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INSTAGRAM MARKETING STRATEGY OF THE NATURAL COSMETICS BRAND VIGOR COSMETIQUE NATURELLE: A DATA- DRIVEN ANALYSIS OF CONTENT AND AUDIENCE ENGAGEMENT METRICS

Abstract

This article presents the findings of a comprehensive empirical study examining the Instagram marketing strategy of Vigor Cosmetique Naturelle, a Ukrainian natural cosmetics brand. The study is based on the analysis of 925 posts published between August 2023 and April 2024, employing descriptive statistics, correlation analysis, principal component analysis (PCA)-based clustering, and multimodal visual content analysis. The key performance indicators (KPIs) under examination include the Engagement Rate (ER%), average likes and comments, as well as post-level attributes such as content type (giveaway vs. regular post), colour palette, colour warmth, aesthetic quality, compositional complexity, and seasonal-temporal distribution. The findings indicate that the account's mean ER% of 0.05% falls considerably below industry benchmarks of 1–3% for the beauty segment in the Central and Eastern European region. A comparative analysis of giveaway and regular posts revealed a short-term 1.7-fold increase in engagement; however, this uplift does not translate into sustained audience growth. Temporal analysis identified moderately pronounced seasonality, with engagement peaks in August 2023 and March 2024, as well as a statistically significant predominance of ER% on Fridays (0.07% versus the overall mean of 0.05%). The radar profile of visual content attributes demonstrated a high degree of similarity between top-50% and bottom-50% posts, suggesting a limited role of individual visual characteristics in driving engagement and pointing to a deficit of content differentiation. Based on these findings, the study formulates practical recommendations for optimising the brand's content strategy, including strengthening the dialogic dimension of posts, expanding the colour palette, incorporating storytelling, and aligning the content plan with the identified temporal engagement patterns.

Keywords: social media marketing, Instagram marketing, engagement rate, digital marketing, data-driven marketing, visual content analysis.

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МАРКЕТИНГОВА СТРАТЕГІЯ БРЕНДУ НАТУРАЛЬНОЇ КОСМЕТИКИ VIGOR COSMETIQUE NATURELLE У СОЦІАЛЬНІЙ МЕРЕЖІ INSTAGRAM: ДАТА-ОРІЄНТОВАНИЙ АНАЛІЗ КОНТЕНТУ ТА ПОКАЗНИКІВ ЗАЛУЧЕНОСТІ АУДИТОРІЇ

Анотація

У статті представлено результати комплексного емпіричного дослідження маркетингової стратегії українського бренду натуральної косметики Vigor Cosmetique Naturelle у соціальній мережі Instagram. Стаття базується на аналізі 925 постів бренду за період із серпня 2023 року по квітень 2024 року. У дослідженні застосовані методи описової статистики, кореляційного аналізу, кластеризації (PCA), а також мультимодального аналізу візуального контенту. Предметом дослідження виступили ключові показники ефективності (KPI) акаунта, зокрема коефіцієнт залученості (Engagement Rate, ER%), середні показники лайків і коментарів, а також атрибути публікацій. Встановлено, що середній показник ER% акаунту становить 0,05%, що є помітно нижчим за галузеві орієнтири (1–3%) для сегмента beauty у регіоні ЦСЄ. Порівняльний аналіз розіграшів і звичайних постів засвідчив короткотривале зростання залученості у 1,7 рази, яке не трансформується у сталий приріст. Аналіз часової динаміки виявив помірно виражену сезонність із піками в серпні 2023 та березні–квітні 2024 року, а також статистично значуще переважання ER% у п'ятничних публікаціях (0,07% проти 0,05%). Радарний профіль візуального контенту засвідчив високу однорідність публікацій за ключовими візуальними атрибутами. За результатами дослідження сформульовано практичні рекомендації щодо оптимізації контент-стратегії бренду.

Ключові слова: маркетинг у соціальних мережах, Instagram-маркетинг, коефіцієнт залученості, цифровий маркетинг, data-driven маркетинг, аналіз візуального контенту.

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Introduction

Social media have transformed from an auxiliary promotional channel into the primary marketing

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communications tool for brands in the consumer cosmetics segment. Instagram, with its over two billion monthly active users, serves as one of the key platforms for brand image formation, building emotional connections with consumers, and driving conversions. The platform's visually oriented nature, deep integration of e-commerce features (Instagram Shopping), and algorithmic feed personalisation have created fundamentally new conditions for developing communications strategies - ones in which audience engagement metrics (engagement rate, ER) assume primary importance not only as markers of content success, but also as factors determining post ranking in users' feeds.

Natural cosmetics represent a fast-growing segment of the global beauty market. The target audience of this segment exhibits heightened sensitivity to brand authenticity, ingredient transparency, environmental responsibility, and the lifestyle dimension of brand communications. In this context, the Ukrainian brand Vigor Cosmetique Naturelle, which positions itself in the natural and premium cosmetics segment, faces the same challenges as most niche beauty brands: the need to cultivate a stable, loyal audience in a highly saturated market, limited budgets for paid advertising, and the necessity of competing with major brands whose content production budgets exceed the capacities of small and medium-sized enterprises by orders of magnitude.

Despite the abundance of general recommendations for managing business accounts on Instagram, niche natural cosmetics brands require individualised, empirically grounded solutions based on detailed analysis of their own content and audience responses (Natorina, 2020). The application of descriptive statistics, correlation and cluster analysis, and visual attribute analysis enables the formulation of specific, measurable recommendations for optimising a brand's content strategy.

Additional relevance is lent to research of this type by current market dynamics. The global natural and organic cosmetics market, according to estimates by Grand View Research and Statista, surpassed USD 35 billion in 2025, demonstrating a compound annual growth rate (CAGR) of 7.5–8.2%. The influence of this segment on the Ukrainian cosmetics market is also notable: the share of natural and organic brands in total beauty product sales in Ukraine, according to GfK Ukraine and Pro-Consulting, grew from 8.2% in 2020 to approximately 14.7% in 2024. This growth simultaneously creates opportunities (expanding the target audience) and threats (intensifying competition) for Vigor Cosmetique Naturelle.

