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DIGITAL MARKETING-BASED MANAGEMENT OF SOCIAL MEDIA ACTIVITIES IN HIGHER EDUCATION INSTITUTIONS: HEORETICAL FOUNDATIONS, INTERNATIONAL EXPERIENCE AND AN INTEGRATED KPI METHODOLOGY

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Abstract: This article examines the theoretical and methodological foundations of managing social media activity in higher education institutions (HEIs) through the lens of digital marketing technologies. Drawing on a comparative analysis of classical and contemporary marketing management theories, the study identifies systemic gaps in the applicability of existing conceptual frameworks to the higher-education sector and proposes an original, sector-specific definition of digital marketing for HEIs together with an integrated conceptual model that unites strategic, tactical and operational levels of management with a multi-segment audience structure. The article further presents a comparative review of the practices of leading universities in the United States, Europe, Asia and the Commonwealth of Independent States, generalizing seven strategic principles of social media governance in the academic environment.

Keywords: digital marketing, social media management, higher education institutions, conceptual integration model.

1. Introduction

The accelerating digitalization of the global economy has produced a rapid expansion of digital marketing and social media management as an independent field of managerial practice. According to recent market estimates, the global digital marketing market reached approximately 410.66 billion US dollars in 2024, while the global social media management market grew from 24.47 billion US dollars in 2024 to 32.48 billion US dollars in 2025, corresponding to an average annual growth rate of nearly 19.7 percent. This dynamic is driven by the intensive adoption of artificial intelligence and big-data analytics, the increasing share of video content and influencer marketing, and the tendency of Generation Z and Generation Alpha to treat social networks as primary information-search tools rather than merely communication channels.

Higher education institutions occupy a distinctive position within this transformation. Unlike commercial enterprises, universities must simultaneously manage academic reputation, multi-generational stakeholder relationships and long, non-linear customer journeys that extend from prospective-applicant awareness to lifelong alumni advocacy. International research increasingly addresses questions such as AI-driven personalized content generation, short-form video and student-influencer marketing strategies, KPI- and ROI-based evaluation of social media effectiveness, and the management of reputational risk in the academic domain. At the same time, national development priorities — including Uzbekistan's 'Uzbekistan-2030' strategy, the concept for developing the higher-education system through 2030, and the 'Digital Uzbekistan-2030' strategy — explicitly call for higher coverage of youth by higher education, inclusion of national universities in international rankings such as QS, THE and ARWU, and full digitalization of educational, scientific and administrative processes through the 'Digital University' platform. These

circumstances substantiate the necessity of a systematic scientific inquiry into how digital marketing technologies can be used to manage social media activity within the higher-education sector.

The purpose of this article is to synthesize the theoretical and methodological foundations required for such management, to compare international practice across several regions, and to present an original, empirically validated methodology for evaluating the effectiveness of social media activity in higher education institutions.

2. Theoretical Foundations and Literature Review

The theoretical foundations of digital marketing have been shaped by a broad body of international scholarship, including the work of P. Kotler, H. Kartajaya and I. Setiawan on the evolution of marketing paradigms; K.F.A. Fox on nonprofit and educational marketing; D.A. Aaker on brand equity; D. Chaffey, P.R. Smith and D. Ryan on digital marketing planning and channel management; A.M. Kaplan and M. Haenlein, together with J. Kietzmann, A. McAfee, A. Back and M. Koch, on the conceptual foundations of social media; E. Constantinides and M.C. Zinck Stagno on online brand management; B. Halligan and D. Shah on inbound marketing; D. Rigby and A. Richardson on customer engagement; S. Ellis on growth methodologies; J. Hemsley-Brown, I. Oplatka and F. Maringe on higher-education marketing; F. Pucciarelli on international competitiveness of universities; R. Felix, P.A. Rauschnabel and C. Hinsch on strategic social media marketing; T.L. Tuten on social media strategy; W.T. Coombs and A. Peruta on crisis communication; and R.N. Anthony and H. Fayol on classical levels and principles of management. Within the post-Soviet academic space, researchers such as F.Yu. Virin, A.V. Yurasov, A.V. Ivanov, A.N. Gureyeva, S.D. Reznik and V.M. Filippov have extensively examined the practical instruments of internet marketing, communication with target audiences of universities through social networks, and the modernization of university governance.

