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MARKETING LOGISTICS AS A DETERMINANT OF CUSTOMER LOYALTY IN THE CONTEXT OF DIGITAL TRANSFORMATION AND SUSTAINABLE ECONOMIC DEVELOPMENT

Iryna Suvorova, Oksana Pozniak, Viktor Sibruk. «Marketing logistics as a determinant of customer loyalty in the context of digital transformation and sustainable economic development». The article presents a comprehensive theoretical and conceptual analysis of marketing logistics as a key determinant of customer loyalty formation, maintenance, and strengthening in the context of the accelerated digital transformation of the economy and the strengthening of the global paradigm of sustainable development. The study argues that traditional operational approaches to logistics no longer provide sustainable competitive advantages in the e-commerce environment, where customer experience is becoming a determining factor in brand choice, repeat purchases, and recommendations. In the context of the introduction of artificial intelligence, the Internet of Things (IoT), big data analytics, and blockchain technologies, marketing logistics is transforming from a supporting function of the supply chain into a strategic



tool for creating a unique customer experience at the last-mile delivery stage. It is the integration of logistics processes with marketing strategies that enables delivery to become a powerful channel for building emotional attachment, customer retention, and long-term customer value. The scientific novelty of the work lies in the development and theoretical justification of an innovative extended cyclical sustainable model of marketing logistics based on artificial intelligence. The model systematically combines digital technologies, sustainable development principles, and customer-oriented marketing mechanisms. It is structured as an eight-stage continuous cycle: data analysis and demand forecasting → personalization of logistics options → integration of green practices → digital transparency and proactive communication → ethical integration → scaling of solutions → monitoring and evaluation of loyalty → iteration and correction. The practical significance of the model lies in its high adaptability to the conditions of Ukrainian enterprises, where the implementation of a sustainable marketing logistics model based on artificial intelligence makes it possible to simultaneously: significantly increase customer loyalty and repeat purchases, reduce operating costs by optimizing processes, reduce environmental impact, and strengthen competitive positions in conditions of geopolitical instability, growing consumer environmental awareness, and limited resources. The model can serve as a methodological basis for the development of modern marketing logistics strategies focused on long-term customer value and responsible business.

Keywords: marketing, logistics, customer loyalty, customer experience, digital transformation, sustainable development, marketing logistics model

Ірина Суворова, Оксана Позняк, Віктор Сібрук «Маркетингова логістика як детермінанта клієнтської лояльності в умовах цифрової трансформації та сталого розвитку економіки». Стаття присвячена комплексному теоретичному та концептуальному аналізу маркетингової логістики як ключової детермінанти формування, підтримки та посилення клієнтської лояльності в умовах прискореної цифрової трансформації економіки та посилення глобальної парадигми сталого розвитку. Дослідження обґрунтовує, що традиційні операційні підходи до логістики вже не забезпечують стійких конкурентних переваг у середовищі електронної комерції, де досвід клієнтів стає визначальним фактором вибору бренду, повторних покупок і рекомендацій. У контексті впровадження технологій штучного інтелекту, Інтернету речей, аналітики великих даних, технологій блокчейн, маркетингова логістика трансформується з допоміжної функції ланцюга постачань у стратегічний інструмент створення унікального клієнтського досвіду на етапі доставки «останньої милі». Саме інтеграція логістичних процесів із маркетинговими стратегіями дозволяє перетворювати доставку на потужний канал формування емоційної прив'язаності, рівня утримання клієнтів та довгострокової цінності клієнта. Наукова новизна роботи полягає в розробці та теоретичному обґрунтуванні інноваційної розширеної циклічної сталої моделі маркетингової логістики на основі штучного інтелекту. Модель системно поєднує цифрові технології, принципи сталого розвитку та клієнтоорієнтовані маркетингові механізми. Вона структурована як восьмиетапний безперервний цикл: аналіз даних і прогнозування попиту → персоналізація логістичних опцій → інтеграція зелених практик → цифрова прозорість і проактивна комунікація → етична інтеграція → масштабування рішень → моніторинг та оцінка лояльності → ітерація та корекція. Практична значущість моделі полягає в її високій адаптивності до умов українських підприємств, де впровадження сталої моделі маркетингової логістики на основі штучного інтелекту дає змогу одночасно: суттєво підвищувати клієнтську лояльність і рівень повторних покупок, знижувати операційні витрати за рахунок оптимізації процесів, зменшувати екологічний вплив та посилювати конкурентні позиції в умовах геополітичної нестабільності, зростання споживчої екологічної свідомості та обмежених ресурсів. Модель може слугувати

