

ISSN: 1991-3494 (Print)
ISSN: 2518-1467 (Online)

**SCIENTIFIC JOURNAL OF
PEDAGOGY AND ECONOMICS**

**№5
2026**



ISSN 2518-1467 (Online),
ISSN 1991-3494 (Print)



SCIENTIFIC JOURNAL OF PEDAGOGY AND ECONOMICS

PUBLISHED SINCE 1944

5 (423)

September – October 2026

ALMATY, 2026

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Scientific Journal of Pedagogy and Economics

ISSN 2518-1467 (Online),

ISSN 1991-3494 (Print).

Owner: «Central Asian Academic Research Center» LLP (Almaty).

The certificate of registration of a periodical printed publication in the Committee of information of the Ministry of Information and Communications of the Republic of Kazakhstan

№ KZ50VPY00121155, issued on 05.06.2025

Thematic focus: «*publication of the results of new achievements in the field of fundamental sciences*»

Periodicity: 6 times a year.

<http://www.bulletin-science.kz/index.php/en/>

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Scientific Journal of Pedagogy and Economics

ISSN 2518-1467 (Online),

ISSN 1991-3494 (Print).

Меншіктенуші: «Орталық Азия академиялық ғылыми орталығы» ЖШС (Алматы қ.).

Қазақстан Республикасының Ақпарат және коммуникациялар министрлігінің Ақпарат комитетінде 05.06.2025 ж. берілген № **KZ50VPY00121155** мерзімдік басылым тіркеуіне қойылу туралы куәлік.

Тақырыптық бағыты: *«іргелі ғылым салалары бойынша жаңа жетістіктердің нәтижелерін жариялау»*

Мерзімділігі: жылына 6 рет.

<http://www.bulletin-science.kz/index.php/en/>

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Scientific Journal of Pedagogy and Economics

ISSN 2518-1467 (Online),

ISSN 1991-3494 (Print).

Собственник: ТОО «Центрально-азиатский академический научный центр» (г. Алматы).

Свидетельство о постановке на учет периодического печатного издания в Комитете информации Министерства информации и коммуникаций и Республики Казахстан

№ KZ50VPY00121155 выданное 05.06.2025 г.

Тематическая направленность: «публикация результатов новых достижений в области фундаментальных наук».

Периодичность: 6 раз в год.

<http://www.bulletin-science.kz/index.php/en/>

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SCIENTIFIC JOURNAL OF PEDAGOGY AND ECONOMICS

ISSN 1991-3494

Volume 5.

Number 423 (2026), 688-702

<https://doi.org/10.32014/2026.2518-1467.1311>

IRSTI: 06.71.63

UDC: 330.15:658.8:628.4

JEL: Q53, Q56, M31

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E-mail: serik_s_k@mail.ru

DEVELOPMENT OF THE CIRCULAR ECONOMY BASED ON MARKETING MODELS OF SUSTAINABLE CONSUMPTION AND WASTE RECYCLING

Tuleshova Gulzhan — PhD student, Al-Farabi Kazakh National University, Almaty, Kazakhstan,
E-mail: Gulzhan.tuleshova@mail.ru, ORCID: <https://orcid.org/0009-0006-5748-8790>;

Serikbayev Serik — Candidate of Economic Sciences, Associate Professor, Narxoz University,
Almaty, Kazakhstan,

E-mail: serik_s_k@mail.ru, ORCID: <https://orcid.org/0000-0002-5479-2109>;

Zhangirova Rimma — Candidate of Economic Sciences, Associate Professor, Kazakh National
Agrarian Research University, Almaty, Kazakhstan,

E-mail: jan_rimma@mail.ru, ORCID: <https://orcid.org/0000-0003-3970-4964>.

Abstract. *The relevance* of the study is determined by the need to transform the linear model of production and consumption amid increasing pressure on natural resources, rising waste generation, and tightening environmental requirements for business activities. Unlike the traditional approach, which treats recycling as the final stage of waste management, the circular economy aims to preserve the economic value of products, components, and materials for as long as possible. *The purpose* of the study is to substantiate the role of sustainable consumption marketing mechanisms in the development of the circular economy and to develop an integrated model of interaction among producers, consumers, recycling organisations, and the state within a closed-loop resource cycle. *The methodological framework* of the study is based on systemic and institutional approaches, comparative analysis, content analysis of scientific publications and regulatory documents, structural and logical analysis, and conceptual modelling. *As a result*, the authors propose the Circular Marketing Loop model, which integrates eco-design of products, a circular value proposition, the formation