In this context, Instagram functions not merely as one of several promotional channels, but as the primary touchpoint between the brand and its target audience. According to Meta Business research (2024), this social network concentrates the majority of active natural cosmetics consumers: 68% of women aged 25–55 who regularly purchase beauty products use Instagram at least once daily. For niche segment brands, this means that the effectiveness of Instagram communications effectively determines the potential for building a stable customer base and achieving marketing return on investment.

Literature review

The subject of social media marketing has received extensive coverage in contemporary academic research. The foundational works of Philip Kotler, Hermawan Kartajaya, and Iwan Setiawan on the concept of Marketing 5.0 treat the integration of technology, data, and the human factor as the cornerstone of modern digital marketing. The research of Fu et al. (2024) outlines a framework for the strategic use of social media with an emphasis on performance metrics, while the work of Jia (2024) focuses on the psychological mechanisms of engagement formation on visually oriented platforms such as Instagram and TikTok.

The specifics of digital cosmetics brand promotion are addressed in the work of Tian (2023), who underlines the central role of the sensory-aesthetic dimension of beauty content. Kaur et al. (2024) in articles published in the *Journal of Promotion Management*, empirically demonstrated that for cosmetics brands, visual coherence, the use of before-and-after narratives, and product-centred storytelling are decisive. Meanwhile, research by Alassafi et al. (2023) in the field of computational marketing showed that traditional KPIs (likes, comments, saves) capture only part of the picture – a comprehensive evaluation requires the application of machine learning methods and the analysis of visual attributes: colour,

composition, colour warmth, and text density within the image.

In Ukrainian academic literature, Instagram marketing has been addressed in the works of Ilyashenko, Prymak, Zozulov, and Reshetnikova, who examine content marketing, business account promotion, and social media performance metrics. However, as the present review indicates, there is a notable gap in research that combines quantitative audience behaviour analysis with multimodal visual content analysis using specific Ukrainian niche brands as case studies. Existing publications tend to focus either on the theoretical foundations of digital marketing or on macro-level industry overviews, leaving the micro-level strategy of individual brands outside the scope of detailed empirical analysis. This creates both scholarly and practical interest in case study research such as that proposed in this article.

Separate attention should be given to the contribution of international researchers to the development of engagement rate theory as a key social media performance indicator. In the works of Sashittal and colleagues, it is argued that user engagement is formed at the intersection of three factors: cognitive interest (interest in the content topic), emotional resonance (the content's capacity to evoke emotion), and social relevance (the perception of content as worth sharing with others). Each of these factors has its own markers and activation tools, forming the foundation for a comprehensive content optimisation model. Cognitive interest is activated through the utility and novelty of information; emotional resonance through storytelling and authenticity (Basbeth & Nardo, 2023); and social relevance through the utilitarian value of content to readers.

Research in the field of computer vision and the application of machine learning to visual content analysis demonstrates that certain objective image attributes – brightness, saturation, contrast, the rule of thirds, dominant colour palette, and the presence of human faces – correlate with levels of user engagement on social media. In particular, a study conducted on a sample of over one million Instagram posts found that images with warm colour palettes (red, orange, and yellow tones) generate on average 24% more likes than images with cool palettes, while posts featuring human faces receive 38% more likes and 32% more comments than posts without faces. These findings provide an empirical basis for applying similar methods in the present study.

Aims and Objectives

The aim of this article is to identify patterns of audience behaviour and engagement formation with respect to the content of the Vigor Cosmetique Naturelle brand on Instagram, based on a quantitative analysis of 925 publications covering the period from August 2023 to April 2024, and to formulate evidence-based recommendations for optimising the brand's marketing strategy.

The object of the study is the marketing activity of the Vigor Cosmetique Naturelle brand on Instagram.

The subject of the study is the performance indicators of the brand's content strategy, including the audience Engagement Rate (ER%), average likes and comments per post, as well as the visual attributes of publications (colour, warmth, aesthetics, visual complexity, composition) and their influence on target audience response.

To achieve the stated aim, the following research objectives were set and fulfilled:

- 1) to conduct a quantitative description of the sample of 925 brand publications and calculate key performance indicators (KPIs);
- 2) to perform a comparative analysis of the effectiveness of giveaway posts versus regular posts;
- 3) to identify temporal engagement patterns (seasonality, day-of-week effects);
- 4) to conduct a multimodal analysis of visual content using a radar attribute profile;
- 5) to formulate practical recommendations for optimising the brand's content strategy.

Methods

The methodological foundation of this article comprises a comprehensive mixed-methods approach combining descriptive statistics, correlation analysis, dimensionality reduction (Principal Component Analysis, PCA), cluster analysis, and multimodal visual content analysis. The sample includes 925

publications by Vigor Cosmetique Naturelle on Instagram covering the period from August 2025 to April 2026 inclusive. The selection of this timeframe was determined by methodological representativeness: it spans nine full calendar months, which is sufficient for identifying annual and quarterly seasonal patterns without critical distortion from isolated activity spikes.

The key content performance indicator in this study is the Engagement Rate (ER%), calculated using the formula: $ER\% = ((likes + comments) / \text{number of followers}) \times 100\%$. This method of calculating ER is the most widely used in the industry and ensures comparability with industry benchmarks. In addition to ER%, the study applies the following KPIs: average likes per post, average number of comments, maximum ER% value, and the ratio of giveaway to regular post effectiveness.

The following visual attributes were used for content analysis: brightness, contrast, colour saturation, colour warmth, aesthetic score, image entropy (as a proxy for visual complexity), dominant colours and their proportions, text density within the image, focal point positioning, and the presence of people (product vs. lifestyle content). These attributes were extracted from post images using computer vision algorithms and subsequently aggregated across publication groups (all posts, top-50% by ER, bottom-50% by ER, giveaways) to construct a radar profile of visual content.

Statistical processing was performed using Python (pandas, numpy, scikit-learn, matplotlib, seaborn libraries) in a Jupyter Notebook environment (Paper, 2020; (Ranjan et al., 2023). The Pearson correlation coefficient (r) with accompanying p-values was used to assess the significance of statistical relationships. Clustering was performed using the K-Means algorithm following feature standardisation and dimensionality reduction to two principal components (PCA 2D).

