International periodic scientific journal

ONLINE

www.sworldjournal.com

D.A.Tsenov Academy of Economics - Svishtov (Bulgaria)

Indexed in
INDEXCOPERNICUS
(ICV: 73)
GOOGLESCHOLAR

SWorld Journal

Issue №39
Part 3
September 2026

Published by:
SWorld & D.A. Tsenov Academy of Economics, Svishtov,Bulgaria

ISSN 2663-5712
DOI: 10.30888/2663-5712

Editor: Shibaev Alexander Grigoryevich, *Doctor of Technical Sciences, Professor, Academician*
Scientific Secretary: Kupriienko Sergiy, *PhD in Technical Sciences*

Editorial board: More than 400 doctors of science. Full list on page:
https://www.sworldjournal.com/index.php/swj/about/editorialTeam

Expert-Peer Review Board of the journal: Full list on page:
https://www.sworldjournal.com/index.php/swj/expertteam

The International Scientific Periodical Journal "SWorldJournal" has gained considerable recognition among domestic and foreign researchers and scholars. Today, the journal publishes authors from from different countries.

Journal Established in 2018. **P**eriodicity of publication: 6 times a year

The journal activity is driven by the following objectives:

- Broadcasting young researchers and scholars outcomes to wide scientific audience
- Fostering knowledge exchange in scientific community
- Promotion of the unification in scientific approach
- Creation of basis for innovation and new scientific approaches as well as discoveries in unknown domains

The journal purposefully acquaints the reader with the original research of authors in various fields of science, the best examples of scientific journalism.

Publications of the journal are intended for a wide readership - all those who love science. The materials published in the journal reflect current problems and affect the interests of the entire public.

Each article in the journal includes general information in English.

The journal is registered in the INDEXCOPERNICUS, GoogleScholar.

DOI: 10.30888/2663-5712.2026-39-03

Published by:
SWorld &
D.A. Tsenov Academy of Economics
Svishtov, Bulgaria
e-mail: editor@sworldjournal.com

Copyright
© Authors, scientific texts 2026

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-044
DOI: 10.30888/2663-5712.2026-39-03-044

UDC 339.138:339.9:159.95

NEUROMARKETING TECHNOLOGIES IN THE TRANSFORMATION OF INTERNATIONAL MARKETING COMMUNICATIONS OF GLOBAL COMMODITY MARKET INFRASTRUCTURE ENTITIES

Kukel H.S. / Кукель Г.С.
c.e.s., as.prof. / к.е.н., доц.
ORCID: 0000-0001-7699-5997
Vinnytsia National Technical University, Vinnytsia, Khmelnytsky highway, 95, 21021
Вінницький національний технічний університет, Вінниця, Хмельницьке шосе, 95, 21021

Abstract. *The problem of achieving global business goals, optimizing cross-border trade, and maximizing marketing efficiency using neuromarketing technologies within global commodity market infrastructure is highlighted, identifying key questions regarding the transformation of international communications, cross-cultural cognitive variations, prioritised biometric parameters (EEG, eye-tracking), and required budgets. Given the high variability of cultural codes and consumer subconscious reactions, constant adaptation to neuro-cognitive trends is urgent for international marketing communication strategies. The research outlines the critical stages of forming a neuro-driven international strategy: defining commercial objectives, conducting cross-cultural and neuro-cognitive analysis of digital media space, performing biometric neuro-mapping of international users, developing optimal promotion alternatives under cross-border logistical and financial constraints, and implementing sensory-cognitive content concepts with multi-layered efficiency control based on psychophysiological KPIs and traditional Google Analytics. The author's development consists in determining current trends in the transformation of international marketing communications within global infrastructure, demonstrating that commercial activity management is maximized through scientifically substantiated neuromarketing strategies, which offers practical recommendations for international corporations, global retail networks, and e-commerce platforms to enhance promotion effectiveness in global commodity markets.*

Key words: *neuromarketing technologies, international marketing, marketing communications, commodity market infrastructure, commercial activity management, globalization, cross-cultural analysis, e-commerce.*

Introduction.