of sustainable consumer choices, responsible use, return systems, reuse and recycling, and the reintegration of secondary resources into production. It is argued that the marketing mechanism of the circular economy should influence not only consumers' intention to purchase environmentally friendly products but also their post-purchase behaviour. *Five key factors* of circular consumer behaviour are identified: environmental awareness, trust, economic motivation, infrastructure convenience, and engagement. The practical significance of the research results lies in the possibility of applying the proposed model by enterprises, recycling operators, and public authorities to develop reverse logistics systems, promote products made from secondary materials, and stimulate sustainable consumption in Kazakhstan.

Keywords: circular economy; circular marketing; sustainable consumption; waste recycling; green economy; closed loop; consumer behaviour

For citations: Tuleshova G., Serikbayev S., Zhangirowa R. Development of the circular economy based on marketing models of sustainable consumption and waste recycling. Scientific Journal of Pedagogy and Economics, 2026. — No. 5. — P. 688-702. DOI: <https://doi.org/10.32014/2026.2518-1467.1311>.

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¹ Әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан;

² Нархоз университеті, Алматы, Қазақстан;

³ Қазақ ұлттық аграрлық зерттеу университеті, Алматы, Қазақстан.

E-mail: serik_s_k@mail.ru

ТҰРАҚТЫ ТҰТЫНУ МЕН ҚАЛДЫҚТАРДЫ ҚАЙТА ӨНДЕУДІҢ МАРКЕТИНГТІК МОДЕЛЬДЕРІ НЕГІЗІНДЕ ЦИРКУЛЯРЛЫҚ ЭКОНОМИКАНЫ ДАМУ

Тулешова Гульжан — PhD докторант, Әл-Фараби атындағы Қазақ ұлттық университеті, Алматы, Қазақстан,

E-mail: Gulzhan.tuleshova@mail.ru, ORCID: <https://orcid.org/0009-0006-5748-8790>;

Серикбаев Серик — экономика ғылымдарының кандидаты, қауымдастырылған профессор, Нархоз университеті, Алматы, Қазақстан,

E-mail: serik_s_k@mail.ru, ORCID: <https://orcid.org/0000-0002-5479-2109>;

Жангирова Римма — экономика ғылымдарының кандидаты, қауымдастырылған профессор, Қазақ ұлттық аграрлық зерттеу университеті, Алматы, Қазақстан,

E-mail: jan_rimma@mail.ru, ORCID: <https://orcid.org/0000-0003-3970-4964>.

Аннотация. *Зерттеудің өзектілігі* ресурстық жүктеменің өсуі, қалдықтардың пайда болуы және бизнес қызметіне экологиялық талаптардың күшеюі жағдайында өндіріс пен тұтынудың сызықтық моделін өзгерту қажеттілігіне байланысты. Қайта өңдеуді қалдықтармен жұмыс істеудің соңғы кезеңі ретінде қарастыратын дәстүрлі тәсілден айырмашылығы,

айналмалы экономика өнімнің, компоненттер мен материалдардың экономикалық құндылығын мүмкіндігінше ұзақ уақыт сақтауды көздейді. *Зерттеудің мақсаты* дөңгелек экономиканы дамытудағы тұрақты тұтынудың маркетингтік тетіктерінің рөлін негіздеу және тұйық ресурстық цикл шеңберінде өндірушілердің, тұтынушылардың, қайта өңдеуші ұйымдар мен мемлекеттің өзара іс-қимылының интеграцияланған моделін әзірлеу болып табылады. *Әдістемелік негізді* жүйелік және институционалдық тәсілдер, салыстырмалы талдау, ғылыми жарияланымдар мен нормативтік құжаттардың контент-талдауы, құрылымдық-логикалық талдау және тұжырымдамалық модельдеу құрады. *Нәтижесінде* өнімнің экологиялық дизайнын, айналымалы құндылық ұсынысын, тұрақты таңдауды қалыптастыруды, жауапты пайдалануды, қайтару жүйесін, қайта пайдалануды және қайта өңдеуді және қайталама ресурстарды өндіріске қайтаруды біріктіретін Circular Marketing Loop авторлық моделі ұсынылды. Дөңгелек экономиканың маркетингтік механизмі экологиялық таза өнімді сатып алу ниетіне ғана емес, сонымен қатар сатып алғаннан кейінгі тұтынушының мінез-құлқына да әсер етуі керек. Айналымалы мінез-құлықтың бес негізгі факторы бар: экологиялық сана, сенім, экономикалық мотивация, инфрақұрылымның ыңғайлылығы және қатысу. *Нәтижелердің практикалық маңыздылығы* кәсіпорындардың, қайта өңдеу операторларының және Мемлекеттік органдардың қайтарымды логистика жүйелерін қалыптастыру, қайталама материалдардан өнімдерді жылжыту және Қазақстанда тұрақты тұтынуды ынталандыру кезінде әзірленген үлгіні қолдану мүмкіндігінде жатыр.

