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**SAIUN Alla**

Associate Professor,  
PhD in Economics  
Nederlandse Business School  
**ORCID ID:** 0000-0001-5627-3153  
**Email:** [allasaiun13@gmail.com](mailto:allasaiun13@gmail.com)

# THE GLOBAL DIGITAL PAYMENTS MARKET IN THE E-COMMERCE SEGMENT: STRUCTURAL-DYNAMIC ANALYSIS FOR 2018–2030 AND THE TRANSFORMATION OF DOMINANT PAYMENT INSTRUMENTS

**Abstract**

The article presents the results of a comprehensive structural-dynamic analysis of the global digital payments market in the e-commerce segment (Digital Commerce Payments) for the period 2018–2030, based on data from the Statista Market Insights analytical platform. The research methodology encompasses descriptive statistics, longitudinal time series analysis, compound annual growth rate (CAGR) calculation, and structural analysis of dominant payment instruments. It is established that the total volume of global transactions in the digital commerce payments segment increased from USD 2.79 trillion in 2018 to USD 6.62 trillion in 2024 – a 2.37-fold increase – with the projected value for 2030 reaching USD 13.51 trillion, corresponding to a cumulative 4.84-fold growth over the 13-year period. The average CAGR for the entire study period stands at 13.9% – an extraordinarily high figure, exceeding global economic growth by 4–5 times. The COVID-19 pandemic served as a pivotal catalyst for accelerated digital payment adoption, triggering a 23.35% surge in transaction volume in 2021 – the highest annual growth rate over the entire study period. The user base of digital payment services expanded from 1.41 billion in 2018 to 3.08 billion in 2024 and is projected to reach 4.63 billion by 2030, while the global penetration rate rose from 19.09% to a projected 57.5%. Structural analysis of payment methods reveals the unequivocal dominance of digital wallets, whose share reached 52.0% in 2024, with a continued upward trajectory at the expense of traditional card instruments. Based on the findings, practical recommendations are formulated for market participants, regulators, and researchers.

**Keywords:** digital payments, e-commerce, digital commerce, digital wallets, fintech, CAGR, penetration rate, global market, Statista, payment instruments.

**JEL Classification:** G23, L81, O33, E42

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**САЮН Алла**

доцент, кандидат економічних наук

Nederlandse Business School

**ORCID ID:** 0000-0001-5627-

3153

**Email:** [allasaiun13@gmail.com](mailto:allasaiun13@gmail.com)

# ГЛОБАЛЬНИЙ РИНОК ЦИФРОВИХ ПЛАТЕЖІВ У СЕГМЕНТІ ЕЛЕКТРОННОЇ КОМЕРЦІЇ: СТРУКТУРНО-ДИНАМІЧНИЙ АНАЛІЗ 2018–2030 РОКІВ ТА ТРАНСФОРМАЦІЯ ДОМІНУЮЧИХ ПЛАТІЖНИХ ІНСТРУМЕНТІВ

## Анотація

У статті представлено результати комплексного структурно-динамічного аналізу глобального ринку цифрових платежів у сегменті електронної комерції (Digital Commerce Payments) за період 2018–2030 років на основі даних аналітичної платформи Statista Market Insights. Методологія дослідження включає методи дескриптивної статистики, longitudinal-аналізу часових рядів, розрахунку CAGR та структурного аналізу домінуючих платіжних інструментів. Встановлено, що сукупний обсяг транзакцій зріс з 2,79 трлн USD у 2018 р. до 6,62 трлн у 2024 р. (2,37 рази), а прогнозне значення на 2030 р. – 13,51 трлн USD (кумулятивне зростання 4,84 рази). Структурний аналіз виявив абсолютну домінацію digital wallets у 2024 р. (52,0%). Сформульовано практичні рекомендації для учасників ринку.

**Ключові слова:** цифрові платежі, електронна комерція, digital commerce, digital wallets, fintech, CAGR, penetration rate, глобальний ринок, Statista, платіжні інструменти.

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## Introduction

Digital payments have become one of the key structural elements of the modern global economy, fundamentally changing how commercial transactions are conducted between consumers, businesses, and governments. In the early 2000s, online payments were a niche instrument, available primarily in developed countries and limited in functional repertoire – mainly credit cards for online purchases. Today they have formed a multi-layered ecosystem of diverse instruments: card systems (debit, credit, prepaid), digital wallets (Apple Pay, Google Pay, WeChat Pay, Alipay, PayPal), account-to-account payments (including SWIFT transfers, SEPA Instant Payments, open banking systems), and innovative blockchain-based solutions (stablecoins, central bank digital currencies).

The global digital payments market in the e-commerce segment (Digital Commerce Payments), as defined by Statista Market Insights, encompasses all online transactions conducted by end consumers (person-to-business) in the context of purchasing physical goods and services through digital channels: websites, mobile applications, chatbots, and social networks. The market volume in 2024 exceeded USD 6.6 trillion –

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a figure roughly equivalent to the combined nominal GDP of France, the United Kingdom, and Italy. The projected value for 2030 – over USD 13.5 trillion – will surpass China's nominal GDP as of 2024. Such scale makes the digital payments market a strategically critical component of the global financial system for a wide range of stakeholders.

Despite the significance of this market, academic literature lacks systematic longitudinal studies that combine analysis of transaction volume dynamics, user base, and structural changes in payment methods based on extended time series. This gap is precisely what the present study addresses. The most significant structural phenomenon requiring detailed analysis is the rapid expansion of digital wallets as the dominant payment instrument. This trend is fundamentally reshaping the traditional architecture of global payment systems, creating new strategic challenges and opportunities for banks, fintech companies, retailers, and regulators.

The relevance of the study is reinforced by the fact that the digital payments market is undergoing constant transformation under several parallel megatrends. The COVID-19 pandemic sharply accelerated the adoption of cashless payments across all demographic groups. The growth of mobile internet in developing countries opened new billion-dollar markets for payment services. Regulatory initiatives such as European PSD2, Asian open banking frameworks, and US Consumer Financial Protection Bureau rule-making are restructuring the competitive landscape. Development of central bank digital currencies (CBDCs) in over 130 countries creates new formats of state-regulated digital payments. Understanding these processes is critically important for informed decision-making by all market participants.