методологічною основою для розробки сучасних стратегій маркетингової логістики, орієнтованих на довгострокову клієнтську цінність і відповідальний бізнес.

Ключові слова: маркетинг, логістика, клієнтська лояльність, клієнтський досвід, цифрова трансформація, сталий розвиток, модель маркетингової логістики

Introduction. In today's economy, which is undergoing rapid digital transformation and increasing demands for sustainable development, marketing logistics is significantly changing its role. It is no longer just a supporting operational function in the supply chain, but has become a key strategic factor that determines a company's competitiveness and ability to build long-term customer loyalty.

Digital transformation, based on the introduction of artificial intelligence, the Internet of Things, big data analytics and blockchain technologies, is radically changing customer interactions. Logistics processes are no longer limited to the technical support of deliveries — they are becoming a central element of the customer experience. It is during delivery that consumers finally evaluate the value promised by the brand, which directly affects their perception of the brand, level of trust, and emotional attachment.

At the same time, the rapid growth of e-commerce both in Ukraine and worldwide is placing new, stricter demands on marketing logistics: customers expect a high level of personalization, complete transparency at all stages, guaranteed speed and reliability of delivery, as well as compliance with sustainability principles. Traditional logistics models that do not integrate these aspects with marketing strategies lead to lower customer retention, weakened trust and reduced long-term customer value.

Therefore, the relevance of the study lies in the need for a new conceptual approach to marketing logistics. It should be viewed as an integrated system that comprehensively combines modern digital technologies, sustainable development principles, and customer-oriented practices. This approach makes it possible to systematically increase

customer loyalty, ensure a higher level of customer retention and form sustainable competitive advantages for enterprises in the era of digitalization and responsible economic development.

Analysis of the latest research and publications. The issue of marketing logistics as a factor in customer loyalty is actively researched in contemporary scientific literature, particularly in the context of digital transformation, the integration of marketing with logistics, and the principles of sustainable development. Ukrainian scientists focus on local characteristics and practical aspects of adapting marketing logistics in a transitional economy and martial law: Fedotova I. and co-authors interpret marketing logistics as an integrated enterprise management system that ensures the formation of competitive advantages [1]. Bortnik A. and Milcheva V. study the integration of marketing and logistics in modern business processes with a focus on customer orientation [2]. Zharska I.O. analyses current trends in sustainable development logistics, in particular environmental aspects [3]. Kharchenko T. and Sagaydak Yu. assess the prospects for the development of green logistics in Ukraine with an emphasis on ethical practices [4]. Parsyak V.N. and Zhukova O.Yu. substantiate modern trends and useful experience in the organization of marketing logistics [5]. Tiazhun E. examines the integrative interaction between marketing and logistics, emphasizing digitalization trends [6]. Vasylytsova S. and Hasiuk M. study the impact of marketing logistics on the formation of an enterprise's pricing policy in conditions of martial law [7].

In addition, some works are devoted directly to customer loyalty as an object of marketing management: Makarova V. and Nechiporenko V. analyses customer loyalty as

a key object of marketing management [8]. Shevchenko V.M., Mishustina T.S., and Bondarenko A.A. study consumer preferences and loyalty as a tool for achieving the company's marketing goals [9]. Oliver's loyalty model remains the classic theoretical basis, which identifies four stages and is widely used to explain the formation of loyalty in the context of customer experience [10].