Түйін сөздер: циркулярлық экономика; циркулярлық маркетинг; тұрақты тұтыну; қалдықтарды қайта өңдеу; жасыл экономика; тұйық цикл; тұтынушылық мінез-құлық

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¹Казахский национальный университет имени аль-Фараби,
Алматы, Казахстан;

²Университет Нархоз, Алматы, Казахстан;

³Казахский национальный аграрный исследовательский университет,
Алматы, Казахстан.

E-mail: serik_s_k@mail.ru

РАЗВИТИЕ ЦИРКУЛЯРНОЙ ЭКОНОМИКИ НА ОСНОВЕ МАРКЕТИНГОВЫХ МОДЕЛЕЙ УСТОЙЧИВОГО ПОТРЕБЛЕНИЯ И ПЕРЕРАБОТКИ ОТХОДОВ

Тулешова Гульжан — докторант PhD, Казахский национальный университет имени аль-Фараби, Алматы, Казахстан,

E-mail: Gulzhan.tuleshova@mail.ru, ORCID: <https://orcid.org/0009-0006-5748-8790>;

Серикбаев Серик — кандидат экономических наук, ассоциированный профессор, Университет Нархоз, Алматы, Казахстан,



E-mail: serik_s_k@mail.ru, ORCID: <https://orcid.org/0000-0002-5479-2109>;

Жангирова Римма — кандидат экономических наук, ассоциированный профессор, Казахский национальный аграрный исследовательский университет, Алматы, Казахстан,

E-mail: jan_rimma@mail.ru, ORCID: <https://orcid.org/0000-0003-3970-4964>.

Аннотация. *Актуальность исследования обусловлена необходимостью трансформации линейной модели производства и потребления в условиях роста ресурсной нагрузки, образования отходов и усиления экологических требований к деятельности бизнеса. В отличие от традиционного подхода, рассматривающего переработку как завершающую стадию обращения с отходами, циркулярная экономика предполагает сохранение экономической ценности продукции, компонентов и материалов на протяжении максимально продолжительного периода. Цель исследования заключается в обосновании роли маркетинговых механизмов устойчивого потребления в развитии циркулярной экономики и разработке интегрированной модели взаимодействия производителей, потребителей, перерабатывающих организаций и государства в рамках замкнутого ресурсного цикла. Методологическую основу составили системный и институциональный подходы, сравнительный анализ, контент-анализ научных публикаций и нормативных документов, структурно-логический анализ и концептуальное моделирование. В результате предложена авторская модель Circular Marketing Loop, объединяющая экологическое проектирование продукта, циркулярное ценностное предложение, формирование устойчивого выбора, ответственное использование, систему возврата, повторное использование и переработку, а также возвращение вторичных ресурсов в производство. Обосновано, что маркетинговый механизм циркулярной экономики должен воздействовать не только на намерение приобрести экологичный товар, но и на поведение потребителя после покупки. Выделены пять ключевых факторов циркулярного поведения: экологическая осведомленность, доверие, экономическая мотивация, удобство инфраструктуры и вовлеченность. Практическая значимость результатов заключается в возможности применения разработанной модели предприятиями, операторами переработки и государственными органами при формировании систем возвратной логистики, продвижении продукции из вторичных материалов и стимулировании устойчивого потребления в Казахстане.*

Ключевые слова: циркулярная экономика; циркулярный маркетинг; устойчивое потребление; переработка отходов; зеленая экономика; замкнутый цикл; потребительское поведение

Introduction. The modern model of economic growth has been shaped over a long period, primarily based on a linear principle of resource flow: raw material extraction, product manufacturing, sales, consumption, and the subsequent disposal of resulting waste. This model has enabled the expansion of mass production and

consumption, but its continued operation is accompanied by increased material intensity, waste accumulation, and a greater burden on natural systems. As a result, the task of improving the efficiency of resource use has gradually shifted from a predominantly environmental problem to one of enterprise competitiveness, supply chain resilience, and long-term economic security.