An additional contextual factor is the geopolitical landscape of the 2020s. The war in Ukraine, sanctions pressure against Russia, US-China trade disputes, and Iran's sanctions isolation have caused significant shifts in global payment flows. Specifically, the disconnection of Russian banks from SWIFT in 2022 and the subsequent expansion of the sanctions regime led to a significant reorientation of payment infrastructure. The role of alternative systems has grown: CIPS in China, SPFS in Russia, UPI in India – transforming the geo-economic landscape of digital payments. This study does not cover these geopolitical aspects in full, but records their indirect manifestations in global market data.

Finally, digital payments have significant implications for financial inclusion strategies. According to the World Bank Global Findex Database 2024, approximately 1.4 billion adults worldwide still lack access to formal financial services. The majority reside in South Asia, Sub-Saharan Africa, and parts of Latin America. Mobile money systems – including M-Pesa in Kenya, MTN MoMo in West Africa, and GCash in the Philippines – demonstrate a unique ability to reach previously unbanked population groups, providing access to basic financial services without requiring a traditional bank account. This aspect of the market carries fundamental socioeconomic significance beyond purely commercial considerations.

## Literature review

The issues of digital payments and e-commerce occupy an important place in contemporary economic and financial literature. The conceptual foundations of fintech as an independent scientific field were established in the foundational works of D. Arner, J. Barberis, and R. Buckley (University of Hong Kong, 2015-2018). They proposed a three-phase typology of financial technology development: fintech 1.0 – electronic communications and SWIFT (1866-1967); fintech 2.0 – internet banking and electronic payment systems (1967-2008); fintech 3.0 – the post-financial crisis era, mobile payments, blockchain, artificial intelligence (2008 to present). The third phase, to which the Digital Commerce Payments segment belongs, is characterized by the greatest innovation dynamics and structural transformation of traditional financial models.

Numerous studies published in journals such as the Journal of Payments Strategy & Systems, Journal of Financial Services Research, and International Journal of Electronic Commerce address the empirical aspects of the digital payments market. Among the most cited is article by Shreyanth et al. (2023). Based

on data from 57 countries, the authors demonstrated that digital payment penetration rates correlate closely with the availability of developed financial infrastructure (banking cards, mobile internet), as well as structural characteristics of society – education levels, urbanization, and corruption. Countries with higher corruption levels show slower digital payment adoption due to low levels of trust in financial institutions.

A dedicated research strand examines the impact of the COVID-19 pandemic on payment behavior transformation. Studies by Acopiado et al., (2022) empirically demonstrate that the pandemic marked a turning point for the digital payments market. A significant portion of consumers who predominantly used cash before 2020 switched to cashless instruments under sanitary restrictions. The majority of them continued using digital payments even after restrictions were lifted. This phenomenon, termed sticky COVID adoption, manifested quantitatively in the sharp spike in transaction volume in 2021.

The digital wallets segment as the dominant trend in modern digital payments has been examined in a number of recent publications. Vasenska et al. (2021), based on analysis of 25 major payment markets, found that the global share of digital wallets in total e-commerce transaction volume grows at approximately 2-3 percentage points per year, gradually displacing cards as the primary instrument. This trend is especially pronounced in Asian markets. In China, the combined share of WeChat Pay + Alipay in e-commerce exceeded 85% in 2024; in India, UPI payment share reached 60%; in South Korea, the combined share of local wallets (KakaoPay, Samsung Pay) reached 45%.

In Ukrainian academic literature, issues of digital payments and fintech markets are addressed in works by Verheliuk et al. (2025), Sukach and Savchenko (2025), Chimyshenko & Bolotina (2025). However, specific quantitative studies of the Ukrainian digital payments market in a global context, applying longitudinal analysis and structural study of payment instruments, remain scarce. This creates a methodological gap that the present study partially fills.

## Aims and Objectives

The aim of the study is to identify structural-dynamic patterns in the development of the global digital payments market in the e-commerce segment for 2018-2030. Additional aims include identifying key trends in the transformation of dominant payment instruments, assessing the user base and penetration rates, and formulating practical recommendations for market participants.

The object of study is the global digital payments market in the e-commerce segment (Digital Commerce Payments) as defined by the Statista Market Insights analytical platform. The subject of study comprises the quantitative characteristics of the market: total transaction value, annual growth rates, user base volumes, penetration rates, and the structure of payment method distribution.

To achieve the research objective, the following tasks were set: (1) to analyze the dynamics of global transaction volume for 2018-2030; (2) to calculate year-on-year (YoY) and compound annual growth rates (CAGR); (3) to examine the dynamics of the user base and penetration rate; (4) to conduct a structural analysis of payment method distribution as of 2024; (5) to identify key market drivers and the role of the COVID-19 pandemic in accelerating adoption; (6) to formulate practical recommendations for market participants.

## Methods

The empirical foundation of the study is the database of the Statista Market Insights analytical platform, section Outlook – Fmo – Payments – Digital Payments – Digital Commerce – Worldwide, which contains information on the global digital payments market in the e-commerce segment in USD. The dataset covers 2018-2030 (actual data 2018-2024 and projected values 2025-2030), compiled using Statista's methodology based on cross-validation of data from over 100 countries. For each year, the following key indicators are recorded: total transaction value (trillion USD), year-on-year growth rate (%), number of users (billion), penetration rate (%), and distribution by payment methods (as of 2024).

According to Statista's methodology, the Digital Commerce Payments segment encompasses all digital payment transactions conducted in the context of online purchases of physical goods and services (excluding digital services). The segment includes online purchases on e-commerce marketplaces, payments in mobile applications, payments on retailer websites, payments in brand online stores, and P2B payments between consumers and businesses. Excluded from the segment are P2P payments between individuals, POS payments in physical stores (even via NFC/QR), digital services (streaming, software, online education), and cryptocurrency transactions. All financial indicators are converted to current USD using average annual exchange rates.

