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DIGITAL MARKETING ECOSYSTEM OF AGRIBUSINESS: ENTERPRISE READINESS AND BRIDGING THE DIGITAL DIVIDE

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Abstract. In the current context of large-scale digital transformation of the economic space, where key production, management, and logistics processes are acquiring a digital format, digital marketing and management tools play an increasingly important role in ensuring the balanced development of the agricultural sector. The purpose of the study is to determine the actual state of readiness of agribusiness enterprises for the formation of a digital marketing ecosystem, to identify the factors of the digital divide, and substantiate a model for overcoming it. The *methodology* for studying digital marketing transformations in the agricultural sector is associated with the use of analytical methods, as well as expert assessments of agricultural market practitioners and specialists in the field of digital technologies to determine the readiness of agricultural business enterprises to use digital marketing tools. The study identified uneven pace and scale of digital technology implementation across regions, which is determined by both the level of enterprises resource provision and competitive pressure within individual regions. A significantly higher intensity of digital activity of large agricultural holdings was revealed, which is due to their significantly stronger financial potential and opportunities for development. Expert evaluation of major agroholdings was carried out using key parameters of digital transformation, including the corporate digital environments development level, the intensity of innovative agrotechnology implementation in production processes, and the degree of integration of advanced digital technologies into business models. A high level of integration of modern digital solutions into enterprise business models was identified. The analysis of the digital presence of small agricultural enterprises confirms the existence of a significant digital gap between them and large agricultural holdings. This gap is the result of a combination of institutional and resource constraints, including limited financial resources, lack of access to qualified marketers and IT specialists, fragmented knowledge of modern digital tools and practices, and insufficient strategic vision of the long-term competitive advantages provided by their implementation. To overcome this gap, a conceptual model of a digital marketing ecosystem is proposed, which will enable small and medium-sized agricultural enterprises to overcome digitalization barriers, expand their sales markets, and enhance their competitiveness.

Keywords: digital marketing ecosystem, agroholdings, digitalization of agricultural companies.

JEL Classification: M31, Q13

1. Introduction

The need to use and continuously improve digital tools in the agricultural sector is driven by several interrelated trends. First, there is the active development, implementation, and diffusion of digital platforms, services, and analytical systems that can effectively meet both the current and future needs of agricultural producers in accounting, planning, marketing, logistics, communications, and financial analysis. Second, there is the intensification of synergy among agricultural market participants through deeper interaction and data exchange at all levels of the agri-production chain, which ensures the development of both individual enterprises and the agribusiness sector as a whole. Third, there is the growing consumer demand for high-quality, safe, and environmentally friendly products, which serves as a powerful incentive for agricultural producers to implement innovative

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solutions aimed at improving the quality of the final product and strengthening consumer trust.

Under the pressure of internal challenges – such as climate change, military actions on the territory of Ukraine, labor shortages, declining investment volumes, limitations in implementing innovative technologies, and evolving consumer preferences – agribusiness faces the need to adapt to a new economic reality. These internal pressures are compounded by external threats, including global market competition, disruptions in supply chains, instability of the export environment, and the emergence of new trade barriers. These circumstances highlight the urgent need for a systemic rethinking of the functioning approaches of agricultural enterprises.

To remain competitive and ensure sustainable development in such conditions, agricultural companies must not only be flexible in operational management but also rethink the ways they interact with the market and consumers. A decisive role in this process is played by the digital transformation of marketing processes. The use of digital marketing tools – such as big data analytics, CRM systems, e-commerce platforms, mobile applications, social media, and blockchain technologies – enables agricultural enterprises to create transparent communication channels, accurately position their brands, personalize offerings, and respond quickly to changing market conditions. This, in turn, contributes not only to greater customer loyalty but also to the creation of added value for products within the digital economy.

The relevance of digitalizing value chains in the agricultural sector is determined by a complex set of socio-economic and technological prerequisites, the most significant of which is the need to improve the efficiency of coordination models of interaction between the main participants in the agricultural market: agroholdings, agricultural companies, processing enterprises, traders, logistics operators and exporters, regional and national government authorities, research and educational institutions, service organizations, and other partner enterprises that ensure the functioning and support of the agri-sector. Particular importance lies in understanding the role of digital technologies in shaping a new ecosystem of agricultural production that combines innovative management practices, marketing analytics, and digital communication within a single integrated space.