One of the systemic responses to these challenges is the circular economy. At its core lies not just an increase in processing volumes, but a fundamental change in the logic of value creation: the product, its components, and the materials contained within it must retain economic utility for as long as possible. Kirchherr, Reike, and Hekkert (2017), having analysed 114 definitions of circular economy, showed that the concept is significantly broader than the traditional reduce–reuse–recycle triad and systemic changes in production, consumption, and the organisation of economic relations. Geissdoerfer et al. (2017) also characterise the circular economy as an independent paradigm associated with slowing, closing, and reducing resource flows. The scale of the waste management problem confirms the need for such a transition. UNEP (2024) points to a further increase in the volume of municipal solid waste worldwide, which increases the burden on waste management systems and raises the importance of transitioning to models that prevent waste generation, reuse, and recover resources.

However, the technological capability to process waste does not yet create a circular economy. If a product is designed to be disposable, consumers are not ready to use refurbished goods, the return infrastructure is inconvenient, secondary raw materials are perceived as lower quality, and the product's environmental characteristics are not credible; as a result, the material cycle remains open. Therefore, the modern discussion about circularity is gradually shifting from processing technologies to business models and consumer behaviour. OECD (2019) identifies five basic types of circular business models: circular supply, resource recovery, product life extension, sharing, and product-service systems. They are united by a change in the direction of the material flow and a reduction in the dependence of value creation on the constant consumption of primary raw materials.

Under these conditions, the importance of marketing increases. Traditionally, marketing focuses on stimulating demand and increasing sales volume. However, in the context of a circular economy, this understanding becomes insufficient. A circular business model may be interested not in the maximum number of new sales but in extending a product's service life, repairing it, renting it out, sharing it, returning it, restoring it, and creating a secondary market. Consequently, there is a need to move from green marketing, which is primarily based on promoting environmental characteristics, to the broader concept of circular marketing, which links marketing decisions to the entire product life cycle. This problem is especially relevant for Kazakhstan. The concept for managing all types of waste in the Republic of Kazakhstan for 2026–2030 focuses the waste management system on

developing resource-saving practices, expanding recycling, integrating secondary resources into economic circulation, and fostering responsible behaviour among the population and businesses.

The study aims to provide a theoretical foundation for the marketing mechanism for circular economy development and to develop an integrated model to foster sustainable consumption, product returns, and the integration of waste into secondary economic circulation. The scientific novelty of the study lies in the development of the Circular Marketing Loop model, in which marketing is viewed not as a separate function for promoting eco-friendly products, but as a mechanism for managing the behaviour of participants throughout the entire product lifecycle - from the formation of a circular value proposition to the return of materials to production.

Literature Review. The theoretical foundation of the circular economy has been shaped at the intersection of industrial ecology, environmental economics, sustainable development, supply chain management, and business model theory. At the same time, there is no unified interpretation of circularity in the scientific literature. Kirchherr et al. (2017) identified significant heterogeneity in definitions of the circular economy and noted the predominance of approaches focused on reducing, reusing, and recycling resources. At the same time, the authors emphasise the need for systematic measurement of circularity at the micro-, meso-, and macrolevels.

Geissdoerfer et al. (2017) distinguish between the circular economy and sustainable development. Sustainability is viewed as a broader ultimate goal, whereas circularity represents one of the mechanisms for achieving it. This distinction is fundamentally important for marketing research: the environmental friendliness of marketing communication does not necessarily mean that the business model is circular.

Geissdoerfer et al. (2020) systematised research on circular business models and showed that a change in the logic of value creation, transfer, and retention is one of the main conditions for the practical implementation of circular economy principles.

A separate area of research concerns consumer behaviour. Camacho-Otero, Boks, and Pettersen (2018) show that consumption is not an auxiliary but a structural element of the closed-loop economy. Reuse, exchange, repair, shared consumption, and the purchase of refurbished goods require consumers to actively adopt the relevant models.