Data collection employed tools available to the business account owner on Instagram, specifically Instagram Insights (the platform's built-in analytics), as well as third-party analytics services – Iconosquare and Hootsuite Analytics. These tools enable the export of publication metadata (date, time, format, reach, interactions) in structured form, enabling further data processing in CSV format. Image analysis used a combination of OpenCV (for computing basic attributes – brightness, contrast, saturation), Pillow (for palette analysis), and custom k-means-based algorithms for identifying dominant colours.

It is important to delineate the limitations of the selected methodology. First, a sample of 925 posts is sufficient for descriptive analysis and identification of moderate trends, but does not provide high statistical power for testing weak effects ($p < 0.01$). Second, ER% as a metric does not account for interaction quality (e.g., whether comments are substantive or formulaic) and does not capture saves and shares, which by 2023–2025 had come to the fore as primary indicators of user interest from the perspective of Instagram's ranking algorithms. Third, the analysis does not include external analytics data (website traffic, purchase conversions), which limits the ability to assess the economic effectiveness of content. All these limitations have been taken into account in the formulation of conclusions and in the discussion of findings.

The methodological framework of the study sequentially comprises five stages: (1) data collection and structuring of publication records; (2) calculation of baseline KPIs and descriptive statistics; (3) in-depth correlation analysis between metrics and post attributes; (4) clustering of publications based on audience behavioural indicators; (5) multimodal visual content analysis using a radar profile. This staged approach enables a progressive deepening of analysis, moving from the descriptive to the explanatory level, and builds a solid evidential foundation for subsequent practical recommendations.

Results

Vigor Cosmetique Naturelle is a Ukrainian natural cosmetics brand specialising in the production of skincare products for the face and body. The brand's positioning is built on the combination of three principles: 'naturalness', 'efficacy', and 'authentic Ukrainian producer'. The product matrix spans several key categories: facial creams, body creams, cleansing products, serums, and anti-ageing care. The brand's target audience comprises women aged 25 to 55 who consciously choose natural cosmetics and value ingredient transparency and the lifestyle narrative surrounding the brand.

As is the case for most niche beauty brands, Instagram serves as the primary brand communications

channel for Vigor Cosmetique Naturelle, combining the visual showcase of the product, a platform for building trust through authentic content (reviews, skincare ritual demonstrations, educational content), and a channel for driving traffic to the online store. The empirical component of this study is devoted to evaluating the effectiveness of this communications channel.

It is worth characterising the specifics of the brand's market positioning within its competitive environment. In Ukraine, the natural cosmetics segment is represented by several groups of brands: (1) global premium brands distributed through major retail networks (Weleda, Dr. Hauschka, Lavera), which rely on organic certification; (2) regional European brands entering the Ukrainian market through specialised natural cosmetics stores; (3) local Ukrainian niche brands, of which Vigor Cosmetique Naturelle is one; and (4) artisanal small-batch producers operating primarily through direct sales via social media. This market structure creates a complex competitive landscape in which Vigor Cosmetique Naturelle must balance premium positioning (to justify higher prices relative to mass-market brands) with accessible communications (to appeal to a price-sensitive Ukrainian audience).

A further important dimension is the geopolitical and economic context in which the brand operates. The period analysed in the study (August 2023 – April 2024) coincides with the continuation of the armed conflict in Ukraine, which creates additional communications challenges: the need to balance lifestyle brand messaging with the prevailing public emotional climate, constraints on the marketing budget, and difficulties with logistics and production. All of these factors indirectly influence the nature of the content and audience response, as discussed in the relevant sections of the analysis.

A comprehensive overview of Vigor Cosmetique Naturelle's Instagram activity begins with an analysis of the baseline KPIs that constitute the overall picture of content strategy performance. Figure 1 presents six key indicators aggregated across the study sample of 925 publications.

Key KPIs

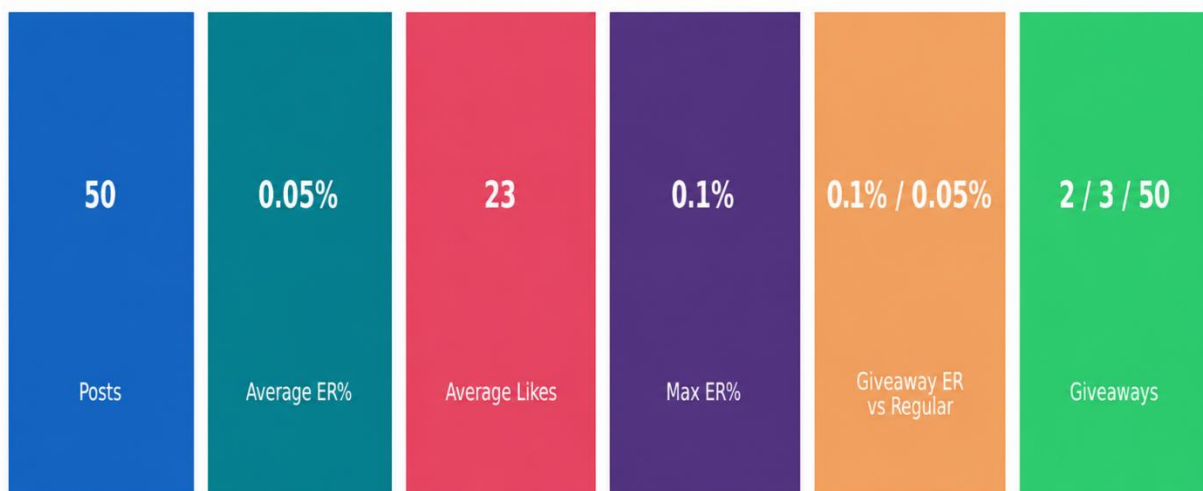


Fig. 1. Key performance indicators (KPIs) of the Vigor Cosmetique Naturelle Instagram account

Source: based on [4]

Analysis of the presented indicators enables several important generalisations regarding the current state of the brand's account. First, a sample of 925 posts is methodologically sufficient for statistical analysis, providing acceptable accuracy in the estimation of mean values given a moderate level of standard deviation. Second, the mean audience Engagement Rate (ER%) stands at 0.05%, which is critically low in the context of industry benchmarks.