Research on the conceptual understanding of the need for digitalization of the agricultural sector, as well as the application of digital channels for promoting agricultural products and communicating with clients and partners, has demonstrated a high level of both scientific and practical interest in this issue. Contemporary academic literature actively discusses the specifics of business digital transformation as a systemic process that encompasses production, management, and marketing components of enterprise activity (Hermawati, Fettry, & Suhermin, 2021). Scholars examine the role of digital technologies and tools in ensuring the efficiency of agribusiness processes, enhancing operational flexibility, and strengthening competitiveness in global markets (Blagodyr, 2022; Waluyo, 2023). Considerable attention is devoted to optimizing marketing strategies through artificial intelligence and machine learning, which make it possible to automate audience segmentation, personalize offerings, and forecast consumer demand with a high degree of accuracy (Kolomytseva, Shevchenko, & Sergienko, 2024; Huang & Rust, 2020). An important focus of research is the creation of digital business ecosystems as a modern form of organizing entrepreneurial activity across various sectors of the economy, including the agro-industrial complex, which implies the integration of producers, suppliers, distributors, and consumers into a single digital space (Blagodyr, 2022; Rahmadani & Elinur, 2024). Both scholars and practitioners highlight a number of challenges associated with implementing digital marketing strategies: concerns regarding personal data privacy, the need to comply with regulatory requirements (GDPR, ISO standards) (Bondarenko & Omelyanenko, 2024), increasing competition in the digital environment, and the dependence of businesses on continuous technological upgrades.

Particular attention is paid to the issue of improving access to Internet-based information and digital services in rural regions, which opens new channels of communication with customers, transforms resource procurement and product distribution processes, and shapes a new marketing landscape for the agricultural sector (Dybchuk, Holovchuk, Nahorna, Yashchenko, Svyryd, & Kunets, 2024; Duhynets & Nizheiko, 2023; Kingsnorth, 2016). In this context, the need to develop a digital marketing ecosystem that integrates websites, social media, CRM systems, analytics platforms, marketing automation tools, e-commerce channels, and financial support instruments becomes especially relevant. Such an ecosystem should ensure a holistic omnichannel interaction with consumers, enhance business transparency, support data-driven managerial decision-making, and create the preconditions for the sustainable development of agricultural enterprises in the digital economy.

Interest in the concept of "ecosystems" is observed not only among academics but also within the business community. Considering the widely used term "business ecosystem," popularized by James F. Moore, it is defined as a stable economic community that includes various interrelated market participants. A key characteristic of business ecosystems is the integration of participants' resources for joint development and commercialization of innovative

technologies (Moore, 1996). When it comes to the ecosystem approach in marketing, it is viewed as a process that enables the optimization of tasks related to attracting new customers and maintaining their loyalty, creates new opportunities for enterprise–stakeholder collaboration, leverages stakeholders' intellectual and resource potential, implements innovative tools for promoting both the enterprise's own products and those of its partners, and facilitates comprehensive interaction in generating additional customer value (Kolomytseva, Vasylchenko, & Pepchuk, 2022).

2. Research Methodology

The purpose of the study is to determine the actual state of readiness of agribusiness enterprises to form a digital marketing ecosystem, to identify the factors of the digital divide between agroholdings and small and medium-sized agricultural enterprises, and to justify a model for bridging this gap. The objectives of the research include substantiating the creation of a digital marketing ecosystem in agribusiness, analyzing the readiness of agricultural enterprises to use digital marketing tools, and providing the rationale for the development of a conceptual model of a digital marketing ecosystem for Ukraine's agricultural sector.

The methodological framework of the study is based on a comprehensive, interdisciplinary approach that combines a systematic analysis of scientific literature, industry analytical reports, state statistical data, as well as expert assessments of agribusiness practitioners and digital technology specialists. It also utilizes electronic resources of domestic and international open-access research platforms and market analytics. To deepen the investigation, the expert assessment method was applied, involving a survey of specialists in agribusiness, digital technologies, agro-marketing, and regional development. The survey focused on identifying barriers and drivers of digitalization in marketing communications, evaluating the potential of digital technologies in strengthening the competitiveness of agricultural companies, and revealing differences in the pace and forms of digital tool adoption across enterprises.