The methodological toolkit comprises four blocks. The first is descriptive statistics of time series for transaction volume, users, and penetration for 2018-2030, including mean, median, extreme values, standard deviations, and basic growth rates (annual, cumulative). The second block is longitudinal analysis to identify trend patterns, cyclical effects, and structural breaks in the dynamics (specifically, the pandemic spike of 2021). The third block is CAGR analysis for different sub-periods: pre-COVID 2018-2019, pandemic 2020-2022, post-pandemic 2023-2024, and forecast 2025-2030. The fourth block is a structural analysis of payment method distribution based on 2024 data, covering six key categories: Digital Wallets, Credit Cards, Debit Cards, Account-to-account (A2A), Prepaid Cards, and Others. Statistical processing was conducted using Python (pandas, numpy, matplotlib).

An important methodological distinction is the differentiation between actual and forecast data. Actual data for 2018-2024 are based on primary sources – regular reports from payment processors (Visa, Mastercard, Adyen, Stripe), central bank data, tax authority data, industry fintech association reports, and consumer surveys – and have a high degree of reliability. Projected values for 2025-2030 are the output of an ensemble of models, including trend extrapolation, econometric models incorporating IMF and World Bank macroeconomic projections, and expert assessments by Statista analysts. Forecast values represent the most probable trajectories under the assumption that current structural factors are maintained, not precise predictions.

## Results

The central indicator characterizing the scale of the global digital payments e-commerce market is total transaction value, measured in trillions of US dollars. Figure 1 presents the dynamics of this indicator for 2018-2030, with the year-on-year growth rate displayed in parallel.

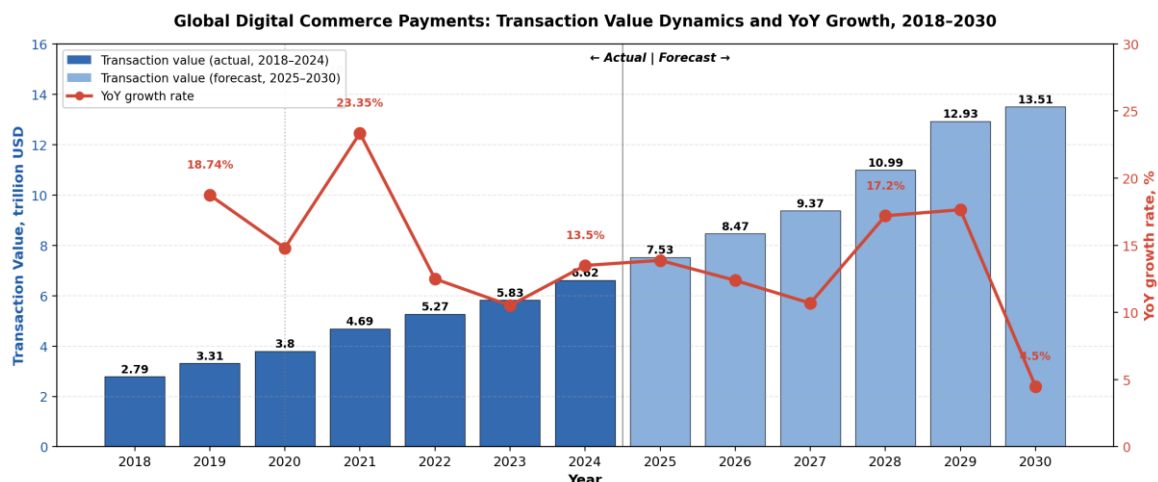


Fig. 1. Global dynamics of digital commerce payments transaction value and annual growth rates, 2018-2030. (Source: Statista Market Insights, 2025)

The presented dynamics demonstrate one of the most pronounced growth trajectories in the modern global

financial system. Total transaction value grew from USD 2.79 trillion in 2018 to USD 6.62 trillion in 2024 – a 2.37-fold increase over 6 years, corresponding to a mean CAGR of 15.5%. The projected value for 2030 – USD 13.51 trillion – implies a further 2.04-fold market growth during the forecast period, with a cumulative increase of 4.84 times from the 2018 baseline. For comparison, over the same 13-year period global nominal GDP is projected to grow approximately 1.8 times – meaning the digital payments market is outpacing world economic growth by a factor of 2.7.

Particularly notable in the dynamics is the pandemic peak of 2021, when the annual growth rate reached 23.35% – the highest figure over the entire study period. It significantly exceeds both the pre-pandemic level (18.7% in 2019) and figures in subsequent years (12.5% in 2022). Absolute growth in 2021 amounted to USD 0.89 trillion – equivalent to the entire national GDP of an average-sized country. The pandemic effect was so substantial because it combined several simultaneous factors: a forced shift to online purchases during lockdowns, increased time spent in digital environments, stimulation of offline business migration to digital platforms, and the accelerated integration of payment functions into social networks and messaging apps.

It is worth examining the structure of annual growth rates across distinct market development phases. The pre-COVID phase (2019) showed 18.74% growth – relatively high for a mature financial segment. The pandemic phase (2020) showed 14.8%, slightly below the pre-pandemic pace, explained by the combined influence of two opposing effects: accelerated online payment adoption on one hand, and general economic contraction due to lockdowns on the other. The post-pandemic surge (2021) reached 23.35%, as new digital payment habits became widespread and overall economic activity recovered. The stabilization phase (2022-2024) showed rates of 10.5-13.5%, representing the new normal following a return to typical economic conditions.

The forecast period (2025-2030) demonstrates an interesting two-stage trajectory. The first part (2025-2027) is characterized by stable growth at rates of 10.7-13.9%. The second part (2028-2029) is expected to see acceleration to 17.2-17.65%, which may be linked to the introduction of CBDCs in several major economies, the scaling of Web3 payments, and the emergence of new-generation payment interfaces. Meanwhile, a sharp slowdown to 4.5% in 2030 signals the market's transition to a maturity phase, where further expansion will require structural innovations rather than simply extending existing patterns.