Sharma (2021), summarising research on green marketing and consumer behaviour, notes a persistent gap between environmental attitudes and actual purchases of eco-friendly products. A positive attitude towards environmental initiatives does not automatically lead to a change in actual behaviour. Prieto-Sandoval, Torres-Guevara, and García-Díaz (2022) demonstrate the importance of environmental education and marketing communication for

changing consumer attitudes. For a circular economy, the issue of attitudes towards remanufactured products is particularly important. Abbasi et al. (2022) showed that the decision to purchase remanufactured products is linked to a combination of behavioural, emotional, and market factors, and consumer acceptance becomes an independent constraint on the closed supply chain.

Trust becomes the central element of the circular market. The consumer must understand the origin of the secondary product, its quality, environmental impact, possible service life, and the manufacturer's responsibility. This takes on additional significance in light of the risks associated with greenwashing: unsubstantiated environmental claims can undermine trust in environmental offerings as a whole. In Kazakhstan, research on the circular economy is primarily focused on waste management, institutional conditions, and infrastructure constraints. Lygina et al. (2021) argue for the need to develop a fully functional market for secondary resources and to expand information efforts targeting the public. Karaca and Tleuken (2024) demonstrate the economic potential of modernising recycling infrastructure in Kazakhstan, using construction waste as an example, and highlight the need to integrate secondary materials into value chains. Zhaksybayeva et al. (2024) examine the emerging ecosystem of circular entrepreneurship in Kazakhstan and demonstrate the need to create conditions to scale relevant business models.

Thus, the literature analysis reveals a research gap. A significant number of studies examine circular business models, recycling, or environmentally friendly consumption separately. However, the mechanism that combines marketing impact before purchase, product use, and consumer behaviour after the initial period of operation has not been sufficiently developed. It is this gap that is the subject of this study.

Materials and Methods. The information base of the study consists of scientific publications on circular economy, sustainable consumption, green and circular marketing, circular business models, reuse and recycling of waste, as well as analytical materials from the OECD and UNEP and regulatory and legal documents of the Republic of Kazakhstan in the field of green economy and waste management. The time horizon of the scientific sources primarily spans 2017–2026, enabling consideration of both the basic theoretical provisions of the circular economy and recent studies on consumer behaviour and marketing mechanisms for transitioning to a closed-loop economy.

The research methodology is based on a combination of systemic, institutional, comparative, and behavioural approaches. The systemic approach examines production, consumption, return, reuse, and recycling as interconnected elements of a single resource cycle. The institutional approach is used to analyse the roles of government regulation, extended producer responsibility, environmental standards, economic incentives, and waste management infrastructure. The behavioural approach enabled the identification of the factors that determine a consumer's willingness to participate in circular practices. The study was conducted sequentially in several stages. In the first stage, a substantive analysis

of scientific literature and institutional documents was conducted to clarify the concepts of “circular economy,” “circular marketing,” “sustainable consumption,” and “circular consumer behaviour.” Special attention was paid to works in which circularity is considered not only as the processing of technological waste but also as a change in business models, consumer practices, and value-creation mechanisms.

In the second stage, the linear and circular models of marketing interaction were compared using comparative analysis. The comparison was carried out using criteria such as the marketing objective, the economic goal, the attitude towards the product’s life cycle, the consumer’s role, logistics organisation, the use of waste as a resource, and the nature of after-sales interaction. This made it possible to determine which marketing functions change when moving from the “production – sale – consumption – disposal” model to a closed-loop value creation and return cycle.

In the third stage, a content analysis of studies on consumer behaviour is conducted to systematise the determinants of the population’s participation in circular practices. The final analytical framework includes five groups of factors: environmental awareness (AW), trust (TR), economic incentives (EI), convenience of participation (CV), and consumer engagement (EN). Circular behaviour (CB) in the study is understood as a set of actions aimed at keeping products and materials in economic circulation: choosing durable or refurbished goods, repairing, reusing, sharing, sorting, and returning used products.

The conceptual relationship of circular behaviour is presented in Formula 1:

$$CB = f(AW, TR, EI, CV, EN) \quad (1)$$

This notation is not an estimated econometric equation and does not imply the presence of calculated coefficients. It serves as a theoretical basis for systematising factors and for subsequent empirical testing of the model using consumer survey data.

At the fourth stage, the author’s model of the Circular Marketing Loop was developed using structural-logical and conceptual modelling methods. In its construction, eight elements were consistently combined: Circular Design, Circular Value Proposition, Sustainable Choice, Responsible Use, Take-back, Recovery, Re-entry and Feedback. Unlike the linear approach, the model's endpoint is not the sale of a product but the return of economic and material value to a new production cycle.