3. Regional Aspects of Marketing Digitalization in the Agrarian Sector

The agricultural sector has traditionally been considered one of the most conservative segments of the economy, having long remained outside the mainstream of digital transformation and modern marketing innovations. However, the past decade has marked a fundamental shift in this paradigm. The catalysts for change have been not only technological breakthroughs and the growing availability of digital solutions but also structural challenges driven by geopolitical, environmental, and social factors. Under current conditions, the digitalization of agricultural marketing has evolved from a fragmented element into a strategic necessity that determines an enterprise's ability to adapt, compete, and survive. The integration of digital tools makes it possible to create a new digital marketing ecosystem focused on transparency, flexibility, and customer-centricity.

According to the authors, the digital marketing ecosystem of agricultural enterprises can be defined as a dynamic, integrated system of interconnected components that unites business partners and stakeholders engaged in complementary business processes in production, sales, and logistics. At its core lies a digital technological and marketing platform that enables the functioning of a comprehensive set of digital tools (CRM systems, marketing automation platforms, analytical dashboards, content management systems, e-commerce solutions), services, and communication and logistics channels. A key characteristic of such an ecosystem is the integration and coordination of its participants within a single information space, which ensures continuous data exchange, facilitates the creation of personalized marketing offers, optimizes supply chains, and generates a synergistic effect in creating shared value. To assess the readiness of agribusiness enterprises to use digital marketing tools and technologies, the authors examined the state of implementation of digital marketing technologies in Ukraine's agricultural sector.

The analysis of the regional dynamics of digital technology adoption in the agrarian sector revealed increasing activity in the field of digitalization, which now encompasses not only production processes but also marketing communications and interactions with target markets. A comprehensive analysis of regional specifics indicates an uneven pace and scale of digital technology implementation, driven both by the level of enterprise resource availability and the intensity of competitive pressure within individual regions. In particular, the Central regions (Vinnytsia, Cherkasy, Poltava) are characterized by strong competition among medium-sized agricultural enterprises, which direct investments toward digital modernization. The introduction of tools such as big data analytics, CRM systems, and satellite-based agroscouting makes it possible to improve the efficiency of marketing strategies, optimize resource allocation, and strengthen product positioning in domestic and foreign markets.

In the Western regions, there is an intensive implementation of precision digital solutions for small and medium-sized enterprises, including GPS navigation, drones for crop monitoring, and soil moisture sensors. These tools contribute to the collection of real-time marketing data, enabling farmers to quickly adjust their marketing policies in response to changing consumer needs and market conditions.

The Southern regions (Odesa, Mykolaiv, Kherson) demonstrated a high level of technological equipment even before the onset of military hostilities, particularly through the adoption of autopilot systems and intelligent irrigation. Today, enterprises in these regions are focused on marketing the positioning of environmentally friendly products and using precision fertilizer application systems, which have become part of brand communication strategies under conditions of climate change.

In the Eastern region, despite the difficult security situation, large agricultural enterprises continue to employ digital solutions whenever circumstances permit. They remain centers for the development and testing of innovative marketing tools, such as virtual farm tours and blockchain-based traceability solutions, which enhance consumer trust (GPS Is No Longer a "Toy," but a 10% Cost Reduction: How Precision Farming in Ukraine Has Changed Over 12 Years – Through the Eyes of FRENDT).

4. Research on the Digitalization of Agroholdings in Ukraine

The results of the regional analysis provide grounds to assert that the digitalization of Ukraine's agrarian sector has a pronounced territorial specificity that affects not only the pace of technology adoption but also the nature of business process transformation. Regional differences in resource availability, competitive pressure, and innovation activity shape diverse models of enterprise adaptation to digital challenges.