A review of the scientific literature shows that individual aspects are actively considered in research: the integration of marketing and logistics, digital transformation, green logistics, the impact of martial law on pricing and logistics decisions. At the same time, comprehensive models that systematically combine marketing logistics, customer loyalty, modern digital technologies, and sustainable development principles into a single cyclical conceptual model with an emphasis on last-mile delivery and customer experience remain underdeveloped, especially in the context of countries with transitional economies such as Ukraine.

Objectives statement. The purpose of the article is to provide scientific justification

for the transformation of marketing logistics from a supporting operational function to a key strategic determinant of customer loyalty in the context of digital transformation and sustainable economic development, as well as to develop and theoretically substantiate an innovative, expanded conceptual sustainable model of marketing logistics based on artificial intelligence, which comprehensively integrates digital technologies, sustainable development principles and customer-oriented marketing mechanisms to systematically increase customer loyalty, retain the customer base and form long-term competitive advantages for enterprises.

Basic material and results. Marketing logistics is the integration of logistics processes and marketing strategies of an enterprise with the aim of creating added value for the customer, increasing their satisfaction and loyalty, and strengthening the company's competitive advantages [1,2,5,6]. The main differences between logistics and marketing logistics are presented in Table 1.

Table 1. Differences between logistics and marketing logistics

Aspect	Logistics	Marketing logistics
Main objective	Minimize costs, ensure availability	Create a positive customer experience, increase loyalty
Focus	Efficiency, speed, reliability	Customer experience, personalization, emotions
Key KPI	Delivery cost, percentage of on-time deliveries	retention rate, repeat purchase rate
Approach to the customer	Standardized	Individualized, personalized

Source: compiled by the authors

Marketing logistics transforms delivery from an operational expense into a strategic marketing asset. It turns a standard transaction of delivering goods into a positive experience that promotes loyalty, repeat purchases, and organic brand awareness [2,5,8]. In today's environment, companies that ignore the integration of logistics into their marketing strategy risk losing their customer base to competitors who

systematically use logistics processes as an element of the brand experience [1,6].

Marketing logistics is the integration of logistics processes into a company's marketing management system, aimed at building and strengthening customer loyalty by optimizing the customer experience during delivery and after-sales service. In the current environment of e-commerce development and growing consumer

demands for convenience, transparency and business accountability, marketing logistics is becoming a key tool for differentiation and

competitiveness [3,4,7]. The main elements of marketing logistics are presented in Fig. 2.



Figure 1 – Key elements of marketing logistics

Source: [2-6]

The main elements of marketing logistics include:

- *Personalized delivery.* Giving customers the opportunity to independently determine delivery parameters, including the exact time interval, delivery point, delivery method, environmentally friendly options, and additional attributes such as packaging type or colour. This approach helps to increase the perception of the individual value of the service and form emotional attachment to the brand.

- *Transparency and proactive communication.* Providing continuous real-time tracking of order status, automatic informative notifications about the stages of goods movement, and the use of AI-based chatbots to quickly resolve queries and issues. Proactive communication reduces customer uncertainty and prevents negative emotions associated with delays [6].

- *Integration of logistics with marketing tools.* Transformation of the delivery process into a component of the customer journey: introduction of incentives, such as discounts for choosing 'slow' but environmentally friendly delivery, inclusion of branded gifts in the parcel, conducting satisfaction surveys immediately after delivery. Such integration

allows you to turn operational interaction into a marketing event that encourages repeat purchases and recommendations [2,5].

- *Consistency and ethics of logistics processes.* The use of environmentally friendly solutions - electric or low-carbon transport, biodegradable and minimalist packaging, cooperation with local suppliers to reduce the transport footprint. These practices are positioned as marketing arguments that correspond to consumers' growing values regarding social and environmental responsibility [3,4].

- *Optimization of the 'last mile' with a focus on marketing.* Use of artificial intelligence algorithms for demand forecasting, dynamic routing, and generation of personalized offers. Optimization is aimed not only at reducing costs, but also at improving the quality of the customer experience, which directly affects customer loyalty and long-term value [6].