The digitalization of the global economy and the large-scale expansion of e-commerce require entities of the global commodity market infrastructure (international marketplaces, logistics hubs, transnational networks) to adopt fundamentally new approaches to managing commercial activity. Classical tools of international marketing communication (surveys, focus groups) are losing accuracy, as they are unable to capture consumers' unconscious cognitive and emotional triggers. In cross-cultural environments, a substantial gap arises between respondents' rational answers and their actual purchasing behavior. This creates an objective need to integrate neuromarketing

technologies (eye-tracking, electroencephalography, facial micro-emotion analysis) into the commercial management system as a tool for the high-precision transformation of international communication channels.

Fundamental aspects of the development of marketing communications and commodity market infrastructure have been examined in the works of Ph. Kotler, J.-J. Lambin, and leading Ukrainian scholars. The formation of the neuromarketing concept and the application of biometric analysis methods are addressed in the works of P. Renvoise, C. Morin, M. Lindstrom, and R. Dooley. However, the potential of neuromarketing is usually considered locally (packaging or advertising testing), while the systemic aspect of transforming the communications of global infrastructure entities, taking cross-cultural variability into account, remains an unresolved part of the overall problem.

The aim of the study is to theoretically substantiate and develop scientific and methodological foundations for transforming the international marketing communications of entities within the global commodity market infrastructure through the implementation of neuromarketing technologies, in order to increase the efficiency of managing their commercial activity.

Main Text.

Building a neuromarketing advantage for entities within the global commodity market infrastructure begins with rethinking the very content of the commercial goal. While the classical management model justifies an offer through the rational characteristics of a product, under conditions of cross-border competition the decisive factor becomes the ability to appeal to consumers' subconscious decision-making patterns. According to the “reptilian brain” concept developed by P. Renvoise and C. Morin, purchasing decisions are driven predominantly by six basic stimuli – self-centeredness, contrast, tangibility of the offer, a clear “beginning–end” structure, visual dominance, and emotional reinforcement [1]. M. Lindstrom's research confirms a substantial gap between respondents' stated preferences and their actual biometric response, a gap that widens further in cross-cultural settings [2]. The persuasion techniques generalized by R. Dooley (anchoring, framing) likewise remain effective

internationally, provided they are culturally adapted [3]; consequently, for marketplaces (Amazon, Alibaba), retail chains (IKEA, H&M), and logistics platforms (DHL), competitive advantage increasingly depends on how precisely the neuromarketing calibration of communication is matched to the cultural context of a given market.

Each type of global infrastructure entity creates its own digital media environment: a marketplace competes for user attention within the few seconds a shopper spends viewing a product listing, a retail chain builds a longer-term emotional attachment, while a logistics platform operates in the B2B segment, where rational trust prevails over impulsive response. The example of Alibaba International Station shows that localizing content for a specific market allows foreign buyers to perceive the offer as “their own” [4], while researchers of international logistics marketing emphasize combining rational argumentation with brand-trust building [5]. Layered onto this specificity, the difference between high- and low-context cultures in the perception of color, symbolism, and the pace of information delivery explains why a unified creative systematically loses effectiveness in some external markets.

Neuromapping of international consumers relies on a set of biometric methods. Eye-tracking builds visual-attention heat maps on localized storefronts and advertising banners, revealing which elements actually attract the gaze of users from different countries. Electroencephalography (EEG) complements this with indicators of cognitive load and emotional valence; a bibliometric analysis confirms the rapid growth of scientific interest in applying EEG to consumer-behavior research [6], while combining EEG with eye-tracking in a multimodal approach predicts actual consumer choice more accurately than either method alone – which is especially valuable under conditions of cross-cultural uncertainty [7]. Involuntary facial micro-expressions complete this picture by capturing a genuine emotional reaction to a communication stimulus regardless of the language environment of testing.

The data in Table 1 show that, despite EEG's leadership in scientific publications [6], the largest commercial revenue share is generated by IAT and fMRI: the former owing to its scalability, the latter because of the high cost of a single study rather than

its frequency of use. This confirms the rationale for combining inexpensive, scalable methods (eye-tracking, EEG) for the regular testing of international campaigns, while reserving costlier methods for targeted hypothesis verification.