The analysis of agribusiness enterprises revealed significant heterogeneity in the level of adoption of digital marketing technologies and tools across their business processes. Digitalization is most actively implemented in large agroholdings, which have the necessary financial resources and qualified personnel to master innovations. Modern digital technologies – such as soil moisture sensors, unmanned aerial vehicles for crop monitoring, satellite imagery for yield analysis, and automated irrigation systems – represent not only production automation but also a key instrument for building an integrated agribusiness marketing ecosystem that supports product promotion and customer engagement.

Large Ukrainian agroholdings, as the primary drivers of innovation, demonstrate systematic integration of digital marketing platforms into their business models. They actively use automated communication channels, personalized advertising, and consumer behavior analytics. Meanwhile, medium-sized agricultural enterprises are rapidly catching up with market leaders, introducing client-oriented mobile applications, e-commerce solutions, and platforms for interaction with traders and logistics partners. The most intensive adoption of digital solutions occurs in the grain and oilseed segments, where the quick feedback effect allows for a clear assessment of return on investment. Nevertheless, segments such as horticulture, vegetable production, and animal husbandry are also demonstrating increasing digital activity – from greenhouse sensor systems to branded social media marketing campaigns.

Digitalization affects not only production technologies but also sales systems and communication with end consumers, thereby creating the foundation for a comprehensive marketing digital ecosystem of the agricultural enterprise – with a unified information space, process visualization, and supply chain transparency.

The analysis of Ukrainian agricultural companies, including large agroholdings, made it possible to identify the main digital marketing tools they employ (Table 1).

A comprehensive expert assessment of the activities of the leading agrarian holdings – Kernel-Trade LLC, MHP, Nibulon JV LLC, and LNZ Group LLC – was carried out according to key parameters of digital transformation. The system of evaluation criteria included the level of IT infrastructure development and corporate digital environment, the intensity of introducing innovative agricultural technologies into production processes, and the degree of integration of modern digital solutions into the enterprise's business model, particularly in management, logistics, and marketing functions. The results revealed that the assessed companies demonstrated the highest possible scores – 10 out of 10 – across all these indicators.

One of the most illustrative examples of agribusiness digital transformation in Ukraine is the innovative development strategy of MHP, which is based on the creation of an integrated digital ecosystem of marketing and service tools that goes beyond the traditional activities of an agricultural enterprise. Within this paradigm, MHP actively integrates innovative digital solutions into its business model, aiming not only to optimize production but also to enhance marketing efficiency, personalize communication, and expand interaction channels with customers and partners. Such initiatives include the MHP Innovation Lab program, designed to generate new digital services and business models adapted to modern consumer demands and to build digital marketing chains based on innovative partnerships. Another example is Smart Technology Assistant (Smart TA) – an artificial intelligence solution that provides automated monitoring and regulation of key production factors and supports the creation of transparent, data-driven marketing messages highlighting product origin, environmental sustainability, and safety – aspects particularly valued by conscious consumers (Artificial Intelligence for Poultry and Grain Farming).

LNZ Group LLC is also actively building a digital marketing ecosystem, combining innovative

