest general agreement among a group of people regarding an opinion, product, or behavior (e.g., 'everyone likes this movie'). Most studies, however, highlighted the advantage of strong ties, such as Chen (2013), who argued that "friends are more influential than followers". Beşer and Erdogan (2023) found that the degree to which strong or weak ties are influential depends on their platform. On Facebook, for example, people primarily interact with people they know. They tend to befriend friends, acquaintances, or family members (strong ties). However, On TikTok and YouTube, peers mostly view videos of interest provided for them based on the platform's algorithm. As such, peers do not necessarily use TikTok and YouTube to primarily interact with people they know; instead, they seek entertainment from peers they find intriguing (weak ties).

Table 3 brings forward an overview of how peers exercise their influence in terms of commercial content. For each component, we include their related subcomponents and attach examples in practice.

Compo-nents (Selective codes)	Subcomponents (Open codes)	Practice examples
Social (N=20)	Usefulness, support, informative, purposive, evaluations Strength of social connection, trust, source attractiveness, similarity, homophily, familiarity, expertise, closeness, centrality, diversity, enhancement, connectivity, conformity, entertainment, immediacy, and number of consumers	"Consumers look for previous reviews and comments, number of likes and shares to help them in the decision making." (Oumayma, 2019, p. 6)
		"Social shopping intention was regressed on perceived member familiarity, closeness, similarity, and expertise" (Fu et al., 2020, p. 13)
		"Consumers' sharing motivation is not directly related to the value and quality of the shared content but more with social relationship building." (Ham et al., 2019, p. 171)
		"Young individuals may want to respond more favorably to messages produced by someone like themselves" (Paek et al., 2011)
		(..) consumption and purchase behaviors become increasingly visible to their peers, spawning a new form of digitally enabled conspicuous consumption (Rue & Sundararajan, 2019, p. 1127)
Technical (N=6)	Strong and weak ties, interc-onnectivity, number of consumers, immediacy	"Weak-tie references to consensus bring to mind a larger and more diverse group of consumers (...)." (Lee & Kronrod, 2020, p. 368)
		(…) compliance, (ii) identification and (iii) internalization are constructs that would form a direct relationship with social influence, whereas (iv) strength, (v) immediacy and (vi) number of people are playing the role of moderators (Chandrasekara & Sedera, 2019, p. 9)
		"Friends are more influential than followers" (Chen, 2013, p.14)
		"Preference for conformity and homophily and (ii) the role of social networks in guiding opinion formation and directing product search and discovery" (Susarla et al., 2012, p.23)

Table 3. An overview of how peers exercise their social influence for commercial purposes (N=number of studies).

5.3 Businesses

Table 4 provides an overview of how businesses exercise their social influence for commercial purposes.

Components (Selective codes)	Subcomponents (Open codes)	Practice examples
Social (N=14)	Media richness, creativity, aesthetics, entertainment, priming, forming, sentiments, timing, content type, captions, informative. Empathy, emotions, credibility, expertise, similarity, interactivity	"Managers (…) could upload visually inspiring content (e.g., real-life stories, quotations) that might support their followers in their daily lives (…)" (Casaló et al., 2021, p. 422)
		"Advertisers should join the conversation through brand content that is presented in a variety of advertising formats, such as videos, photos, games, polls, and blogs." (Wiese et al., 2020, p. 84)
		"Businesses attempt to create this connection with consumers by, for example, asking them to provide creative content promoting the brand to post on Instagram(...)." (Casaló et al., 2021, p. 422)
Technical (N=7)	Call to action, visual artifacts, timing, trust measures, follower engagement, outreach, sentiment	"Advertising campaigns using Call-to-action (CTA) buttons in certain age groups only affects their purchase intentions." (Handayani et al., 2018, p. 54)
		"(…) … advertisers should join the conversation through brand content that is presented in a variety of advertising formats such as videos, photos, games, polls, and blogs" (Wiese et al., 2020, p. 84).
		"Engagement, outreach, sentiment, and growth play a key role in determining the social influencers". (Arora et al., 2019, p. 86)
		"As marketers try to leverage the power of social networking, precise identification of highly trusted actors in a network who are in an optimal topographical position to aid in viral advertising would be critically important". (Roy et al., 2017, p. 280)

Table 4. An overview of how businesses exercise their social influence for commercial purposes (N=number of studies).

Our analysis found that businesses exercise their influence of commercial content through social components such as entertainment, creativity, emotions, and credibilityBusinesses are influential when promoting visually inspiring content, such as real-life stories and quotations that trigger emotions and humor (Casaló et al., 2021). Some papers have focused on businesses need to join peoples' conversations (Wiese et al., 2020) and exude credibility, expertise, and interactivity (De Jans et al., 2020). Businesses attempt to create this connection with consumers by asking them to provide creative content to promote the brand on Instagram or by generating more significant affective commitment, which could lead people to feel attached to the companies (De Jans et al., 2020).