Table 1 - Key indicators of the global neuromarketing technology market, 2025–2034

Indicator	Value
Market size, 2026	USD 1.91 billion
Projected market size, 2034	USD 3.24 billion
Compound annual growth rate (CAGR), 2026–2034	6.8%
Largest end-user segment	Retail and consumer brands – 36%
Leading biometric testing methods	IAT – 39%; fMRI – 33%
Region with the highest growth dynamics	Asia-Pacific region, CAGR 7.8%

Source: compiled by the author based on [8]

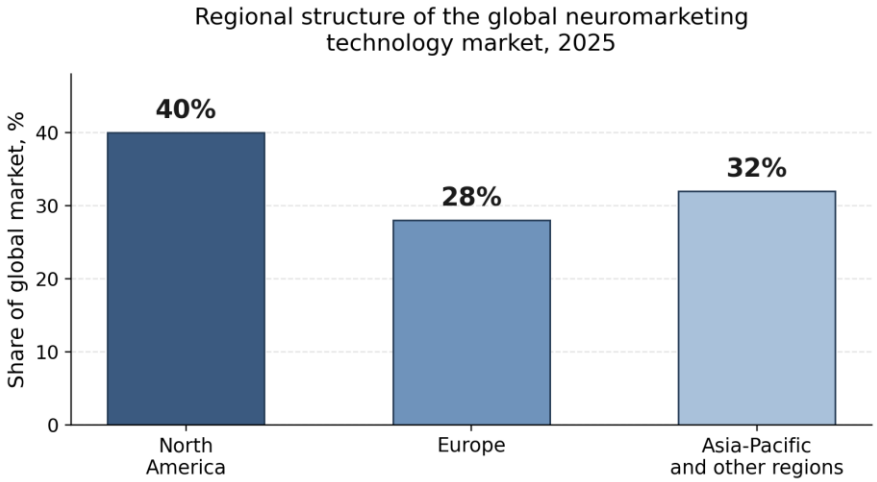


Figure 1 - Regional structure of the global neuromarketing technology market, 2025

Source: developed by the author based on [8]

These data confirm the geographic restructuring of the market: the dominance of North America is gradually eroding in favor of the Asia-Pacific region, where key global marketplaces are concentrated, while Europe's share (28%) rests on a combination of academic expertise and GDPR requirements for processing biometric data – which is why entities oriented toward the European market should build anonymization of physiological indicators into the design of their neuroanalytic infrastructure from the outset.

At the stage of developing alternative promotion strategies, neurometric data are translated into decisions regarding platform, channel, and campaign budget: for the mass B2C segment (Amazon, Alibaba), an emotionally rich, visually dominant creative remains the priority, whereas for B2B platforms such as DHL, a strategy based on rational argumentation and the gradual building of trust is warranted [5]. The cost of preliminary biometric testing of a creative is an order of magnitude lower than the cost of a full-scale relaunch of an unadapted campaign, which makes neuro-testing economically justified even on a moderate budget.

Campaign effectiveness should be assessed using a two-tier system of indicators: traditional KPIs (conversion rate, customer acquisition cost, ROI) are captured through platform analytics tools, while psychophysiological indicators – the cognitive-load index, the valence-to-arousal ratio, and attention concentration – help explain deviations of the traditional indicators from expectations and allow the creative to be adjusted before the campaign is rolled out at scale.

Conclusions.

This paper examines the role of neuromarketing technologies in transforming the international marketing communications of entities within the global commodity market infrastructure. It is established that traditional surveys and focus groups lose accuracy in cross-cultural settings because of the gap between respondents' stated preferences and their subconscious reactions, which creates a need for eye-tracking, EEG, and facial micro-expression analysis.

It is shown that marketplaces, transnational retail chains, and logistics platforms require a differentiated, rather than a unified, model of neurocognitive communication adaptation. Statistical data confirm a shift of the neuromarketing technology market toward the Asia-Pacific region, while North America retains a leading role and Europe follows a specific, GDPR-oriented development model.