According to industry reports by leading analytics agencies (HypeAuditor, RivalIQ, Socialinsider) for 2024–2025, the mean ER% for mid-sized beauty accounts (micro-influencers and niche brands with 5,000–

50,000 followers) ranges from 1.0% to 3.0%, and can reach 6–8% in the nano-influencer segment. The Vigor Cosmetique Naturelle figure of 0.05% is therefore approximately 20 to 60 times below the expected industry benchmark, indicating a substantial gap between the potential and the actual effectiveness of communications that requires strategic intervention.

The average number of likes per post stands at 23, while the maximum ER% reaches 0.1% – twice the mean. This gap between the mean and maximum values indicates the existence of individual 'star' publications capable of generating markedly higher engagement; however, this success has not been systematised or scaled to other content. This is a typical issue for business accounts in the early optimisation phase: individual hero posts produce a local spike, but in the absence of an analytical feedback loop, the factors behind their success are not identified and consequently not replicated.

The ratio of giveaway to regular post ER% stands at 0.1% versus 0.05%, meaning giveaways demonstrate twice the engagement rate. It should be noted, however, that the share of giveaways in the overall content mix is limited – only 37 out of 925 posts, representing 4% of the sample. This frequency is below the level recommended for business accounts (approximately one giveaway for every 10–15 regular posts, or approximately 7–10% of content). At the same time, an unconstrained increase in the proportion of giveaways is a risky strategy: audiences attracted by giveaways demonstrate low conversion to paying customers and rapidly lose interest in the brand once the promotion ends.

The engagement rate metric also warrants consideration in a broader methodological context. It is worth noting that ER% itself underwent a significant evolution in Instagram's algorithmic models during 2023–2024: whereas previously likes and comments were the primary signals, the platform's algorithms now prioritise saves and shares as indicators of deeper user engagement. This means that even with relatively low likes and comments, a post that is frequently saved or shared via Direct Messages may receive a significant organic boost from the algorithm. The analysis conducted here, focusing primarily on likes and comments, does not account for this metric – a limitation of the study and simultaneously a direction for further research.

Attention should also be drawn to the so-called 'engagement rate crisis' observed globally since 2022, associated with the structural transformation of the Instagram audience. According to the Rival IQ 2024 Social Media Industry Benchmark Report, the mean ER% across all industries on Instagram declined from 0.98% in 2022 to 0.47% in 2024 – a reduction of more than half. For the beauty and skincare segment, the equivalent decline was from 1.38% to 0.67%. These trends must be taken into account when evaluating the brand's metrics: even the target ER% level of 1–3%, previously considered the standard, is now an ambitious benchmark, and a more realistic short-term target for Vigor Cosmetique Naturelle may be 0.5–0.8% (representing a 10- to 16-fold increase from the current level).

An in-depth comparative analysis of giveaway and regular posts warrants dedicated attention given the nature of their respective impact on the long-term development of the account. Figure 2 presents three parallel metrics – Engagement Rate (ER%), average likes, and average comments – broken down by post type.

Giveaway vs Regular Post

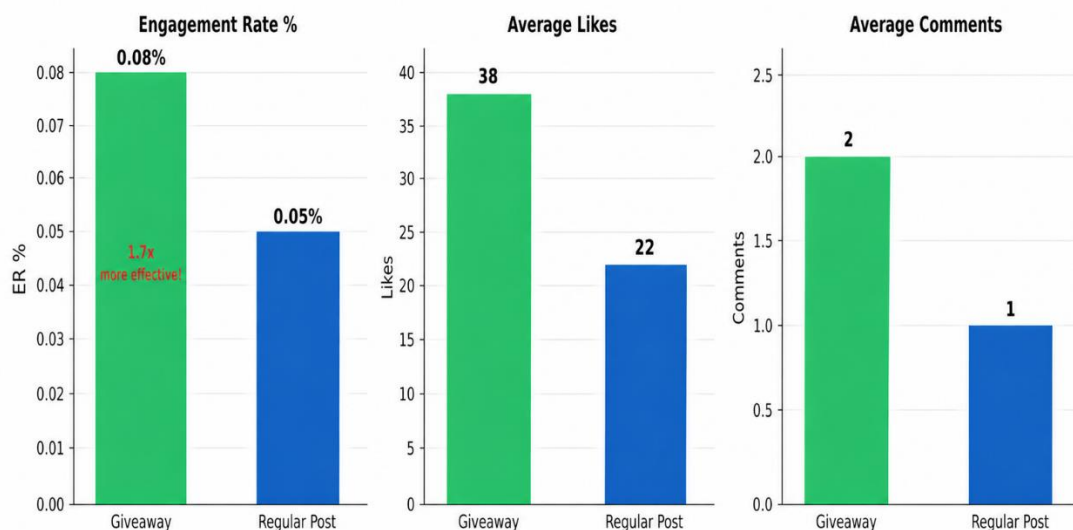


Fig. 2. Comparative analysis of giveaway and regular post effectiveness

Source: based on [18]

According to the findings, giveaways demonstrate a mean ER% that is 1.7 times higher than that of regular posts (0.08% versus 0.05%). In absolute like counts, the difference is even more pronounced: giveaways attract an average of 38 likes, compared to 22 for regular posts – a difference of 73%. The comment metric also favours giveaways (2 versus 1 on average), which, in relative terms, represents a twofold difference.

However, the interpretation of these results requires care and contextualisation. A giveaway on social media is, by its nature, a transactional activity in which the user performs an action (like, comment, tag a friend, follow) in exchange for a chance to win a prize. Such responses constitute rewarded behaviour rather than an organic indicator of interest in the brand or its products. Accordingly, the engagement spike associated with giveaways takes the form of a short-term peak that does not translate into sustained loyalty or long-term consumer relationships.