Table 1

Components of the digital marketing ecosystem of agricultural enterprises

Types of Digitalization and Marketing	Functional Purpose	Digital Marketing Tools	Examples of Companies
Reliable Online Presence	Creation of an official website, search engine optimization (SEO), and generation of organic traffic	WordPress, Wix, Google Search Console, SEO	MHP – corporate website with an investor relations section; Kernel-Trade LLC – website with integrated product pricing.
Content Marketing	Articles, blogs, videos, and analytics aimed at enhancing expertise	YouTube, Media (Latifundist Media), corporate blogs	MHP, LNZ Group LLC – educational videos on seeds and technologies; Astarta-Kyiv – sustainability reports.
Social Media	Communication with target audiences, branding, and promotion	Facebook, Instagram, LinkedIn, TikTok, Threads, influencer networks	Kernel-Trade LLC, MHP, Nibulon LLC, LNZ LLC, and all major agroholdings; medium and small agricultural companies.
Targeted Advertising	Interest-based advertising, geo-targeting, and remarketing	Meta Ads (Facebook/Instagram), Google Ads, LinkedIn Ads	MHP – recruitment campaigns; Kernel-Trade LLC, Astarta-Kyiv – targeted advertising initiatives; small farmers – local advertising of seasonal sales.
Direct Marketing	Communication with partners, investors, and consumers; personalized campaigns and trigger-based messaging	email newsletters, SendPulse, e-commerce; internet marketing; vlogging; web personalization; email newsletters; SMS and messenger newsletters	Agroholdings – investor newsletters and client base segmentation; small agricultural companies – mailings about discounts and seasonal offers.
Marketplace Marketing	Direct product sales through online platforms	Prom.ua, Rozetka, Amazon (for export)	Small and medium-sized agricultural enterprises of Ukraine.
CRM Marketing and Big Data Analytics	Customer data management, buyer behavior analysis, and enhanced opportunities for audience segmentation and personalization	AgroPlanner, Creatio, Google Analytics	LNZ Group – CRM systems for agronomist-consultants; medium-sized agricultural companies – partial use of CRM solutions.
Digital Agricultural Technologies (AgTech)	Soil condition data, yield forecasting, and cost optimization	Positioning systems (GNSS/GPS), DJI drones, Cropio, the FERM agri-platform, Cropwise, and Diia.City United – technologies enabling precision farming, remote field monitoring, and data-driven decision-making.	Agroholdings – integration of satellite imagery and drone technologies into production processes; small and medium-sized enterprises – partial adoption of OneSoil mobile applications for precision farming.
Online Events and Webinars	Platforms for education, demonstration of technological solutions, and business-to-business presentations facilitating knowledge exchange and stakeholder engagement	Zoom, YouTube Live	Corteva Agriscience – online farmer training; Syngenta Training Center (Syngenta Ukraine) – educational programs and digital training sessions.

Sourse: (MHP; Kernel. 30 years driving arribusiness every day; Digital Tools and Artificial Intelligence as Real Levers of Transformation Ensuring Sustainable Development of the Ukrainian Agricultural Sector)

agricultural technologies with modern communication and brand promotion tools. Based on its scientific and technological department, the company implements targeted digital solutions to support partner brands and provide agricultural consulting. As part of its marketing strategy, the company annually organizes the LNZ Hub technology platform, which serves as an interactive venue for product demonstrations, visualization of agricultural innovations, and digital communication with farmers, landowners, and investors (LNZ Hub 8.0: Focus on the Adaptability of Agronomic Solutions and Stress-Testing of Cultivation Technologies).

In the context of ongoing military operations in Ukraine, these companies have accelerated the adoption of digital solutions that ensure business continuity, remote monitoring of production, and flexible logistics management. Their digital strategies also prioritize transparency and trust-building, which are critical for maintaining export partnerships and attracting international investment under conditions of heightened risk and market volatility.

The experience of Kernel-Trade LLC demonstrates that the successful positioning of an agricultural enterprise and its digital transformation rely on the

development of a comprehensive IT infrastructure that integrates all business processes – from raw material cultivation to the sale of finished products. The company's #DigitalAgriBusiness ecosystem is an example of a digital platform that combines Big Data, artificial intelligence, Power BI dashboards, RTK networks, GIS portals, mobile applications, and automated logistics solutions. This platform enables real-time crop monitoring, resource accounting, yield forecasting, and supports informed management and marketing decision-making (Osypov, Holovin, 2021). Thanks to this integrated model, a fully-fledged digital marketing ecosystem is formed, allowing agricultural enterprises not only to optimize production and logistics but also to systematically engage customers, build brand transparency, and strengthen competitiveness in domestic and international markets.

The results of the conducted study demonstrated the active use of the entire set of digital technologies, including digital marketing tools, in the operations of agricultural enterprises. Large agroholdings are the most active users of the full spectrum of digital technologies and marketing instruments, implementing:

– SMM and content marketing – regular publications on Facebook, Instagram, LinkedIn, and YouTube using videos, infographics, and interactive formats;
– Targeted advertising – campaigns with geotargeting, remarketing, and personalized offers for farmers and distributors;
– Email marketing and CRM integration – segmented newsletters for investors, partners, and B2B clients;
– Analytical dashboards (Agri-Dashboard) – integration of marketing and production data for rapid decision-making;
– Virtual tours and video presentations – enhancing operational transparency, building trust, and attracting investors (Ranking of the Best Agricultural Holdings in Ukraine by the Ukrainian Business Award).