Marketing logistics is defined as the systematic integration of logistics processes with marketing strategies to create value for the customer and strengthen loyalty. In today's environment, it is being transformed by digital transformation and sustainable development, evolving from an operational

function to a strategic asset. Digital transformation, in particular the introduction of AI and IoT, enables automated demand forecasting, route optimization and real-time tracking, which improves efficiency and customer experience.

Customer loyalty in the context of marketing logistics is defined as a complex behavioral, affective and cognitive attachment of the consumer to the brand, manifested in repeat purchases, willingness to recommend the company and resistance to competitive offers, and is largely shaped by the quality and value of the logistics experience [8,9]. Oliver's classic loyalty model identifies four consecutive stages: cognitive (belief in advantages), affective (emotional attachment), conative (intention to repurchase) and active (actual behavior). In marketing logistics, it is the behavioral stage that is most dependent on the physical and emotional experience of delivery, making it a key channel for the transition from intention to actual loyalty [10].

Based on a synthesis of contemporary theoretical approaches and empirical generalizations, we can identify the key determinants of customer loyalty that are directly shaped and controlled by marketing logistics:

- Speed and reliability of delivery are the most powerful predictors of cognitive and behavioral loyalty. Critical parameters include same-day or next-day delivery, as well as high accuracy in meeting time intervals [2,6].

- Personalization of the logistics experience significantly affects the cognitive

and affective components of loyalty. Customers are given the opportunity to choose their own delivery time slot, delivery method, packaging type, and environmentally friendly options [5].

- Transparency and proactive communication reduce perceived risk and significantly increase trust. Key tools include a real-time system, automatic order status notifications at all stages, and technologies that ensure full traceability, particularly those based on blockchain [6].

- Environmental and ethical responsibility in logistics is having an increasingly strong impact on the loyalty of conscious consumers. Important elements include the introduction of 'green' delivery, the use of biodegradable or reusable packaging, reducing the carbon footprint of the supply chain, and adhering to the principles of ethical trade [3,4].

- Quality of feedback and effectiveness of problem solving - plays a decisive role in restoring trust after service failure. Quick response to deviations (delays, damage), adequate compensation, personalized apologies, and preventive measures to avoid repeating mistakes directly contribute to the transition from a negative experience to maintaining or even strengthening loyalty [8,9].

The algorithm for building customer loyalty through marketing logistics is shown in Fig. 2. The proposed algorithm is a systematic, cyclical process aimed at the consistent formation, maintenance, and strengthening of customer loyalty using marketing logistics tools.

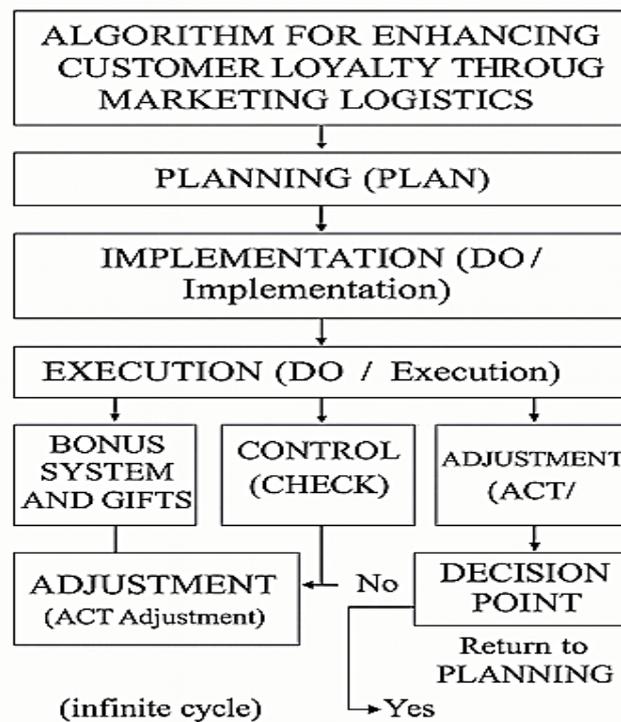


Figure 2 – Algorithm for building customer loyalty through marketing logistics.