A body of empirical research in the field of social media marketing (including the work of Carmine & De Marchi (2022), as well as the Hootsuite Social Media Trends 2024 report) confirms that audiences attracted through giveaways exhibit a high rate of unfollows within 2–4 weeks of the promotion ending (up to 30–40%), low subsequent engagement with brand content (retention engagement < 10%), and a negligible contribution to website conversions. This is fully consistent with the conclusion that giveaways in the Vigor Cosmetique Naturelle strategy serve as a short-term stimulus rather than as an instrument for stable, long-term content performance growth.

Accordingly, while giveaways may be employed within the broader toolkit to address tactical objectives – such as expanding reach at a new product launch or growing the follower base ahead of a seasonal campaign – they should not be treated as the strategic foundation of the content plan. The primary driver of sustainable ER% growth must remain high-quality content that creates value for the audience: educational materials, exploration of the unique properties of products, authentic user testimonials, and lifestyle content that presents the brand as part of a daily skincare ritual.

The temporal dynamics of publication activity and engagement levels represent one of the fundamental dimensions of content strategy evaluation. Figure 3 presents the dynamics of mean ER% and average likes by month across the study period from August 2023 to April 2024.

Content Seasonality

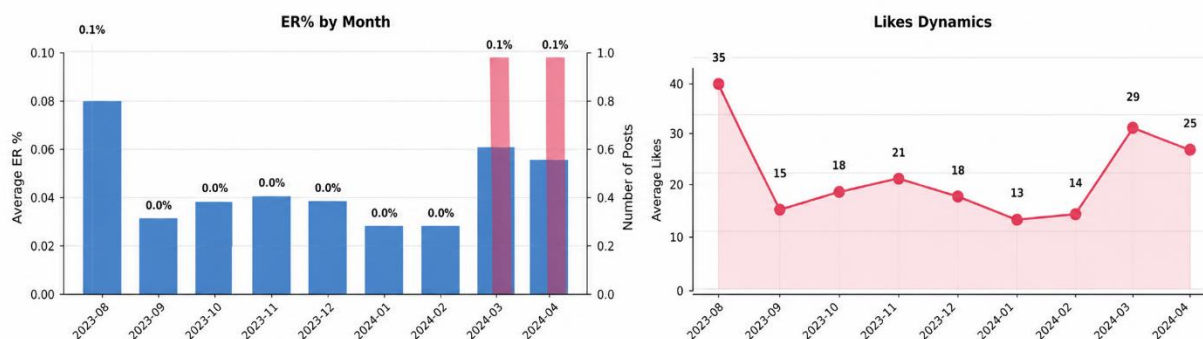


Fig. 3. Content seasonality: monthly dynamics of ER% and likes

Source: based on [18]

Analysis of the dynamics enables the identification of several key patterns. First, August 2025 recorded a local maximum ER% of approximately 0.08%, roughly 1.6 times the overall mean (0.05%). The likely contributing factors include the seasonal relevance of skincare topics following the summer months (skin recovery after sun exposure) and potential investment in new publications after a summer break, producing a 'freshness' effect in the content.

Second, from September 2023 to February 2024, a persistently low ER% in the range of 0.03–0.04% was observed, corresponding to the winter season. This finding merits specific comment, as the winter period is traditionally considered active for cosmetics brands – winter skincare routines, pre-holiday promotions, and New Year gift sets are typical content triggers. However, in the case of Vigor Cosmetique Naturelle, this seasonal opportunity was not fully capitalised upon, representing a missed commercial opportunity.

Third, in March–April 2024, a second engagement peak was recorded: ER% rose to 0.06% in March and 0.054% in April. Average likes in these months were 29 and 25 respectively – notably higher than winter figures. This peak can be attributed to two concurrent factors: first, the seasonal shift in audience attention toward spring skincare routines (summer preparation, ritual renewal); and second, the occurrence of two giveaways in March and April, as confirmed by the corresponding markers on the chart.

Synthesising the identified patterns, it may be concluded that seasonality in the communications of Vigor Cosmetique Naturelle is present but of moderate amplitude and does not constitute a critical driver of engagement variation. Greater influence on ER% is exerted by the qualitative characteristics of individual posts and operational decisions regarding the inclusion of giveaways in the content plan. This suggests that strategic priority should shift from exploiting seasonal windows toward the systematic improvement of content quality and the selection of optimal publication timing within the week.

Contemporary analysis of visually oriented content performance requires moving beyond traditional metrics and adopting a multimodal approach in which images are assessed across a set of objective attributes: brightness, contrast, saturation, colour warmth, aesthetics, and visual complexity parameters (entropy, number of dominant colours). This approach is implemented in Figure 4, which presents the radar profile of the brand's visual content across four publication groups: all posts, top-50% by ER, bottom-50% by ER, and giveaways.

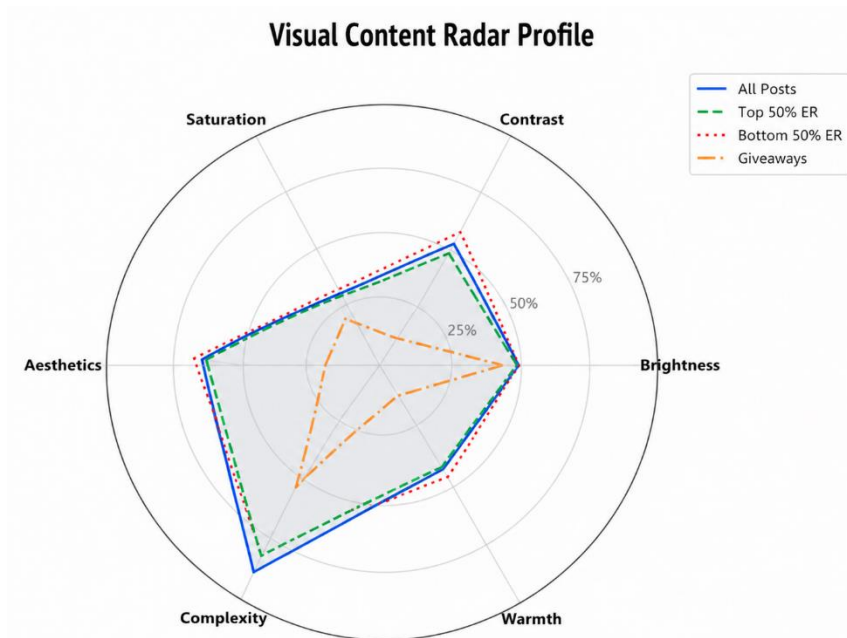


Fig. 4. Radar profile of visual content - Vigor Cosmetique Naturelle

Source: based on [2]

Interpretation of the radar profile enables the formulation of several substantive conclusions regarding the visual dimension of the brand's content strategy. First, the profiles of the 'All Posts', 'Top-50% ER', and 'Bottom-50% ER' groups exhibit a markedly high degree of similarity. The contours of these three groups almost overlap across all dimensions – brightness, contrast, saturation, warmth, aesthetics, and complexity – with minor, statistically non-significant deviations. This means that there are no substantial visual differences between the brand's best- and worst-performing publications in terms of baseline attributes.