In Uzbekistan, scholars including N.B. Yahyoxonov, R.M. Abduxoliqovna, B.Sh. Safarov, N.S. Ibragimov, D.X. Aslanova, B.N. Navro'z-Zoda and O.X. Xamidov have investigated the improvement of digital marketing in service and industrial enterprises, methodological foundations of innovative development of the services market, the conceptual 7M model of regional competitiveness, the formation of tourism clusters, and various aspects of managing the socio-economic and cultural-historical potential of the Bukhara region. Collectively, these studies constitute an important methodological basis; however, a comparative analysis reveals that existing definitions of digital marketing largely fail to account for the sector-specific characteristics of higher education institutions, insufficiently address communication with the academic community and brand-reputation management, and generally overlook the multi-channel segmentation of the university audience.

To address these gaps, this study proposes the following author's definition: digital marketing in higher education institutions is a complex system of activity aimed at managing multi-channel interactive communication — based on digital technologies such as artificial intelligence, big data and social media platforms — with prospective applicants, current students, parents, employers and the academic community, in order to achieve the strategic goals of the institution and to enhance its brand reputation, academic competitiveness and economic efficiency. This definition integrates three elements of scientific novelty: it explicitly foregrounds the sectoral character of the higher-

education institution, introduces the concept of a multi-channel audience, and positions academic competitiveness as the central criterion for evaluating managerial effectiveness.

3. Classification of Social Media Platforms and Marketing Concepts

Social media platforms relevant to higher education marketing can be classified into six categories: social networking sites, professional networks, content-sharing platforms, messaging applications, microblogging services, and collaborative project platforms — each possessing distinct marketing characteristics and audience-engagement mechanics. Classical marketing frameworks (the 4P, 7P and 4C models) and contemporary concepts (SoLoMo, omnichannel marketing, inbound marketing, data-driven marketing, AI-driven marketing, the Customer Journey Map, and Growth Hacking) were examined for their applicability to the HEI sector. The analysis demonstrates that none of these frameworks, taken individually, fully corresponds to the specific conditions of higher education institutions, thereby substantiating the necessity of integrating them into a unified conceptual model.

Building on R.N. Anthony's three-level management model (strategic, tactical and operational), A. Back and M. Koch's concept of social media governance, and D. Chaffey's notion of the digital marketing ecosystem, this study develops an original conceptual integration model in which social media management is positioned as the central axis of the institution's digital marketing ecosystem. In this model, the strategic-tactical-operational hierarchy is explicitly linked to contemporary marketing concepts, while six audience segments are connected in matrix form to all three managerial levels, ensuring that every communicative action can be traced simultaneously to a management level, a marketing concept and a target audience segment.

4. Distinguishing Features, Principles and Functions of Social Media Management in HEIs

The study identifies six features that distinguish social media management in higher education institutions from other economic sectors: the unique, intangible and long-duration nature of the educational service; the exceptionally long customer cycle spanning from prospective-applicant engagement to lifelong alumni relations; the multi-channel character of the audience, which spans several generations and social roles; pronounced seasonal fluctuations in engagement tied to the academic calendar; the strong dependence of institutional value on academic reputation rather than short-term promotional campaigns; and the necessity of reflecting local cultural specificity in content and tone.

Building on H. Fayol's fourteen classical principles of administration, seven additional principles specific to the higher-education sector are substantiated: academic integrity; transparency and openness; confidentiality and personal-data protection; cultural sensitivity and adherence to national values; compliance with state education policy; two-way communication and continuous feedback; and audience differentiation. In parallel, Fayol's five classical management functions (planning, organizing, commanding, coordinating and controlling — POCCC) are supplemented with three sector-specific functions: image and brand formation, career support for students and graduates, and an educational-upbringing function reflecting the socializing role of universities. Four dialectical tensions inherent to this expanded functional framework are further analyzed: the tension between academic integrity and marketing communication, between transparency and

strategic positioning, between globalization and local distinctiveness, and between brand consistency and audience adaptation.

5. International Experience: A Comparative Analysis

A comparative study of leading universities in the United States, Europe (Harvard, MIT, Oxford, ETH Zurich), Asia (Tsinghua, NUS, Seoul National University) and the CIS (HSE University, Nazarbayev University) allows the generalization of seven strategic principles of effective social media governance in the academic environment: a storytelling-based content strategy; a multilingual communication approach; strategic use of locally dominant platforms rather than a uniform global toolkit; centralized brand-policy governance combined with decentralized content production; data-driven decision-making; academic transparency in public communication; and the cultivation of a structured student-ambassador network.