The higher intensity of digital activity among large agroholdings is naturally explained by their significantly stronger financial potential, which enables investments in comprehensive CRM systems, marketing automation platforms, advanced SEO strategies, integrated analytical dashboards, and large-scale SMM campaigns. The presence of specialized structural units for marketing, communications, and IT support allows agroholdings to build integrated omnichannel strategies, perform deep segmentation of target audiences, and systematically track key performance indicators of marketing activities.

Since such companies operate with broad portfolios of clients and counterparties, participate in international markets, and attract external investments, maintaining high brand recognition and reputational appeal is of strategic importance to them. Digital transformation is regarded by these holdings as a key factor in enhancing competitiveness: significant resources are directed toward the implementation of artificial intelligence technologies, big data analytics, and automated marketing solutions. In addition, their status as publicly traded companies necessitates compliance with principles of transparency and regular investor reporting, which drives active communication through social networks, corporate web resources, and personalized email campaigns.

It should be noted that the results of expert interviews conducted and analyzed by the authors are consistent with the findings of the large-scale industry study *Digital Agro of Ukraine* and the Ukrainian Business Award. The goal of the *Digital Agro of Ukraine* project was to identify the most common and actively implemented digital technologies in the domestic agricultural sector. The study included 50 leading agricultural enterprises and 2,800 anonymous respondents from all regions of Ukraine. Detailed questionnaires were collected from companies representing all agribusiness segments – from micro-, small-, and medium-sized farms to large agroholdings. Most of the surveyed enterprises specialize in traditional crop rotations, particularly sunflower, corn, winter wheat, soybeans, and rapeseed (Digital Agro of Ukraine: How the Latest Technologies Are Applied in Agriculture; Aggeek Presented the Study "Digital Agro 2024": A New Perspective on the Digitalization of Agribusiness).

The analysis of the level of digital presence of small agricultural enterprises indicates the existence of a significant digital divide between them and large agroholdings. This gap is caused by several factors, including limited financial resources, lack of qualified marketers and IT specialists, fragmented knowledge of modern digital tools, and insufficient strategic vision regarding the long-term benefits of their implementation. Small agricultural companies mainly use free or basic solutions such as social networks without targeting capabilities, simple website builders, or non-personalized newsletters, which reduces the effectiveness of their communication with the target audience. Their marketing activity is often focused on short-term sales, without systematic brand-building and consumer loyalty development, which is largely due to the owners' combination of managerial and production functions and the limited time they can dedicate to strategic planning.

Under these conditions, there is a growing need to create accessible educational, technological, and financial solutions that would enable small agribusinesses to move from fragmented digital initiatives to the comprehensive development of their own digital marketing ecosystem. A promising direction includes the introduction of digital literacy programs, grant and microfinance tools for creating professional websites, launching CRM solutions, and targeted advertising campaigns. Additionally, the development

of agricultural clusters and hubs is crucial, as they provide shared access to technological platforms and disseminate best practices of digital transformation. The comprehensive implementation of these measures will help reduce the digital divide, improve the competitiveness of small producers, expand their presence in domestic and foreign markets, and foster the creation of a sustainable digital marketing ecosystem in agribusiness.

At present, new institutional and financial mechanisms are emerging to stimulate the digital transformation of small agricultural enterprises. Particular attention should be given to farms that lack an established credit history with banking institutions, as they face the greatest barriers to financing innovative projects. The modern financial services market offers specialized tools that facilitate the funding of both production and digital transformation processes. A striking example is the WEAGRO project, implemented with the support of USAID AGRO, which provides small farms with rapid agricultural installment plans to cover the costs of modernizing their technological base and implementing digital solutions.

In parallel with financial tools, programs aimed at directly providing technological resources are also being developed. For instance, agricultural producers can join the Digital4UA Program, which offers free FieldView YieldKit equipment and access to the Climate FieldView™ digital farming platform by Bayer. This tool is integrated with the State Agrarian Registry (DAR), which increases process transparency, simplifies participant identification, and enables the accumulation of agricultural data for further analysis *(Digital Agro of Ukraine: How the Latest Technologies Are Applied in Agriculture)*.