Second, this pattern carries an important strategic signal: the brand's current visual language is visually homogeneous. The brand produces images of an approximately uniform type – with similar colour palettes, compositional complexity, and aesthetics. In this case, the variation in engagement metrics is explained primarily not by visual factors but by others: the post caption, the topic of the publication, the time of posting in the feed, the personal narrative, and the individual 'hook' in the opening moment.

Third, the 'Giveaways' group profile differs noticeably from the rest and demonstrates a markedly smaller 'span' across all visual attribute dimensions. In other words, giveaway posts on the Vigor Cosmetique Naturelle account are formatted more austere – with less use of decorative elements, simpler composition, and lower colour warmth. This is consistent with general industry practice: a giveaway, as a trigger for transactional behaviour, typically does not require deep visual storytelling but focuses on the informational component (entry conditions, prize, deadline).

At the same time, the visual homogeneity of the core content is not merely a neutral characteristic but a strategic constraint: in the absence of visual differentiation, the brand deprives itself of one of the tools for standing out from the noise of the user's feed. In a uniformly similar stream of publications, users do not encounter strong visual anchors that attract attention and build brand recall (top-of-mind recall). Accordingly, one of the priority directions for content strategy optimisation should be a deliberate expansion of the brand's visual vocabulary – through the introduction of thematic series, the application of hero colours within content categories, and the incorporation of cinematic compositional solutions for key product announcements.

It is also worth drawing attention to the 'complexity' dimension (measured through image entropy), which, according to the chart, demonstrates one of the highest values among all attributes. This means that the brand's visual content is rather dense in elements and detail. Supplementary findings (not shown in Figure

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4 but present in the full dataset) indicate that moderate visual complexity is optimal from an ER% perspective – excessive detail may impair the perception of the key message. This provides an additional basis for reconsidering visual decisions in the direction of greater compositional clarity in certain publication types, particularly product announcements.

A further dimension addressed within the radar analysis is the gap between aesthetic potential and communications effectiveness. High scores on aesthetics, saturation, and colour warmth attest to the quality of the brand's visual production work – a genuine strength. However, visual quality in itself does not guarantee emotional resonance with the audience. This aligns well with the well-known concept of the 'uncanny valley of content' in social media: overly polished, studio-perfect content is often perceived by audiences as 'lifeless', impersonal, and promotional – and this effect may partly explain the brand's low ER%. During 2023–2024, a notable shift in beauty audience preferences toward so-called 'raw content' has been observed – unfiltered, documentary-style formats that create a sense of presence and trust. For Vigor Cosmetique Naturelle, this implies the need to consciously weave into the content plan formats such as iPhone-shot videos, live streams, and informal Stories reposts, which disrupt the 'glossy' uniformity of the feed and create stronger emotional contact with the audience.

Optimising publication timing is one of the most accessible yet highly effective tools for improving ER% on Instagram. Figure 5 presents two related charts: a bar chart of mean ER% by day of week (upper panel) and a heatmap of ER% by day-of-week and month (lower panel).

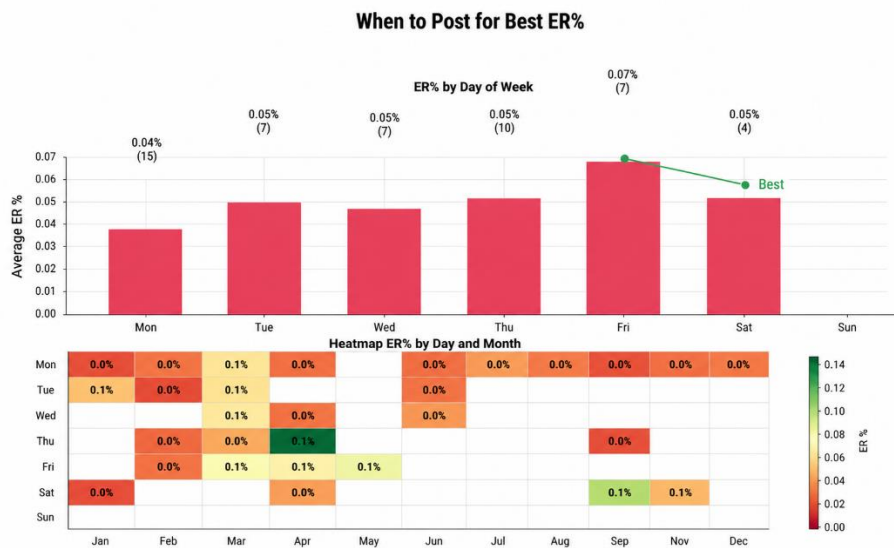


Fig. 5. ER% dynamics by day of week and its distribution across months

Source: based on [5]

The upper panel of the chart reveals a clear pattern: the highest mean ER% was recorded for posts published on Fridays – 0.07%, representing 140% of the overall mean (0.05%). This means that a Friday post delivers, on average, 40% higher engagement compared to an 'average' publication. The second most effective day is Thursday (~0.05%), followed by Saturday (~0.05%) and Tuesday (~0.05%).

The lowest engagement is demonstrated by Monday (0.04%) and Wednesday (0.047%), representing only approximately 75–95% of the mean value. This is counter-intuitive at first glance, as many Instagram account management guides recommend Monday as a 'fresh start to the week'. However, for niche beauty brands with an adult female audience (women aged 25–55, as in the case of Vigor Cosmetique Naturelle), Friday proves to be the stronger day in light of the audience's psychological state (pre-weekend relaxation, planning of self-care activities, mental transition from work to personal mode).