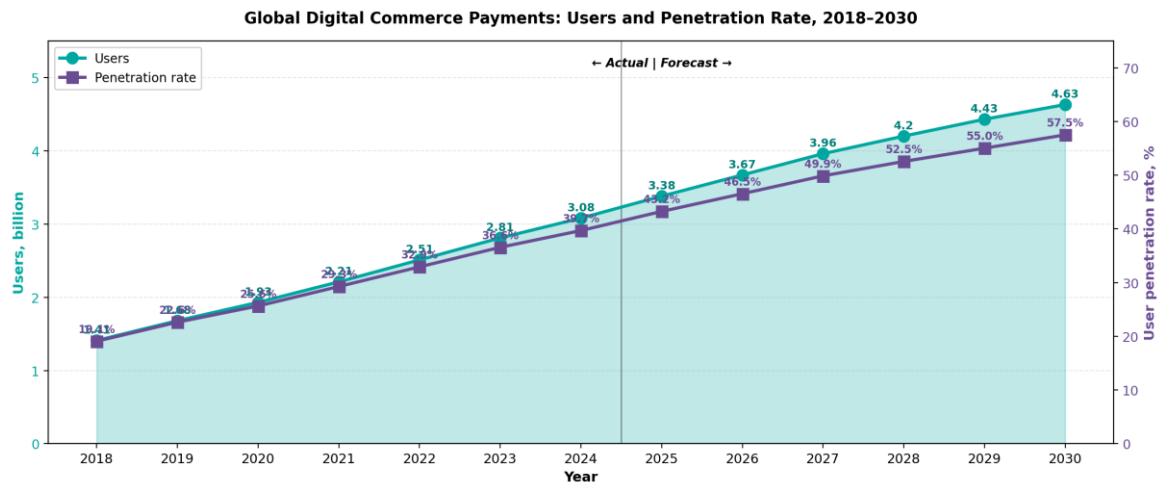
Summarizing the transaction value dynamics, four successive market development phases can be identified: pre-COVID growth (2018-2019) at approximately 19%; pandemic transformation (2020-2022) at 12.5% to 23.35%; stable growth (2023-2027) at 10.5-13.9%; and technological leap and maturity (2028-2030) with an upward arc of 17.2-17.65% in 2028-2029 and a sharp decline to 4.5% in 2030. This phase model reflects the S-shaped diffusion curve typical of technologically innovative markets, as described by Al-Qudah et al., (2024): after initial exponential growth, the market transitions to a gradual slowdown as saturation increases.

Comparing the growth rates of the digital payments market with other segments of the global economy provides deeper insight into its strategic significance. According to World Bank and IMF data, global nominal GDP grew at a CAGR of 3.8% in 2018-2024, the global banking services market at 5.2%, insurance at 4.1%, and overall B2C e-commerce at 14.3%. The digital commerce payments segment thus grows at rates close to overall e-commerce and significantly outpaces most other financial services segments. This makes it one of the most investment-attractive sectors of the modern economy – not coincidentally, venture investment in fintech companies during 2020-2024 exceeded USD 600 billion globally.

It is also important to note the macroeconomic context – particularly inflationary pressure in developed economies. Cumulative inflation in the United States over 2020-2024 was approximately 22%, in the eurozone about 20%, and globally about 19%. Adjusting the nominal market growth from USD 3.8 to 6.62 trillion for inflation, the real growth (in constant 2018 prices) is approximately 2.0 times rather than the nominal 2.37. This remains a high figure, but it is important to recognize that part of the absolute growth

reflects the inflationary depreciation of the dollar rather than organic market expansion.

Beyond the volume dimension, an important characteristic of market development is its user dimension – the number of individuals actively using digital payments in an e-commerce context. Figure 2 presents the dynamics of two interrelated indicators: the absolute number of users (in billions) and the penetration rate for 2018-2030.



**Fig. 2. Global user base and penetration rate of digital commerce payments, 2018-2030.**

Source: Statista Market Insights, 2025

Analysis of the user base dynamics reveals several important patterns. First, over the 6-year actual period (2018-2024), the number of global users grew from 1.41 to 3.08 billion – more than doubling (by a factor of 2.18). By 2030, there will be 4.63 billion users – more than half of the Earth's population will be using digital payments for online purchases. This makes the digital commerce payments segment one of the most massively adopted digital services of our time, comparable in audience size to social networks and mobile internet.

Second, the global penetration rate demonstrates impressive acceleration: from 19.09% in 2018 to 39.69% in 2024 (an increase of more than 20 percentage points over 6 years, or about 3.4 p.p. per year). By 2030, penetration is projected to reach 57.5% – nearly three-fifths of the Earth's population will be active users. It is worth noting that this indicator is normalized against the full global population, including minors, elderly persons, and residents of countries with limited internet access. If measured only among the technically reachable audience – urban adults with smartphone access in countries with developed financial infrastructure – it would in practice exceed 80-90% in developed countries.

Third, comparing the growth rates of the user base and transaction volume reveals an important pattern: transaction value grows faster (2.37 times for 2018-2024) than the number of users (2.18 times). This means that Average Transaction Value per User (ATVU) is also increasing. While ATVU was approximately USD 1,979 per user in 2018, it reached USD 2,149 in 2024, and is projected to reach USD 2,918 in 2030. The growth in ATVU reflects the gradual deepening of digital payment habits: users are not just beginning to pay online – they are transferring an ever-larger share of their expenditures to the digital space, from one-time small purchases to regular repeat orders, subscriptions, and large transactions.

Fourth, the projected penetration trajectory shows characteristic signs of a transition to a saturation phase: while growth was 2.5-3.6 p.p. per year in 2018-2021, it is expected to be 2.5-2.7 p.p. by 2028-2030. This slowdown is natural, related to the fact that the majority of easily reachable users have already been covered, and further expansion requires entry into more complex segments: older populations, rural areas,