The practical value of the results lies in their applicability by international corporations, retail chains, and e-commerce operators to improve the precision of communication campaigns and reduce the risk of ineffective advertising spend when entering new markets. Prospects for further research are associated with the empirical

testing of the proposed approach using specific entities of the global infrastructure as examples.

References:

1. Renvoise P., Morin C. Neuromarketing: Understanding the Buy Buttons in Your Customer's Brain. Nashville: Thomas Nelson, 2007. 240 p.

2. Lindstrom M. Buyology: Truth and Lies About Why We Buy. New York: Doubleday, 2008. 256 p.

3. Dooley R. Brainfluence: 100 Ways to Persuade and Convince Consumers with Neuromarketing. Hoboken: John Wiley & Sons, 2012. 320 p.

4. Li Q., Sun J. Digital Marketing and B2B Cross-Border E-Commerce: A Case Study of Alibaba International Station in China // Proceedings of Business and Economic Studies. 2023. Vol. 6, No. 6. P. 76–80. URL: https://doi.org/10.26689/pbes.v6i6.5786 (accessed: 13.09.2026).

5. Sapinski A., Kozlova E. Marketing Strategies for Strengthening Brand Presence in the International Logistics Market // Scientific Journal of Bielsko-Biala School of Finance and Law. 2024. Vol. 28, No. 4. URL: https://doi.org/10.19192/wsfip.sj4.2024.23 (accessed: 13.09.2026).

6. Costa-Feito A., Gonzalez-Fernandez A. M., Rodriguez-Santos C., Cervantes-Blanco M. Electroencephalography in consumer behaviour and marketing: a science mapping approach // Humanities and Social Sciences Communications. 2023. Vol. 10. Art. 474. URL: https://doi.org/10.1057/s41599-023-01991-6 (accessed: 13.09.2026).

7. Usman S. M., Khalid S., Tanveer A., Imran A. S., Zubair M. Multimodal consumer choice prediction using EEG signals and eye tracking // Frontiers in Computational Neuroscience. 2025. Vol. 18. Art. 1516440. URL: https://doi.org/10.3389/fncom.2024.1516440 (accessed: 15.09.2026).

8. Neuromarketing Market Size, Trends & Outlook, 2024–2034 // Polaris Market Research. URL: https://www.polarismarketresearch.com/industry-analysis/neuromarketing-market (accessed: 15.09.2026).

CONTENTS

Economy and trade

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-004 3
DIGITALIZATION AS A TOOL FOR IMPROVING THE EFFICIENCY OF RENEWABLE ENERGY CAPACITY UTILIZATION
Darmohrai D.V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-014 14
METHODOLOGICAL APPROACH TO ASSESSING THE IMPACT OF ELECTRONIC DOCUMENT MANAGEMENT ON THE EFFICIENCY OF ACCOUNTING PROCESSES
Holovachko V. M., Holovachko A. V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-016 39
INTELLIGENT IDENTIFICATION OF ADAPTIVE REGIMES OF UKRAINE'S BANKING SYSTEM: MARKOV SWITCHING, SOM, AND ASYNCHRONOUS POST-SHOCK RECOVERY
Hrabariev A.V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-020 51
LOCAL BUDGETS AS AN INSTRUMENT FOR IMPLEMENTING REGIONAL FINANCIAL POLICY IN THE CONTEXT OF EUROPEAN INTEGRATION PROCESSES
Chornovol A. O., Sokrovolska N. Ya., Hudz Ye.V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-042 67
TRANSFORMATION OF PUBLIC SECTOR ACCOUNTING IN THE CONTEXT OF THE ESG CONCEPT AND SUSTAINABLE DEVELOPMENT GOALS
Borovych O.V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-049 76
WORLD OIL TRADE: CURRENT TRENDS AND DRIVERS OF TRANSFORMATION
Tanasiienko N.P., Liubokhynets L., Rusin V.V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-050 90
CUSTOMS RISK MANAGEMENT IN UKRAINE: INTEGRATED PERFORMANCE ASSESSMENT AND DIGITAL DEVELOPMENT PRIORITIES
Rudyk N.V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-051 105
IMPACT INVESTING IN INTELLIGENT TRANSPORT SYSTEMS AND SMART CITY TECHNOLOGIES AS A PATH TO SUSTAINABLE URBAN MOBILITY
Levishchenko O., Levchuk V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-064 120
HOST-TO-HOST API AS A TOOL FOR IMPROVING THE EFFICIENCY OF CORPORATE BANKING SERVICES AND THE FINANCIAL FLOWS OF THE BANK
Azarenkova G.M., Tomik A.V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-072 132
FEATURES OF ACCOUNTING FOR PAWNSHOP LENDING
Kruhla M.M.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-076 140
PROBLEMS OF ACCOUNTING AND REPORTING FOR MANUFACTURING OVERHEAD COSTS
Chudovets V.V., Nedbalo Y. A.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-088 145
AUTOMATION OF BUSINESS PROCESSES OF INTERNATIONAL COMPANIES BASED ON LEAN APPROACH IMPROVING
Ohorodnyk Y., Atamanchuk Z.