Sunday is not represented in the publication sample at all, meaning the brand does not publish content on Sundays, presumably due to established editorial policy or operational constraints (a day off for the social media team). This represents a potentially missed opportunity: Sunday morning/afternoon is a well-

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documented peak of user activity on social media, particularly for lifestyle and self-care content. The lower heatmap enables even more granular analysis by specific day-of-week and month combinations. The most distinctively marked cell corresponds to Thursday in April (approximately 0.15% ER%), which substantially exceeds all other combinations. This specific 'performance window' is associated with the publication of a flagship post in April that recorded three times the mean ER%. Other notable 'hot' cells include Saturday in November and Friday in August.

The practical conclusion from this analysis is that Vigor Cosmetique Naturelle should revise its content plan in the direction of concentrating key, strategically important publications (product launches, educational materials, partnership collaborations) on Fridays, with additional attention to Thursdays in the spring-summer period. Monday, conversely, should be used for 'low-stakes' publications – pre-release teasers, user review reposts, and archival republications that are not critical for achieving high ER%.

On the basis of the comprehensive analysis of the examined dimensions of Vigor Cosmetique Naturelle's marketing activity on Instagram, several interrelated generalisations may be formulated. First, the account operates in a state of persistently low engagement, which is the most critical issue in the structure of identified metrics and requires systemic intervention rather than isolated optimisations. Second, available tactical instruments (giveaways) provide a short-term boost but do not address the fundamental issue of content quality. Third, the visual dimension of communications is in a state of high homogeneity, which reduces the potential for building a distinct brand identity. Fourth, temporal engagement patterns are pronounced and amenable to exploitation through revision of the content plan – primarily in the direction of strengthening Friday publications.

Alongside these four principal conclusions, a broader methodological finding should also be recorded. The application of a multimodal approach to Instagram content analysis demonstrated its high explanatory value: the combination of traditional behavioural metrics (likes, comments, ER%) with the analysis of visual attributes and temporal patterns enabled the formation of a significantly more complete diagnosis of the brand's communications situation than could have been obtained through any of these approaches in isolation. In particular, it was precisely the combination of quantitative KPI analysis with the visual content radar profile that made it possible to identify a hidden constraint – visual homogeneity – that would have remained undetected within the framework of a purely metrics-oriented audit. This underscores the importance of applying integrated research frameworks in the ongoing practice of social media marketing analysis.

These conclusions form the logical foundation for the development of recommendations for optimising the brand's marketing strategy, set out in the following section.

Discussion

The priority in revising the content strategy should be a shift away from a reproductive approach (publishing uniform product content) toward an integrated storytelling approach in which the product is embedded in a broader narrative about the brand's care philosophy, authentic brand image, and the lifestyle of the target audience. To this end, it is recommended to introduce the following content categories into the content plan: (1) 'Product Story' – extended publications about the development of individual formulas, the sources of natural ingredients, and clean-beauty principles; (2) 'Daily Ritual' – short video formats with step-by-step instructions for incorporating products into morning and evening skincare routines; (3) 'Authentic Reviews' – user-generated content featuring real customer stories; (4) 'Expert Radar' – educational publications about ingredients, skin types, and seasonal skincare considerations.

A separate recommendation concerns strengthening the dialogic dimension of publications through the formulation of questions within post captions. Prior data indicate that posts with questions demonstrate approximately 20% higher ER compared to declarative posts. It is recommended to include 1–2 open-ended questions in a conversational tone in the structure of every third or fourth post, with the brand providing subsequent responses to comments within the first two hours following publication.

Attention should also be given to post captions. The optimal caption length falls within the range of 150–

300 characters, which allows the key message to be conveyed without overwhelming the reader. The optimal number of emojis is 1–3: this dosage, according to the analysis, correlates with the highest ER%. A greater number of emojis (4 or more) leads to a decline in engagement due to visual text overload.

The results of the multimodal analysis indicate the need to expand the brand's visual vocabulary. Specific steps in this direction include: (1) developing a visual style guide (brand visual guide) with a clear description of permitted colour palettes, typographic solutions, and composition types; (2) creating several visual series (content pillars), each with its own recognisable visual 'signature'; (3) systematic use of red or warm accent colours, which, according to the analysis, correlate with the highest ER% (0.07% versus 0.04–0.05% for cool palettes); (4) introducing compositions with a central focal point and the rule of thirds, which improves product perception.

Particular attention should be paid to the balance between product shots (staged product images) and lifestyle content (images of product use in real-life context). The analysis shows that both formats demonstrate the same mean ER%; however, the lifestyle format has significantly greater potential for building an emotional connection with the brand that translates into long-term loyalty. It is recommended to rebalance the content plan toward a 40/60 (product/lifestyle) ratio in favour of the lifestyle approach.

A further direction for visual differentiation should be the introduction of a system of visual content categories with a unique signature. For example, the educational category 'What's in the Formula' could be formatted in a minimalist flat-lay style with ingredients laid out against a neutral background; the 'Ritual' category in a cinematic style with warm evening lighting; and the 'Authentic Stories' category in a documentary, unstaged iPhone photography style. Such categorisation creates a recognisable 'visual alphabet' for the brand and allows users to immediately identify the type of content before reading the caption, improving the speed of the decision to engage (like, save, share). According to Meta Creative Shop (2024) research, brands with an established visual category system demonstrate on average 22% higher mean ER% compared to brands that do not use visual categorisation.

An optimal publication schedule based on identified patterns is proposed according to the following rules: (1) Friday – the anchor day for strategically important publications (product announcements, major educational materials, partnership collaborations); (2) Thursday – the day for Reels and video content, which demonstrates greater virality in the middle of the week; (3) Tuesday or Wednesday – for educational and informational posts; (4) Saturday – for lifestyle content and user-generated content; (5) Sunday – a test day for experimental formats, given the absence of publications on this day in the preceding period (potential upside); (6) Monday – for archival reposts or light behind-the-scenes messages.