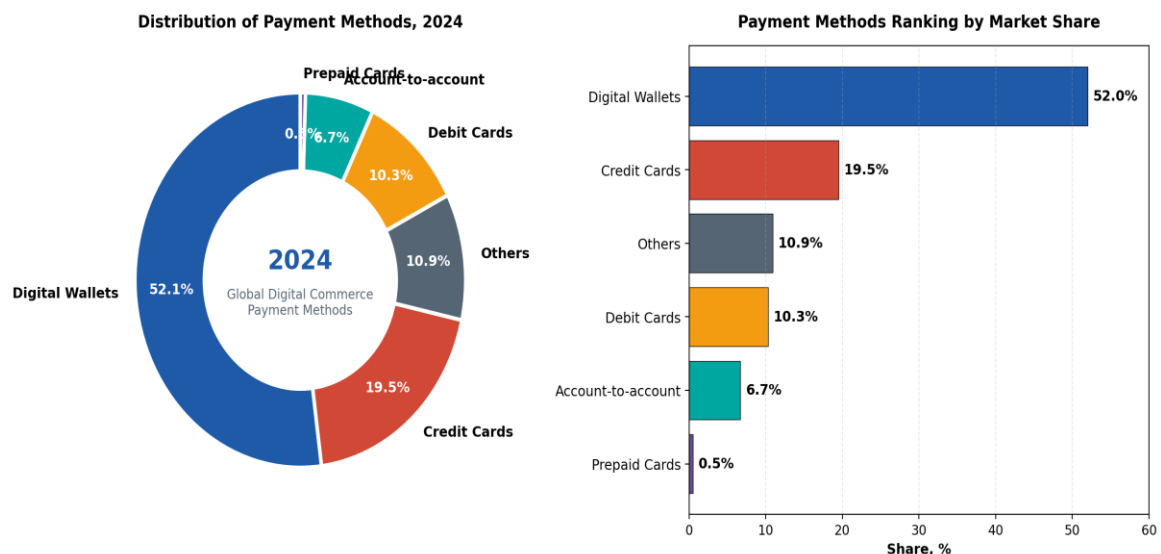
and countries with underdeveloped financial infrastructure.

**Table 1 – Key indicators of the global digital commerce payments market, 2018, 2024, 2030**

Indicator	2018	2024	2030 (fcst.)	Growth 2018->2030
Transaction value, trillion USD	2.79	6.62	13.51	x4.84
YoY growth rate, %	-	13.5	4.5 (fcst.)	Slowing
Users, billion	1.41	3.08	4.63	x3.28
Penetration rate, %	19.09	39.69	57.5	+38.4 p.p.
ATVU, USD/user	1,979	2,149	2,918	x1.47
Average CAGR, %	-	15.5 (2018-24)	12.6 (2024-30)	Stable
Compound growth vs 2018	1.00x	2.37x	4.84x	-

Source: compiled by the authors based on Statista Market Insights (2025).

The key structural aspect of the market is the distribution of transaction volume among different payment methods. Figure 3 presents this distribution as of 2024 in two formats: a pie chart for visualizing shares and a horizontal bar chart for ranking methods by market share.



**Fig. 3. Distribution of payment methods in the digital commerce segment, 2024.**

Source: Statista Market Insights, 2025

The presented distribution demonstrates the absolute dominance of digital wallets. Their share accounts for 52.0% of global transaction volume in 2024, corresponding to approximately USD 3.44 trillion. This means that digital wallets alone serve more than half of all global e-commerce payments – a structural situation that has emerged only over the past decade and has radically transformed the traditional architecture of payment systems.

Second place is occupied by credit cards with a 19.5% share (approximately USD 1.29 trillion). Despite their traditional role as the foundation of e-commerce in the early 2000s-2010s, credit cards now lag behind

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digital wallets by more than twofold. A significant portion of credit cards now effectively functions inside digital wallets – i.e., Apple Pay or Google Pay process the transaction using a card account linked to the wallet as a payment facade. In Statista's statistics, such transactions are attributed to digital wallets, since the wallet serves as the primary consumer interface.

Third place is held by the Others category with a 10.9% share, encompassing a variety of local payment solutions specific to individual markets: iDEAL in the Netherlands, SOFORT in Germany, Bancontact in Belgium, Trustly in Northern Europe, Boletto Bancario and PIX in Brazil, and regional cash-on-delivery solutions in developing countries. The high share of this category underscores the significant fragmentation of payment systems at the regional level. Fourth, debit cards hold a 10.3% share (approximately USD 0.68 trillion). Fifth, Account-to-account (A2A) payments with a 6.7% share represent a fast-growing segment driven by instant transfer systems (SEPA Instant, FedNow, UPI, PIX, NPP). Sixth, Prepaid Cards hold a minimal 0.5% share and fulfill specific niche functions.

**Table 2 – Distribution of payment methods in the digital commerce payments segment as of 2024**

No	Payment Method	Share, %	Volume, tr. USD	Key Regional Leaders
1	Digital Wallets	52.0	3.44	Alipay, WeChat Pay, Apple Pay
2	Credit Cards	19.5	1.29	Visa, Mastercard, Amex
3	Others (local)	10.9	0.72	iDEAL, PIX, Boletto, SOFORT
4	Debit Cards	10.3	0.68	Maestro, Interac, EC
5	Account-to-account	6.7	0.44	UPI, SEPA Instant, FedNow
6	Prepaid Cards	0.5	0.03	Visa/Mastercard Prepaid
-	Total	100.0	6.62	-

*Source: compiled by the authors based on Statista Market Insights (2025)*

The high share of digital wallets is not an accidental phenomenon, but the result of a prolonged structural transformation process that began around 2015-2017 and reached mass scale after 2019. This process is driven by the simultaneous action of several mutually reinforcing factors.

First, technological readiness – the mass proliferation of smartphones with NFC chips, biometric authentication (Touch ID, Face ID), and secure elements (Secure Enclave). As of 2024, over 85% of the global smartphone audience possesses devices with all the necessary technical capabilities for using digital wallets. Second, platform readiness – major ecosystem players (Apple, Google, Samsung in developed countries; Tencent, Ant Group in China; Naver/Kakao in South Korea; Paytm in India) have created convenient digital wallet interfaces integrated into smartphone operating systems, social networks, and messaging apps. This integration has made the act of payment an organic part of the user's daily digital lifestyle, radically lowering the psychological barrier compared to the traditional entry of a card number, cardholder name, and CVV code.

Third, regulatory readiness – the European PSD2 directive (adopted in 2015, implemented in 2018-2019) created the legal framework for open banking and third-party payment service providers (TPPs), facilitating the entry of digital wallet players into the banking market. Similar open banking initiatives were introduced in the UK, Australia, Hong Kong, and Singapore. Fourth, consumer readiness – the COVID-19 pandemic sharply accelerated the psychological readiness of large consumer segments to adopt cashless digital instruments. The sanitary incentive to switch to contactless payments, the necessity of making online purchases during lockdowns, and the proliferation of home delivery with online payment together formed a critical mass of users for whom digital wallets became a routine everyday tool.