Businesses also utilize technical features, including call-to-action. A call to action is a shopping feature that allows people to directly access brand and shopping spaces. People can then purchase products directly at the moment of influence (Handayani et al., 2018). Businesses also utilize videos, photos, games, and polls (Wiese et al., 2020), resulting in a more entertaining and enjoyable way for businesses to influence people. Our analysis also emphasizes the use of measurement tools to analyze, plan, or predict the influence of commercial content. Roy et al. (2017) developed a tool for marketers to identify the best seeding nodes in a network, determine effective paths for their advertisement, and perform more effective and efficient SM campaigns. Chen (2013) argued that interlinked relationships enable new marketing opportunities to reach people more effectively. Similarly, Klier et al. (2019) argued that a customer's value lies not only in the cash flow directly generated by them (e.g., through purchases), but also their network effects. In other words, businesses actively utilize the network effects surrounding a person as a strategy to increase their influence.

6   Discussion

In this study, we have identified actors involved in the influence of commercial content and analyzed how they exercise their influence for commercial purposes. Building on the request by Sarker et al. (2019) and Scott and Orlikowski (2014), we challenged the predominantly social treatment of influence and draw attention to the societal outcomes mediated by influence in practice. Nevertheless, how this mediation impacts people's daily life practices (Sarker et al., 2019; Scott & Orlikowski, 2014). In this section, we present three contributions to IS literature based on our findings, theoretical framework and existing literature within the field.

First, our study emphasizes how people have become unconscious critical players in the influence of products and services. As our analysis shows, people are part of a com-

plex interconnected network, where every action they take influences other people inside and outside their network (Chen et al., 2013; Khan et al., 2019; Klier et al., 2019). Additionally, businesses and social media influencers tailor their commercial content strategies to align with these network structures as well as algorithmic preferences, as they aim to maximize influence (Klier et al. (2019). They view network structures as giving them new opportunities to determine effective paths for their advertisement and perform more effective and efficient SM campaigns (Roy et al., 2017). According to our analysis, keeping peers engaged is a critical part of the commercial environment, as their engagement is the premise of the success and visibility of commercial content (Klier et al., 2019; Arora et al., 2020). These results show how technologies have mediated into a predominantly socially perceived concept of influence and how this interconnection plays a critical role in people's everyday lives (Scott & Orlikowski, 2014). This is an essential contribution to IS literature as it provides a way for understanding the outcomes of influence in practice. Our study challenges the conversations that focus solely social perspectives of influence when studying social media. We argue that IS research should pay further attention to influence in practice, including social and technical elements in their methodological and theoretical considerations.

Secondly, we contribute with insights into how people's social and commercial lives and content are intertwined on social media. People are constantly exposed to and influenced by massive amounts of commercial content, carefully and strategically integrated into people's social content (Ghose et al., 2019). As our analysis shows, there has been an increase in the visibility of young people's purchase behaviors, ranging from 'haul' videos where peers present their consumption to more subtle forms of commercial visibility, such as restaurant visits and traveling (Rhue & Sundararajan, 2019). These insights likely stem from the notion that commercial content has been increasingly intertwined with people's social lives, affecting how people display themselves. Since existing literature on the commercial developments of SM has primarily focused on economic conditions (e.g., Fu et al., 2020; Godinho de Matos et al., 2014; Hajli et al., 2015; Jeon et al., 2017), these findings contribute with conversations regarding societal implications of the commercialization. More research is needed to develop critical perspectives on how the commercial development impacts people. Due to the rapid evolution of social media platforms and the explosion in commercial activities, we recommend focusing on the complex challenges concerning how people's social lives seamlessly today involve engaging with commercial activities.

Thirdly, our study contributes insights into how people, when using social media, are not necessarily able to reflect critically on the content they engage with. As our analysis shows, Instagram and TikTok feeds contain content that varies from social

content posted by friends, family, or acquaintances to commercial content carefully and creatively crafted to fit the persons' interests (Wiese et al., 2020; Voorveld et al., 2018). People are also unconsciously encouraged to reconstruct content through product testing. These practices are mostly perceived as enjoyable and entertaining while being a strategic business approach to leverage the influential power of social media (Roy et al., 2017). These findings have implications for IS literature since they raise critical questions regarding how people are not provided with a transparent picture of the commercial content they consume. Therefore, people cannot critically and individually reflect upon the content they engage with. This finding requires further investigations emphasizing issues centered around commercial transparency.

7   Conclusion

This study revealed the influence of commercial content on social media and discussed the interweaving effect of commercial and social content. We addressed the following research questions: *How does the influence of commercial content occur on social media?* (RQ1) and *How can we understand the interweaving effects of commercial and social content on social media?* (RQ2). Specifically, we identified the actors involved in the influence of commercial content and analyzed how they exercise their influence for commercial purposes. Our study adopted a sociotechnical perspective (Sarker et al., 2019) and provided three contributions to information systems literature. First, our study emphasized how people have become unconscious critical players in the influence of products and services. Our study challenged the dominant conversations in IS that prioritize solely social perspectives of influence when studying social media. It emphasized the importance of including social and technical elements in methodological and theoretical considerations (Sarker et al., 2019; Scott & Orlikowski, 2014). Secondly, we contributed insights into how people's social and commercial lives and content are intertwined on social media. We argued for the need to develop critical perspectives on how the commercial development of SM impacts consumers. Thirdly, our study contributed insights into how people, when using social media, are not necessarily able to reflect on the content they engage with critically. Due to the rapid evolution of social media platforms and the explosion in commercial activities, we emphasize future conversations with a primary focus on the complex challenges concerning how people's social lives seamlessly today involve engaging with commercial activities.

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