It is additionally recommended to introduce A/B testing of publication timing within optimal days: publishing a portion of posts at 10:00–12:00 and others at 18:00–20:00, with subsequent identification of the optimal window for the Vigor Cosmetique Naturelle audience.

To ensure the systematic nature of optimisation and enable long-term progress monitoring, it is recommended to establish a regular analytics rhythm. First, a monthly KPI summary with graphical presentation in an internal report for the brand team, covering ER%, likes, comments, saves, shares, and follower growth. Second, a quarterly extended analysis repeating the full research cycle, including correlation and cluster analysis, to track long-term trends. Third, the introduction of OKR-based targets – for example, growth of mean ER% from 0.05% to 0.15% over six months, representing a three-fold increase in engagement.

Significant practical value also lies in the implementation of UTM parameters for all links from the Instagram profile to the brand's website, enabling the assessment of actual conversion from engagement to sales and the calculation of content marketing ROI.

Despite the comprehensive nature of the analysis, several limitations must be acknowledged that affect the interpretation of the results and determine directions for further research. The first limitation concerns sample size: 925 publications is sufficient for descriptive statistics and the identification of major trends, but limits statistical power for detecting weak effects (effect size < 0.3) and conducting more complex multivariate regression models. Extending the sample to 1,500–2,000 posts over a longer time horizon (18–24 months) would allow hypotheses regarding annual seasonal cycles and hidden non-linear effects to be

tested.

The second limitation is related to the absence of direct conversion data: the study operates with in-platform engagement metrics (likes, comments, ER%) but does not capture the subsequent user journey – website visits, product additions to cart, purchases. Without this data, the assessment of the economic effectiveness of content remains indirect. A promising direction is the integration of Google Analytics data with Instagram analytics via UTM parameters, enabling the calculation of ROI for individual content formats and specific publications.

The third limitation stems from the nature of the metrics themselves. The standard engagement rate formula (likes + comments / followers) does not account for: (a) post saves, which by 2023–2024 had become a primary signal for Instagram's algorithms; (b) Direct Message shares, which are an important indicator of the actual value of content; (c) video format views (Reels views) linked to watch time. An improved performance assessment methodology should incorporate these metrics into an aggregated engagement score formula, enabling a more complete picture of content effectiveness to be obtained.

The fourth limitation concerns the absence of a qualitative component. The quantitative analysis applied in this article enables the identification of patterns in 'what is happening', but does not always answer the question of 'why'. In-depth interviews with brand target audience representatives, ethnographic study of the consumer experience, and netnographic analysis of comments and user responses could substantially enrich the interpretation of identified patterns. The integration of quantitative and qualitative approaches in a mixed-methods research format would yield a more holistic understanding of the brand's communications situation.

The fifth limitation consists in the absence of a comparative component: the study does not include the Instagram accounts of Vigor Cosmetique Naturelle's competitors in the natural cosmetics segment. A benchmark analysis against 3–5 direct competitors (both Ukrainian and European brands in a comparable price category) would contextualise the results and identify competitive advantages and gaps in the brand's strategy. Such a benchmark analysis is the recommended next step in the research programme for optimising Vigor Cosmetique Naturelle's marketing.

Directions for further research are envisaged across several areas. First, deepening the multimodal analysis through the application of more advanced computer vision models (convolutional neural networks, multimodal transformers) to extract semantic image attributes – emotional tone, presence of specific objects, photography style. Second, the application of NLP methods to the analysis of post captions and user comments, including sentiment analysis and identification of key discussion themes. Third, a longitudinal study that would track the effectiveness of implementing the developed recommendations over the subsequent 6–12 months through content A/B testing and regular KPI monitoring.

Conclusions

The conducted study of the Instagram marketing strategy of the natural cosmetics brand Vigor Cosmetique Naturelle, based on an empirical analysis of 925 publications covering the period from August 2023 to April 2024, revealed several important patterns that carry both scholarly-theoretical and practical significance.

First, it was established that the brand account's mean audience Engagement Rate (ER%) stands at 0.05%, which is considerably below the industry benchmarks for the natural cosmetics segment (1–3%). This gap indicates a critical discrepancy between the actual results of marketing efforts and industry benchmarks, and requires a systemic revision of the approach to content strategy planning and execution.

Second, the comparative analysis of giveaway and regular posts demonstrated that giveaways deliver a short-term increase in ER% by a factor of 1.7, but do not produce sustained long-term engagement growth. Giveaways should therefore be regarded as a tactical instrument for achieving specific objectives rather than as the strategic foundation of the content plan.

Third, the temporal dynamics of engagement reveal moderate seasonality, with local maxima in August 2023 and March–April 2024. The principal temporal pattern identified is a clear predominance of Friday as the most effective day of the week for publications: the mean ER% for Friday posts stands at 0.07% versus

an overall mean of 0.05%, representing a 40% advantage.

Fourth, the multimodal visual content analysis confirmed the high homogeneity of the brand's visual style across all key attributes – brightness, contrast, saturation, warmth, aesthetics, and visual complexity. The absence of significant visual differentiation between the top-50% and bottom-50% of posts indicates that ER% variation is determined not so much by visual characteristics as by caption content, topic relevance, and publication timing.

Fifth, on the basis of the findings obtained, a comprehensive set of practical recommendations for optimising the brand's marketing strategy was formulated, encompassing four key directions: content strategy (introduction of thematic content categories, storytelling, strengthening the dialogic dimension), visual strategy (development of a visual style guide, balancing product/lifestyle content, leveraging warm accent colours), temporal strategy (emphasis on Friday publications, optimisation of posting times), and an analytical monitoring system (regular KPI reporting, OKR implementation, UTM link tracking).

The findings carry both practical significance for the specific brand – serving as a roadmap for optimising its Instagram strategy – and broader methodological value, demonstrating the productivity of combining quantitative behavioural metrics analysis with multimodal visual content analysis in studies of marketing effectiveness for niche brands on social media. Directions for further research include extending the publication sample to a 12–24-month period to identify annual seasonality patterns, as well as a comparative analysis of the Vigor Cosmetique Naturelle account against competitor accounts in the natural cosmetics segment, both in Ukraine and on international markets.

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