Based on current trends, the further evolution of payment method structures over the next 5-10 years can be predicted. First, a continued increase in the digital wallets share is expected – to 58-62% by 2030. The DOI: 10.31379/sed.3.6.2025.51

primary driver will be expansion in developing Asian countries (India, Indonesia, the Philippines, Vietnam, Pakistan), where local digital wallets (Paytm, Gopay, GCash, MoMo, EasyPaisa) demonstrate exponential adoption dynamics. Second, a further decline in credit card and debit card shares – to 15-17% and 7-9% respectively. Third, a substantial increase in the A2A share – to 12-15% through the scaling of instant transfer systems globally. Fourth, the gradual disappearance of prepaid cards as a significant payment instrument, with their share shrinking to 0.2-0.3%.

An important trend is the rapid growth of the Buy Now, Pay Later (BNPL) segment. Platforms such as Klarna (Sweden), Afterpay/Clearpay (Australia, acquired by Block in 2022), Affirm (US), PayPal Pay in 4, and Apple Pay Later are transforming the understanding of online payment by splitting large purchases into 3-4 interest-free installments. According to the Worldpay Global Payments Report 2024, BNPL's share of global e-commerce payment volume was approximately 5% in 2024, with projected growth to 8-10% by 2028 [22]. Another promising direction in payment method transformation is the integration of artificial intelligence into payment decision-making. Modern digital wallets increasingly use ML algorithms for fraud detection, personalized offers, smart routing, and adaptive authentication. These innovations improve the user experience, reduce fraud losses, and increase conversion rates – contributing to overall market growth.

A chronological analysis of digital payment dynamics allows precise identification of the turning point in market development – the COVID-19 pandemic. Before 2019, the market was in a phase of stable, evolutionary growth (CAGR of 18.74%); the pandemic period (2020-2022) led to a substantial acceleration. Absolute growth of transaction value was USD 0.49 trillion in 2020, USD 0.89 trillion in 2021, and USD 0.58 trillion in 2022. In total, over the three pandemic years the market grew by USD 1.96 trillion – more than over the previous five years combined.

The pandemic stimulus had an asymmetric impact on different payment instruments. Digital wallets showed the greatest acceleration in adoption – their share grew from approximately 40% in 2019 to approximately 48% in 2022, i.e., by 8 percentage points in three years (equivalent to a typical gain that would previously have taken 5-7 years). Credit and debit cards lost share: the crisis demonstrated that physical cards are inconvenient in contactless payment and remote purchase scenarios. Account-to-account payments also received a significant boost, especially in countries that launched new national instant transfer systems during the pandemic.

Beyond the quantitative effect, the pandemic had an important sociocultural impact, transforming the demographic profile of digital payment users. Before 2019, the vast majority of users belonged to the 18-45 age group; after the pandemic, coverage of older age groups (45-65, 65+) expanded significantly. According to the Visa COVID-19 Payment Transformation Survey (2022), the proportion of consumers aged 65+ who regularly use digital payments grew from 22% in 2019 to 51% in 2022 in developed countries [10]. This demographic transformation has a significant sustained effect: the critical mass in older groups is already present, and further growth occurs much more rapidly.

It is also important to note the durability effect of pandemic-driven changes. Unlike some other pandemic trends – such as surging demand for hand sanitizers, face masks, and home exercise equipment – which gradually normalized to pre-pandemic levels, digital payment adoption showed no reversal. After 2022, market growth rates remain consistently high (13.5% in 2024), indicating the fundamental irreversibility of the structural changes caused by the pandemic. This fact aligns with the sticky COVID adoption phenomenon described in academic literature [4].

The global picture of payment method distribution conceals significant regional differentiation. Analysis of publicly available data from Statista and other agencies shows that different regions of the world are dominated by different combinations of methods, reflecting local economic, cultural, and regulatory characteristics.

In China, the digital payments market has the highest level of concentration in the digital wallets category: Alipay (54% market share) and WeChat Pay (38%) together account for over 92% of the Chinese e-DOI: 10.31379/sed.3.6.2025.51

commerce payments market. Cards (credit and debit combined) form less than 4%. This structure results from a unique combination of factors. First, the late development of card infrastructure in China created a market niche for mobile wallets. Second, payments are organically integrated into major social platforms: Alipay into the Taobao/Tmall ecosystem of Alibaba, WeChat Pay into WeChat. Third, aggressive promotion via QR codes in offline scenarios drove the transfer of payment habits to online.

In India, the revolution was brought about by the Unified Payments Interface (UPI), launched by the National Payments Corporation of India (NPCI) in 2016. By 2024, UPI processed over 12 billion transactions per month, making India the global leader in A2A transaction volume. The Indian experience demonstrates how a state can restructure the national payment market through centralized payment infrastructure in a short period. In the United States, cards retain significantly stronger positions than the global average: credit cards approximately 38% of the market, debit cards 16%, digital wallets 28% (with Apple Pay as the primary player). This is explained by historically developed card infrastructure, complex reward program structures (cashback, miles, points), and more conservative regulatory approaches that limited super-aggregator platforms.

In Western Europe, the payment method structure is the most diverse. Alongside digital wallets (28-35%) and credit cards (18-22%), local A2A solutions play a significant role: iDEAL in the Netherlands (70% of the market), SOFORT/Klarna in Germany, Trustly in Sweden. The fragmentation of local solutions is a consequence of the late integration of the European payments area: despite the formal implementation of SEPA and PSD2, national characteristics persist and create a multi-layered ecosystem.

In Ukraine, the digital payments market is in a phase of active development. According to National Bank of Ukraine data, the share of cashless payments in retail trade turnover grew from 37.3% in 2018 to approximately 64% in 2024. The main drivers are the rapid proliferation of the Privat24 system (over 18 million active users), monobank (6 million), and localized payments via Apple Pay and Google Pay. The war of 2022-2026 paradoxically accelerated the digitalization of payments. Under conditions of mass internal population displacement, temporary power outages, and the destruction of banking infrastructure facilities, digital payments became critical life-support infrastructure. Ukraine thus represents a unique case study of accelerated digitalization under extreme conditions that may constitute valuable material for future academic research.