At the fifth stage, an institutional interpretation of the proposed model was conducted for Kazakhstan. The provisions of the national green economy policy and waste management were analysed, which determine the development of recycling, secondary resource circulation, environmental culture, digitalisation, and responsible behaviour of producers and consumers. Comparing institutional priorities with the elements of the Circular Marketing Loop made it possible to

identify potential areas for the practical application of the model by enterprises, recycling operators, and government bodies.

The methodological difference of the proposed approach lies in the fact that the object of analysis is not a separate stage of waste processing, but the full cycle of marketing interaction, which includes the formation of sustainable demand, the use of the product, its return, and the re-inclusion of materials into economic circulation. This approach allows marketing to be viewed as a mechanism for coordinating direct and reverse flows of materials, economic resources, and information.

However, the methodology has limitations. First, the study is conceptual and does not include results from a representative consumer survey. Second, the proposed functional relationship among the factors of circular behaviour has not been assessed econometrically. Third, the institutional component reflects current directions in state policy but does not measure the actual effectiveness of individual instruments. Therefore, the Circular Marketing Loop should be considered a theoretical and methodological model intended for subsequent empirical testing.

Disclosure of the use of generative AI. OpenAI ChatGPT (GPT-5.6 Sol) was used exclusively for technical formatting, language editing, and structural organisation of the manuscript. The tool was not used to obtain original statistical data or perform empirical calculations; the authors are responsible for the scientific content, interpretation of sources, and the final version of the manuscript.

Results. The analysis shows that the transition from a linear economy to a circular one requires the simultaneous transformation of three flows: material, economic, and informational. The material flow must ensure the return of a product or material after use. The economic flow must generate benefits for all participants in the return chain. The information flow must ensure trust, traceability, and the consumer's understanding of their own role in the circular cycle.

Table 1 — Transformation of marketing logic during the transition to a circular economy

Criteria	Linear model	Circular model
The main object of marketing	New product	Product, service, and lifecycle
The main economic goal	Increase in sales volume	Preserving and re-creating value
Attitude towards the service life	Stimulation of renewal	Extending the service life
The role of the consumer	Buyer and user	Buyer, user, and participant in the return cycle
Waste	Final result	Potential resource
Logistics	Direct	Direct and reverse
After the sale	Limited interaction	Repair, return, trade-in, reuse
Key communication	Advantages of the purchase	Value of ownership, use, and return
Source of trust	Brand and quality	Brand, quality, environmental proof, and traceability
<i>Note: compiled by the authors based on data from Geissdoerfer et al. (2020), OECD (2019), and Camacho-Otero et al. (2018).</i>		

The table shows that circular marketing cannot be reduced to environmental advertising. Its focus is the entire product life cycle. Based on the systematisation of the literature, five main marketing models of the circular economy have been identified: the product life cycle extension model; the reuse and recovery model; product-as-a-service; return marketing; and secondary resource marketing. These models align with the OECD classification, but in this work they are supplemented with a behavioural component.

The author's Circular Marketing Loop model. The main result of the study is the Circular Marketing Loop model, which reflects the sequence of value creation and return. The model is cyclical and combines ecological design, value proposition, sustainable choice, responsible use, return, recovery, resource reuse, and feedback.

Table 2 — Structure of the Circular Marketing Loop model

Stage	Economic content	Marketing tool	Expected outcome:
Circular Design	Designing a durable and recyclable product	value engineering, eco-design	- reduction of future waste;
Circular Value Proposition	Creating value in a circular supply chain	positioning, brand, eco-label	- increased appeal;
Sustainable Choice	Making choices	information, nudging, comparison	- growth of sustainable demand;
Responsible Use	Extending product use	service, repair, warranty	- extended service life;
Take-back	Product return	trade-in, deposit, bonus	- creation of a reverse flow;
Recovery	Repair, reuse, remanufacturing, recycling	partnership programs	- resource conservation;
Re-entry	Returning materials to production	B2B marketing of secondary raw materials	- closure of the material cycle;
Feedback	Data analysis	Digital traceability, CRM	- improvement of the next product cycle.
<i>Note: developed by the authors.</i>			

The sequence of the model can be represented as follows: Circular Design → Circular Value Proposition → Sustainable Choice → Responsible Use → Take-back → Recovery → Re-entry → new Circular Design. Thus, the final point of marketing is not a sale, but the return of economic value to a new cycle.