The comparative analysis of foreign practice also identifies two alternative regional models: an American pragmatic model, oriented toward measurable engagement and enrollment conversion, and a European accountability-oriented model, oriented toward transparency, public value and academic ethics. Four strategic directions common to both models were extracted and generalized as a methodological foundation for the subsequent empirical chapters of the broader dissertation research.

Three global trends that crystallized between 2020 and 2026 were identified as particularly relevant: the widespread adoption of artificial intelligence and chatbot technologies (with approximately 65 percent of American universities reportedly using AI-based marketing tools); the dominance of short-form video content (approximately 48 percent of Generation Z reportedly using TikTok on a daily basis); and the consolidation of omnichannel approaches. These trends were integrated into the theoretical framework of Marketing 4.0 and the Customer Path 5A model (Aware, Appeal, Ask, Act, Advocate), which together serve as the methodological foundation for the empirical KPI methodology presented below.

6. An Integrated KPI Methodology: The Digital Marketing Strength Index (DMSI)

To evaluate the effectiveness of social media activity in higher education institutions, this study proposes an integrated Key Performance Indicator methodology structured around three interacting components: six audience categories (prospective applicants, current students, parents, graduates, employers and international applicants); the five stages of the Customer Path 5A model (Aware, Appeal, Ask, Act, Advocate); and five platforms dominant in the regional context under study — Telegram, Instagram, Facebook, YouTube and TikTok. The multiplication of these three dimensions (6 × 5 × 5) produces 150 differentiated analytical units, within which four universal indicators (Reach, Engagement Rate, Conversion Rate and Net Promoter Score) are combined with five newly developed, culturally adapted indicators.

These five original indicators are: the Content Language Index, which measures the appropriateness of linguistic register and multilingual balance in institutional content; the Family Reach Coefficient, which captures the reach of content among the extended family units that, in the Central Asian cultural context, substantially influence the enrollment decisions of prospective applicants; the Neighborhood Amplification Level, which measures organic community-level amplification of institutional messaging; the Cross-Channel Brand Index, which evaluates the

consistency of brand presentation across multiple simultaneous platforms; and the Resource-Adjusted Benchmark, which normalizes performance comparisons among institutions of differing budgetary and staffing capacity. Each indicator is mathematically formulated and normalized to the [0; 1] interval.

All indicators were integrated into a single Digital Marketing Strength Index (DMSI) using weights determined through the Analytic Hierarchy Process (AHP), with a consistency ratio of CR = 0.072, well within the internationally accepted threshold of 0.10. The methodology was empirically tested at four state higher education institutions of the Bukhara region. Bukhara State University (DMSI = 65.1) and Bukhara State Pedagogical Institute (DMSI = 65.5) were classified in the 'above-average' category (a range of 50–70 points), with Bukhara State University demonstrating stronger performance on universal indicators (U = 0.676) and Bukhara State Pedagogical Institute demonstrating stronger regional cultural adaptation (M = 0.647). Bukhara State Medical Institute (DMSI = 63.4) occupied an 'average' position, while Bukhara State Technical University (DMSI = 50.0), as a newly established institution, was positioned at the boundary of the classification scale.

The internal consistency of the methodology was confirmed by a Cronbach's Alpha coefficient of 0.92, substantially exceeding the internationally accepted threshold of 0.70, while a sensitivity analysis demonstrated that varying the component weights (denoted α and β in the underlying formulation) by ±10 percent produced a resulting DMSI difference of less than one percent, confirming the mathematical stability of the methodology. To support continuous application of the methodology in practice, a four-tier functional architecture for a real-time 'DMSI Dashboard' was designed, encompassing data-source integration, KPI normalization, integral-index calculation, and interactive visualization.

7. Conclusion

This article has presented an original, sector-specific definition of digital marketing for higher education institutions; an integrated conceptual model uniting classical management levels, contemporary marketing concepts and multi-segment audience structures; a set of distinguishing features, principles and functions specific to social media management in the academic environment; a comparative synthesis of international practice across four global regions; and an empirically validated integrated KPI methodology — the Digital Marketing Strength Index — tested at four state higher education institutions of the Bukhara region. The results demonstrate both the theoretical coherence and the practical applicability of the proposed framework and provide a methodological foundation for the design of institution-level digital marketing strategies, for national higher-education policy aimed at strengthening the international competitiveness of universities, and for further empirical research on the economic effectiveness of digital marketing investment in the higher-education sector.

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