For digital wallet providers – both global (Apple Pay, Google Pay, PayPal) and regional (Alipay, WeChat Pay in China; Paytm, PhonePe in India; Naver Pay, Kakao Pay in South Korea) – the current market situation creates a combination of significant opportunities and strategic challenges. The key recommendation is strategic expansion into developing Asian countries (Indonesia, the Philippines, Vietnam, Pakistan, Bangladesh, Egypt), where digital payment penetration remains relatively low but growth rates exceed the global average by 1.5-2 times. Expanding the functionality of digital wallets beyond basic payments is critically important: integration with retailer loyalty programs, BNPL support, investment capabilities, subscription management, cashback/bonus transfer, split payments, and P2P money transfers. The development of biometric authentication and security – end-to-end encryption, tokenization, behavioral biometrics, and fraud detection ML models – is a key factor in building trust and driving further growth.

Banks and traditional card systems (Visa, Mastercard, American Express) face a fundamental strategic challenge: their core products are losing market share and becoming an invisible component inside digital wallets. Available strategic responses include: quality partnership strategies with digital wallet providers (Apple Card issued by Goldman Sachs for Apple Pay); development of own wallet solutions (Chase Pay, Zelle, Wero in Europe); and a focus strategy on B2B segments and segments where cards retain strong positions (corporate cards, premium credit products, cross-border business payments).

For retailers and e-commerce platforms, the key recommendation is to provide a broad checkout menu supporting all relevant payment methods. The minimum standard in developed countries includes card payments (Visa, Mastercard, Amex), Apple Pay, Google Pay, PayPal, and local A2A (SEPA Instant in DOI: 10.31379/sed.3.6.2025.51

Europe, UPI in India). Abandoned cart statistics show that over 12% of abandoned shopping carts are linked to an insufficiently convenient payment option [9]. Optimizing the checkout page with direct placement of digital wallet buttons can increase conversion rates by 8-15%. Strategic partnerships with digital wallet providers – participation in loyalty programs, exclusive offers, and co-branded credit cards – provide marketing visibility and stimulate customer retention.

For financial market regulators (central banks, securities commissions, antitrust regulators), the rapid expansion of digital wallets creates fundamentally new challenges requiring a systematic regulatory response. Monitoring monopolistic practices in the segment is important – the European Commission actively worked on regulating Apple Pay through the Digital Markets Act in 2022-2024. A clear regulatory framework for CBDCs is needed, as over 130 central banks worldwide were conducting research or pilot projects as of 2024. The protection of personal data in digital payments is a growing concern: regulators must ensure that data minimization principles are upheld by providers and that users have genuine control over the use of their data.

## Discussion

Despite the comprehensive nature of the analysis conducted, the results must be interpreted with several methodological limitations in mind. First, the study is based on a single data source – Statista Market Insights. Statista's statistical methodology, like any other, involves specific assumptions and forecasting models that may differ from analogous data from other agencies (McKinsey Global Payments Report, Capgemini World Payments Report, BCG Global Payments Report). A cross-source analysis would be beneficial for a more complete picture.

Second, long-term projections for 2028-2030 naturally contain a high degree of uncertainty. In particular, the projected sharp slowdown to 4.5% in 2030 may be related to specific technical assumptions in Statista's model and requires independent verification. Third, the study has a global aggregate focus and does not cover detailed analysis of individual countries and regions. The Ukrainian digital payments market in a global context represents a separate promising research direction requiring a specialized approach.

Fourth, the study does not cover the qualitative dimension – behavioral characteristics of users of different payment methods, psychological barriers to adoption, and user experience specifics. Such analysis would require surveys, behavioral experiments, and customer journey mapping. Fifth, related digital payment fields remain outside the scope: fraud detection, KYC/AML compliance, cross-border transfers, B2B payments, and digital identity. Prospects for further research include: detailed regional analysis focusing on Ukraine in a global context; comparative study of the business models of leading digital wallets; analysis of the impact of CBDCs on the structure of payment markets; and research into cyber threats and their impact on consumer trust in various payment methods.

## Conclusions

The comprehensive structural-dynamic study of the global digital payments market in the e-commerce segment for 2018-2030, based on Statista Market Insights data, has yielded findings with both scientific-theoretical and practical significance for participants in the financial, technological, and regulatory communities.

First, it is established that the global digital commerce payments market is in a phase of rapid expansive growth: total transaction volume reached USD 6.62 trillion in 2024, with a projected USD 13.51 trillion for 2030. The average compound annual growth rate over the entire study period is 13.9% – a figure that exceeds global economic growth rates by 4-5 times. Cumulative market growth from 2018 to 2030 amounts to 4.84 times.

Second, the COVID-19 pandemic served as the key catalyst for accelerated market development: the annual growth rate in 2021 reached 23.35% – the highest figure over the entire study period. The pandemic effect was not temporary: the market continued stable growth at 10.5-13.5% annually after restrictions were lifted, indicating the irreversibility of structural changes in consumer behavior.

Third, the number of global users of digital payment services grew from 1.41 billion in 2018 to 3.08 billion in

2024 and is projected to reach 4.63 billion by 2030. The global penetration rate will grow from 19.09% to 57.5%, meaning more than three-fifths of the global population will be active users.

Fourth, the structural analysis revealed the absolute dominance of digital wallets: their share in 2024 stands at 52.0%, more than 2.6 times the share of credit cards (19.5%). The continuing trend is for digital wallets to grow to 58-62% by 2030, with a parallel increase in the A2A payments share to 12-15%, at the expense of declining traditional card instrument shares.

Fifth, regional market differentiation is significant: in China, Alipay and WeChat Pay dominate (over 92% of the market); in India – the UPI system; in the US, cards retain a significant role; in Western Europe – a fragmented structure with local A2A solutions. This regional specificity has substantial strategic significance for market players planning expansion into different regions.

Sixth, a comprehensive set of practical recommendations has been formulated for four groups of market participants. For digital wallet providers – strategic expansion into Asian markets, expanded functionality, and biometric security. For banks and card systems – partnership strategies with wallets, development of proprietary wallets, and a B2B segment focus. For retailers and e-commerce platforms – a broad checkout menu, conversion optimization, and wallet partnerships. For regulators – monitoring of monopolistic practices, CBDC regulation, and personal data protection.