Factors of circular consumer behaviour. The results of the literature synthesis allow us to group the key factors into five blocks. Environmental awareness is a necessary but not sufficient condition: even an environmentally conscious consumer may not participate in a return system if the infrastructure is inconvenient, the mechanism is unclear, or there is no economic incentive.

Table 3 — Determinants of Circular Consumer Behaviour

Factor	Content:	Possible marketing measures:
Environmental Awareness	- understanding of the environmental consequences of consumption;	- education, information campaigns;
Trust	- trust in quality, environmental claims, and recycling;	- certification, transparency, guarantees;
Economic Incentive	- material benefits;	- discounts, deposits, cashback, trade-in;
Convenience	- ease of participation;	- accessible collection points, digital services;
Engagement	- identification as a participant in the circular economy.	- loyalty programs, community marketing.
<i>Note: compiled by the authors based on the works of Sharma (2021), Prieto-Sandoval et al. (2022), and Abbasi et al. (2022).</i>		

Circular marketing and waste recycling. Within the framework of the proposed approach, recycling is just one of the levels of value preservation. A higher priority should be given to preventing waste generation, reducing resource consumption, and extending product service life through repair and reuse. Recycling becomes necessary when preserving the product or its components in their original form is no longer possible.

This fundamentally changes the role of waste. Instead of being an economically neutral or negative disposal object, waste becomes a potential resource asset. However, transforming waste into a resource requires a market. If the secondary raw materials produced lack stable demand, technical processing does not ensure the full economic closure of the cycle. Therefore, the processing sector needs to be integrated with secondary-material marketing, manufacturers' procurement policies, and requirements for the content of recycled materials.

Kazakhstan's transition model. In Kazakhstan, the institutional prerequisites for expanding the circular approach are being strengthened. The concept for managing all types of waste in the Republic of Kazakhstan for 2026–2030 is to develop a system that covers the waste life cycle, from prevention to the management of residual flows. Among the key areas are developing modern infrastructure, reducing landfilling, supporting green businesses, digitalisation, and fostering a culture of responsible waste management.

Based on this, the circular marketing interaction chain proposed for Kazakhstan has the following structure, as shown in Figure 1.

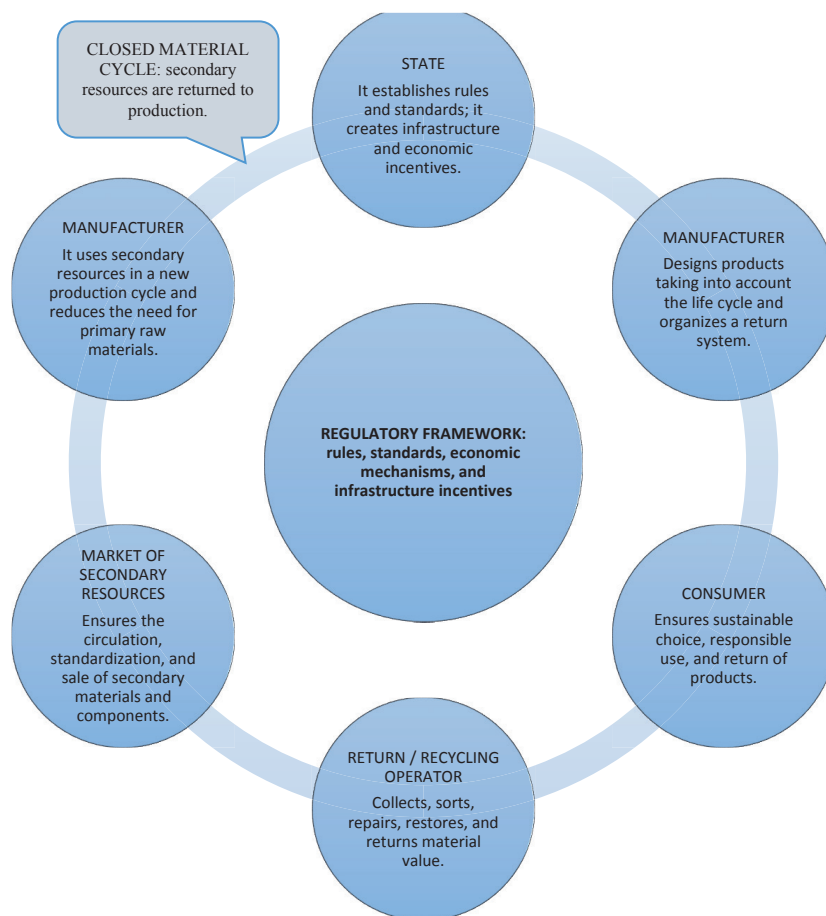


Figure 1 — Circular marketing interaction chain

* The logic of the cycle: regulation → design and return → responsible consumption → value recovery → secondary market → reuse and remanufacturing.