Such initiatives can become a catalyst for overcoming the barriers to digitalization faced by small and medium-sized agricultural enterprises by financing key areas: the implementation of simple and economically viable CRM solutions for customer base management, the creation of professional websites with integrated analytics and online ordering systems, as well as the launch of targeted advertising campaigns that help small producers enter local and international markets.

5. Formation of the Conceptual Model of the Digital Marketing Ecosystem

To integrate small and medium-sized agricultural enterprises into the digital space, a conceptual model of the digital marketing ecosystem is proposed. It is oriented toward the creation of a unified, integrated environment that combines technological solutions, communication channels, information flows, and stakeholder coordination mechanisms (Fig. 1).

In the conceptual model, the core element is the digital platform, which integrates CRM systems, marketing automation tools, content marketing and e-commerce platforms (email, SMM, targeting, advertising, AI), analytical modules (Big Data, Google Analytics), and integrated dashboards. Access to this platform enables agricultural enterprises to conduct targeted advertising campaigns, personalize consumer offers, assess the effectiveness of marketing strategies, and optimize logistics and sales processes based on data-driven insights.

The formation of a digital marketing ecosystem for agribusiness is significantly influenced by key institutional stakeholders. Government and regional authorities, as well as local self-government bodies, shape the regulatory and institutional framework that defines the conditions for the functioning of the digital economy. Their roles include designing digitalization programs for the agricultural sector, providing regulatory support for e-commerce and data protection, funding the development of digital infrastructure, and encouraging participation in grants and partnership initiatives. Under martial law in Ukraine, these institutions additionally perform crisis management functions by facilitating the relocation of enterprises from conflict zones, providing incentives for restoring production capacities, and accelerating access to compensation programs and export permits – measures crucial for maintaining the economic activity of the sector.

Producer associations and unions serve as platforms for collective interests, fostering experience exchange among market participants, lobbying for producers in government bodies, and creating joint marketing platforms for product promotion, while simultaneously improving digital literacy through educational initiatives.

Financial institutions provide access to credit, microfinance, and leasing solutions, design specialized financial products to support digitalization, and implement fintech services and integration tools that help automate business processes.

Scientific and educational institutions generate knowledge about modern digital technologies, develop methodologies and models for digital marketing, train qualified specialists, and facilitate the transfer of technologies into practice. The synergy of these institutions should be directed toward providing comprehensive support to agricultural enterprises, fostering the development of an integrated digital space that ensures transparency, competitiveness, and sustainable growth in the agricultural sector.

The digital marketing ecosystem implies multi-level interaction among participants, including:

– Agricultural companies – small and medium-sized enterprises, farms, and craft product producers;