The results obtained have both practical value for market participants and broader methodological significance, demonstrating the productivity of combining longitudinal analysis, structural decomposition, and a phase-based approach in studying rapidly growing fintech segments. Future market development will be determined by the complex interplay of technological innovations (CBDC, artificial intelligence, blockchain), regulatory initiatives (open banking, DMA, personal data protection), and geopolitical factors, as well as the evolution of consumer habits among billions of users worldwide. For researchers, regulators, and business leaders, understanding these processes is becoming critically important, and empirical quantitative studies such as the one presented in this article serve as a valuable tool for evidence-based decision-making in the digital economy era.

## References

1. Statista. (2025). Digital commerce payments – Worldwide. Statista Market Insights. <https://www.statista.com/outlook/fmo/payments/digital-payments/digital-commerce/worldwide>
2. Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The evolution of Fintech: A new post-crisis paradigm? SSRN Electronic Journal. <https://doi.org/10.2139/ssrn.2676553>
3. Shreyanth, S., Suwetha, P. T., Kathirolu, V., Niveditha, S., & Jayaprakash, H. (2023). Fintech, crisis, and marketing: How technology-driven financial firms adapt their approach to retain customers. In *Advances in Economics, Business and Management Research* (pp. 309–321). [https://doi.org/10.2991/978-94-6463-162-3\\_28](https://doi.org/10.2991/978-94-6463-162-3_28)
4. Vasenska, I., Dimitrov, P., Koyundzhiyska-Davidkova, B., Krastev, V., Durana, P., & Poulaki, I. (2021). Financial transactions using fintech during the COVID-19 crisis in Bulgaria. *Risks*, 9(3), 48. <https://doi.org/10.3390/risks9030048>
5. Al-Qudah, A. A., Al-Okaily, M., Shiyyab, F. S., Taha, A. A. D., Almajali, D. A., Masa'deh, R., & Warrad, L. H. (2024). Determinants of digital payment adoption among Generation Z: An empirical study. *Journal of Risk and Financial Management*, 17(11), 521. <https://doi.org/10.3390/jrfm17110521>
6. Acopiado, I. M., Sarmiento, J. M., Romo, G. D., Acuña, T., Traje, A., & Wahing, G. (2022). Digital payment adoption during the COVID-19 pandemic in the Philippines. *The Philippine Journal of Science*, 151(3). <https://doi.org/10.56899/151.03.31>
7. McKinsey & Company. (2024). Global payments in 2024: Simpler interfaces, complex reality. <https://www.mckinsey.com/industries/financial-services/our-insights/global-payments-in-2024-simpler-interfaces-complex-reality>
8. Capgemini Research Institute. (2024). Payments top trends 2024. <https://www.capgemini.com/us-en/insights/research-library/payments-top-trends-2024/>
9. Boston Consulting Group. (2024). Global payments 2024: Navigating a new era of payments transformation. BCG Insights. <https://www.bcg.com/publications/2024/fortune-favors-bold-global-payments-report>
10. Adyen. (2024). Adyen global retail trends report

2024. <https://www.adyen.com/index-reports>
11. Visa Inc. (2022, June). Will the affluent drive consumer spending growth again? Visa Business and Economic Insights. <https://usa.visa.com/content/dam/VCOM/regional/na/us/partner-with-us/economic-insights/documents/special-report-affluent-consumer-spend.pdf>
12. European Central Bank. (2024). The digital euro project: Progress report. <https://www.ecb.europa.eu/euro/digital-euro>
13. Bank for International Settlements. (2022, April 14). CBDCs in emerging market economies (BIS Papers No. 123). <https://www.bis.org/publ/bppdf/bispap123.pdf>
14. World Bank. (2024). World development report 2024: The middle-income trap. World Bank Publications. <https://www.worldbank.org/en/publication/wdr2024>
15. Verheliuk, Y., Hantsiak, M., & Fomov, D. (2025). Digital transformation of the banking system: Global guidelines for Ukraine. Finance of Ukraine, 3, 45–57. <https://doi.org/10.33763/finukr2025.03.045>
16. Sukach, O., & Savchenko, S. (2025). Financial market in the context of digital innovation: Implications for marketing practices. Bulletin of V. N. Karazin Kharkiv National University Economic Series, 108, 41–48. <https://doi.org/10.26565/2311-2379-2025-108-04>
17. Chimyshenko, S., & Bolotina, Y. (2025). Electronic national currencies: Challenges and prospects. Herald of Kyiv Institute of Business and Technology, 53(2), 158–171. [https://doi.org/10.37203/kibit.2025.53\(2\).13](https://doi.org/10.37203/kibit.2025.53(2).13)
18. National Bank of Ukraine. (2024). Overview of the Ukrainian cashless payments market 2024. <https://bank.gov.ua/>
19. McKinney, W. (2010). Data structures for statistical computing in Python. In Proceedings of the 9th Python in Science Conference (pp. 51–56). <https://doi.org/10.25080/Majora-92bf1922-00a>
20. Hunter, J. D. (2007). Matplotlib: A 2D graphics environment. Computing in Science & Engineering, 9(3), 90–95. <https://doi.org/10.1109/MCSE.2007.55>
21. International Monetary Fund. (2024). World economic outlook: Policy pivot, rising threats. <https://www.imf.org/en/publications/weo>
22. Worldpay. (2024, March). Global payments report 2024. <https://corporate.worldpay.com/node/6961/pdf>

## ADDITIONAL INFORMATION

### AUTHOR CONTRIBUTIONS

**Conceptualization:** Saiun Alla

**Data curation:** Saiun Alla

**Formal Analysis:** Saiun Alla

**Methodology:** Saiun Alla

**Software:** Saiun Alla

**Resources:** Saiun Alla

**Supervision:** Saiun Alla

**Validation:** Saiun Alla

**Investigation:** Saiun Alla

**Visualization:** Saiun Alla

**Project administration:** Saiun Alla

**Funding acquisition:** –

**Writing – review & editing:** Saiun Alla

**Writing – original draft:** Saiun Alla

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