Management and marketing

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-036 159
FINANCIAL AND ECONOMIC DETERMINANTS OF MARKETING INVESTMENT EFFICIENCY: INTEGRATING MICROECONOMIC AND MACROECONOMIC PERSPECTIVES
Bazarna O.V.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-044 177
NEUROMARKETING TECHNOLOGIES IN THE TRANSFORMATION OF INTERNATIONAL MARKETING COMMUNICATIONS OF GLOBAL COMMODITY MARKET INFRASTRUCTURE ENTITIES
Kukel H.S.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-053 183
CONCEPTUAL MODEL FOR MANAGING DIGITALIZATION PROJECTS IN SECTORAL MARKETING BASED ON ADVERTISING PSYCHOLOGY
Horodetskiy Yu. D.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-073 210
ADAPTIVE MANAGEMENT OF IT PROJECTS UNDER HIGH UNCERTAINTY
Kravets K. O.

Tourism and recreation

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-080 223
NEW PRODUCTS FOR TRADITIONAL HEALTH RESORTS IN THE CONTEXT OF WELLNESS TOURISM
Moroz S.E., Kalashnyk O.V., Levchenko Yu.V., Kuznietsov R.V.

Legal and political sciences

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-026 234
DISCUSSION OF THE ISSUES OF QUALIFICATION OF CRIMES COMMITTED BY A GROUP OF PERSONS IN THE CRIMINAL LAW OF THE REPUBLIC OF GEORGIA.
Aleksandre Giorgidze

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-029 241
INTELLECTUAL PROPERTY PROTECTION AS A FACTOR IN UKRAINE'S ECONOMIC RECOVERY: LEGAL TRANSFORMATIONS AND INSTITUTIONAL CHALLENGES
Yerofieienko L.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-043 263
EVALUATION OF GOVERNMENT PROGRAMS BASED ON KPI PERFORMANCE INDICATORS
Mazur V.H.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-062 269
FORMAL LOGIC AND LEGAL ARGUMENTATION: APPLICATIONS OF SYMBOLIC LOGIC IN THE FOUNDATION OF LEGAL DECISIONS
Jorovlea E. L., Chirilov L. P.

https://www.sworldjournal.com/index.php/swj/article/view/swj39-03-082 285
DRAFTING LEGAL LETTERS FOR CLARITY, ACCURACY, AND ACTION
Jorovlea Elvira Leon, Codreanu Alina Vasile

Scientific publication

International periodic scientific journal

ScientificWorldJournal

Issue №39
Part 3
September 2026

Indexed in
INDEXCOPERNICUS
high impact factor (ICV: 73)

Articles published in the author's edition

Academy of Economics named after D.A. Tsenov
Bulgaria jointly with SWorld

Signed: September 30, 2026

e-mail: editor@sworldjournal.com
site: www.sworldjournal.com

www.sworldjournal.com

ISSN 2663-5712