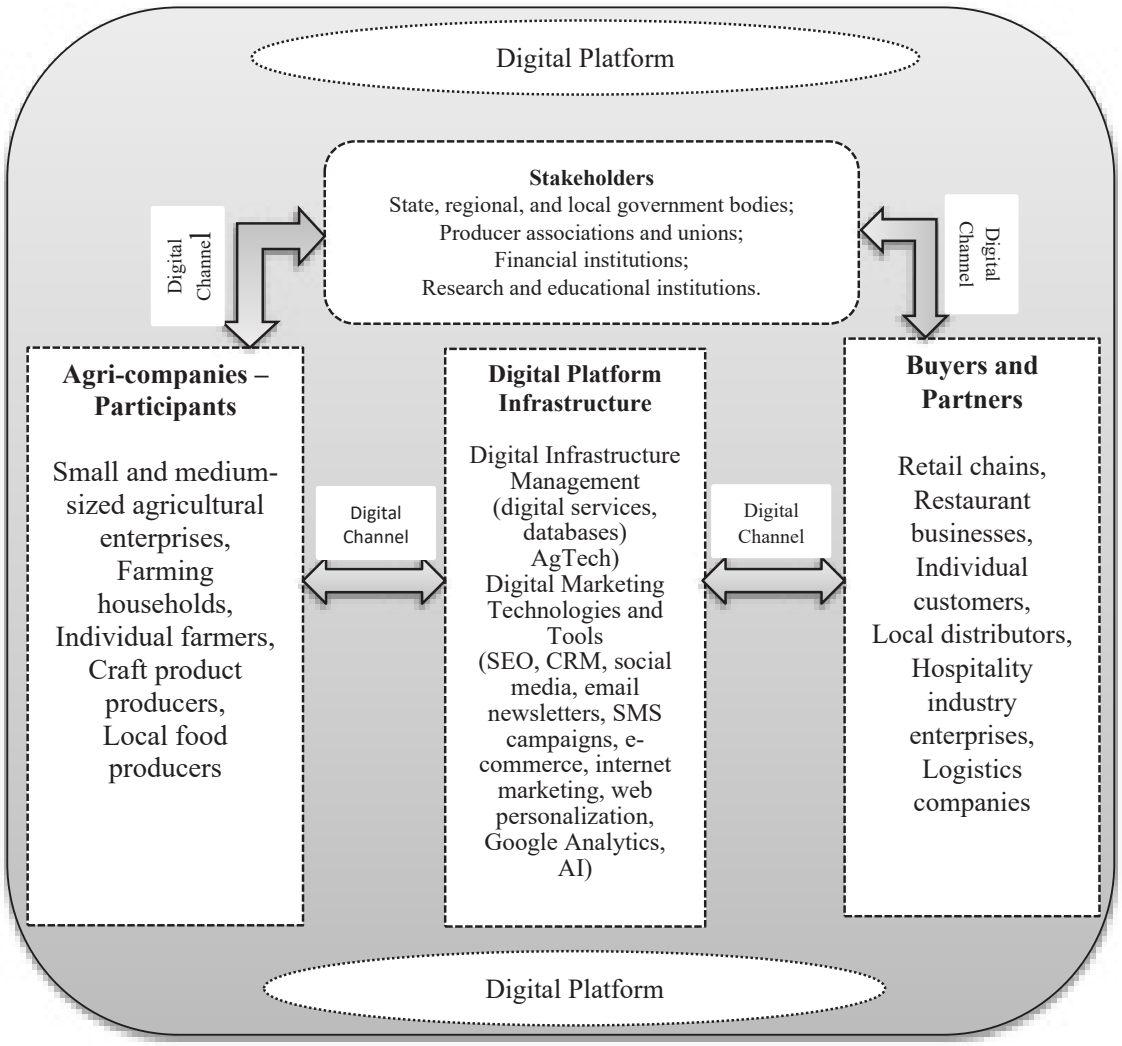

Figure 1. Conceptual Model of the Digital Marketing Ecosystem for SMEs in Agribusiness

– Stakeholders – government and regional authorities, agricultural producer associations, business unions, research institutions, and agricultural universities that create a favorable environment for business development;
– Buyers and partners – retail chains, restaurant and hospitality businesses, individual consumers, resource suppliers, and logistics companies that gain access to data and analytics for transparent collaboration.

Participation in such an ecosystem allows small and medium-sized agricultural enterprises to overcome digitalization barriers, reduce transaction costs, expand sales markets, and increase their competitiveness.

6. Conclusions

Thus, the proposed conceptual model of the digital marketing ecosystem is considered not merely as a collection of promotional tools, but as an institutionally and technologically integrated system designed to support the digital transformation of the agricultural sector, build long-term relationships with key stakeholders, and ensure sustainable business development within the digital economy. Its implementation contributes to bridging the digital divide between small and medium-sized agricultural enterprises and large agribusiness holdings by providing equal access to modern technologies, knowledge, and innovative management practices without the need for substantial investments in developing proprietary systems. Expanding sales channels through marketplaces, electronic platforms, and international trading networks strengthens the competitive position of small producers and reduces their dependence on intermediaries. In addition, the functioning of a unified digital platform improves business process transparency and the quality of managerial decision-making through systematic collection, analysis, and visualization of agricultural data, thereby reducing transaction costs, optimizing logistics, and rationalizing resource allocation to ensure long-term economic resilience.

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