Discussion. The results obtained make it possible to expand the traditional interpretation of marketing in the green economy. Green marketing primarily addresses how to create demand for an environmentally preferable product. Circular marketing must also address how to ensure longer product use and how to recover its economic value after use. This is what distinguishes circular marketing from simple environmental positioning.

The proposed model aligns with Geissdoerfer et al. (2020), who view the business model as a key tool for transitioning to circularity; however, it expands on their approach by incorporating a detailed marketing logic for consumer interaction. The findings also align with Camacho-Otero et al. (2018), since the consumer's role is not limited to making a purchase decision. The consumer becomes a participant in the movement of material resources.

The importance of trust is particularly significant. For circular marketing, this means moving from declarative communication to evidence-based communication. It is not enough to indicate on the packaging or digital interface that a product is “green”. It is advisable to disclose the share of secondary material, the possibility of repair, the return mechanism, the conditions for restoration, and the further movement of the collected material.

Digital traceability is becoming a promising direction. In the Circular Marketing Loop model, the digital infrastructure serves a dual function: it reduces information asymmetry for consumers. It provides the manufacturer with information about the product’s post-sale movement.

As a result, the marketing KPI system itself is changing. In the traditional model, the main indicators may be sales, conversion, and repeat purchase. In a circular system, these should be supplemented by the product return rate, the average service life, the share of reuse, the share of secondary materials, the share of customers participating in take-back, the cost of returning a unit of material, and the percentage of recovered products resold on the market.

A distinctive feature of Kazakhstan is that the development of a circular economy is taking place simultaneously with the formation of the corresponding infrastructure and consumer culture. Therefore, state and corporate policy should be based on the principle of integrating motivation and opportunity: the consumer should simultaneously have a reason to participate and a real opportunity to do so.

Conclusion. The study showed that developing a circular economy requires a shift from a narrow focus on waste processing to managing the full life cycle of products and materials. Circularity is not achieved at the moment of processing but is formed much earlier - at the stage of product design, choice of business model, and creation of consumer value.

One key result of the study is the substantiation of circular marketing's independent role. Unlike traditional marketing, which is primarily focused on sales, and green marketing, which concentrates on the environmental characteristics of the offer, circular marketing covers the entire cycle of interaction between the producer and the consumer.

An author’s model of the Circular Marketing Loop is proposed, comprising eight interrelated elements: Circular Design, Circular Value Proposition, Sustainable Choice, Responsible Use, Take-back, Recovery, Re-entry, and Feedback. The scientific novelty of the model lies in combining direct and reverse market flows into a single marketing system.

Five determining factors of circular behaviour are identified: environmental awareness, trust, economic incentives, convenience and engagement. It is shown that environmental motivation alone does not ensure circular behaviour. To turn intention into action, the system needs trust, clear economic benefits, and accessible infrastructure.

For Kazakhstan, developing circular marketing is important given the transition

to a green, resource-saving economy. Further development of the circular economy is advisable through integrating governmental, production, and marketing mechanisms, including trade-in and take-back systems, repair infrastructure, standardisation of secondary raw materials, environmental labelling, digital traceability, and the formation of demand for products made from secondary materials.

The limitation of this study is its conceptual nature. A promising direction for further research is the quantitative testing of the Circular Marketing Loop in Kazakhstan, using survey data and regression analysis or structural modelling methods.

Declaration of Generative AI and AI-assisted Technologies: During manuscript preparation, generative AI tools were used for language editing, structural organisation, and stylistic improvement. The authors subsequently reviewed, verified and edited the manuscript and take full responsibility for its scientific content.

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ISSN 2518–1467 (Online),

ISSN 1991–3494 (Print)

<http://www.bulletin-science.kz/index.php/en>

Managing Editor: A.Shormakova

Editors: D.S. Alenov, M.Konyrbekov

Computer layout: G.D. Zhadyranova

Signed for print: October 15, 2026

Format: 70×90 1/16. 26.5 printed
sheets. Order No. 5.