Source: Compiled by the authors

The algorithm structure consists of:

- Identifying target customer segments, analyzing their expectations regarding logistics experience, setting specific KPI, developing a strategy for bonuses, compensation and communication scenarios.
- Implementation of planned logistics solutions: infrastructure configuration, integration of digital tracking and personalization tools, launch of logistics-related loyalty programmes (bonuses for choosing green delivery, flexible slots, etc.).
- Direct customer order fulfilment using three parallel modules: bonus and gift system (increasing the value of the experience); control and monitoring of deviations; prompt correction in case of problems.
- Collection of data on actual performance, analysis of deviations from planned values, assessment of the impact on different types of loyalty.
- Decision-making based on the 'sufficient/insufficient' principle. If target loyalty levels are achieved → transition to a new planning cycle with more ambitious

goals. If the indicators are unsatisfactory → immediate implementation of corrective measures and return to the planning stage.

The algorithm functions as a continuous cycle, ensuring the gradual accumulation of loyalty and adaptation to changes in customer behavior, technological capabilities and sustainability requirements [1,6].

This approach allows marketing logistics to be viewed not as a support function, but as a strategic lever for building a sustainable competitive advantage through customer loyalty.

In today's economy, characterized by rapid digitalization, increased competition in e-commerce and growing demands for environmental responsibility, traditional approaches to marketing logistics no longer provide a sufficient level of competitiveness and customer retention [7]. That is why there is an urgent need to develop and implement innovative conceptual models that comprehensively combine digital technologies, sustainable development principles, and customer loyalty mechanisms.

Our proposed Sustainable AI-Driven Marketing Logistics Model is an advanced conceptual approach that integrates artificial intelligence (AI) as a central optimization tool,

sustainable development principles, and marketing strategies aimed at systematically increasing customer loyalty.



Figure 3 – Sustainable AI-Driven Marketing Logistics Model
Compiled by the authors

The relevance of the model is determined by several key trends in the modern market, namely:

- Accelerated digital transformation of logistics makes AI an integral part of demand forecasting, route optimization, delivery personalization, and ensuring real-time process transparency. Without AI integration, companies lose the ability to respond quickly to individual customer requests and offer competitive advantages in speed, accuracy, and convenience.

- The strengthening of sustainable development imperatives is transforming the environmental responsibility of logistics from an additional option to a mandatory factor in brand selection.

- The growing role of customer experience as the main driver of loyalty.

The novelty and advantages of the proposed model lie in its cyclical, continuous nature, where each stage of the model takes into account both tangible and intangible factors.

The model functions as a closed cycle of continuous improvement: data → forecasting → personalization and green integration → transparency and ethics → scaling → loyalty monitoring → correction → return to planning. This approach not only optimizes operational efficiency and reduces environmental impact, but also systematically builds customer loyalty, increases customer lifetime value, and creates sustainable competitive advantages.

Therefore, the development and implementation of the Sustainable AI-Driven Marketing Logistics Model is a relevant and necessary response to the challenges of the modern economy, where marketing logistics is becoming a strategic tool for combining digital efficiency, environmental responsibility, and a deeply customer-centric approach.

Conclusions. In today's environment of digital transformation and sustainable development, marketing logistics is becoming a strategic tool for building

customer loyalty, where the key determinants are speed and reliability of delivery, personalization, transparency, proactive communication, environmental responsibility and effective problem solving. Traditional approaches no longer meet customer expectations, which reduces retention, trust, and customer lifetime value. The proposed Sustainable AI-Driven Marketing Logistics

Model provides a systematic increase in loyalty and enhances the competitiveness of enterprises in conditions of uncertainty. Its cyclical nature allows for continuous improvement of processes, adaptation to change, and accumulation of trust and brand reputation, making marketing logistics a powerful strategic asset of the digital age.

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