

Springer Proceedings in Business and Economics

Anna Rummyantseva  
Hod Anyigba  
Elena Sintsova  
Natalia V. Vasilenko *Editors*

# Finance, Economics, and Industry for Sustainable Development

Proceedings of the 4th International  
Scientific Conference on Sustainable  
Development (ESG 2023), St.  
Petersburg 2023

 Springer

**Springer Proceedings in Business  
and Economics**

Springer Proceedings in Business and Economics brings the most current research presented at conferences and workshops to a global readership. The series features volumes (in electronic and print formats) of selected contributions from conferences in all areas of economics, business, management, and finance. In addition to an overall evaluation by the publisher of the topical interest, scientific quality, and timeliness of each volume, each contribution is refereed to standards comparable to those of leading journals, resulting in authoritative contributions to the respective fields. Springer's production and distribution infrastructure ensures rapid publication and wide circulation of the latest developments in the most compelling and promising areas of research today.

The editorial development of volumes may be managed using Springer Nature's innovative EquinOCS, a proven online conference proceedings submission, management and review system. This system is designed to ensure an efficient timeline for your publication, making Springer Proceedings in Business and Economics the premier series to publish your workshop or conference volume.

This book series is indexed in SCOPUS.

Anna Rumyantseva • Hod Anyigba •  
Elena Sintsova • Natalia V. Vasilenko  
Editors

# Finance, Economics, and Industry for Sustainable Development

Proceedings of the 4th International Scientific  
Conference on Sustainable Development  
(ESG 2023), St. Petersburg 2023

 Springer

*Editors*

Anna Rumyantseva  
Saint Petersburg University of Management  
Technologies and Economics  
St. Petersburg, Russia

Hod Anyigba  
Nobel International Business School  
Accra, Ghana

Elena Sintsova  
Saint Petersburg University of Management  
Technologies and Economics  
St. Petersburg, Russia

Natalia V. Vasilenko  
Saint Petersburg University of Management  
Technologies and Economics  
St. Petersburg, Russia  
International Banking Institute  
Anatoliy Sobchak  
St. Petersburg, Russia

ISSN 2198-7246 ISSN 2198-7254 (electronic)  
Springer Proceedings in Business and Economics  
ISBN 978-3-031-56379-9 ISBN 978-3-031-56380-5 (eBook)  
<https://doi.org/10.1007/978-3-031-56380-5>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2024

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG  
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

If disposing of this product, please recycle the paper.

# Contents

<b>Sustainable Development as a New Paradigm of Economic Security in a Multipolar World.</b> . . . . .	1
Natalia V. Vasilenko and Vitaly A. Mordovets	
<b>Sustainable Agriculture for Muslim Farmers in Thailand: Blending Islamic Principles of Sustainable Living.</b> . . . . .	13
Felicito Jabutay, Tan Limpachote, and Sasithorn Suwandee	
<b>Prospects for Russia: SPIEF 2023 Agenda.</b> . . . . .	33
Elena A. Sereda, Maria P. Efremova, and Anna-Maria Arias	
<b>Youth Craft Entrepreneurship as a Form of Promoting Ethnic Specificity (on the Example of Kazan)</b> . . . . .	43
Albina R. Garifzianova	
<b>The Instruments of Sustainable Development Financing: Trend Analysis and Search for Opportunities.</b> . . . . .	53
Anna Rumyantseva and Olga Tarutko	
<b>Volunteer Practices in the System of Socially Oriented Activities of Organizations</b> . . . . .	71
Maria Eflova and Anna Lipatova	
<b>Application of Digital Twin of an Enterprise in the Context of Implementation of the Sustainable Development Concept in Financial Management.</b> . . . . .	79
Vladimir A. Kunin and Igor E. Ryskov	
<b>Approaches to Managing Organizational and Non-organizational Stresses in the Gig Economy and Precarization of Labor Relations</b> . . . . .	93
Elena V. Kulchitskaya, Darya G. Shvetsova, and Yana A. Kalugina	
<b>Big Data as a Tool for Assessing Consumer Practices and Efficiency of Consumer Problem Solving.</b> . . . . .	103
Anna Lipatova	

<b>Reflection of the Youth Social Problems in Russian Social Advertising</b> .....	115
Tatiana Afanasyeva, Elena Torgunakova, and Evgeniy Torgunakov	
<b>Revisiting the ESG Agenda Requirements for the Corporate Strategy of Large Companies</b> .....	123
Heydar S. Hasanov, Yuliya I. Rastova, and Alla Yu. Gorbunova	
<b>Environmentally Oriented Cost Accounting and Accounting of Estimated Liabilities of Economic Entities</b> .....	131
Dmitry Karagodin and Maria Tsyguleva	
<b>International Legal and Economic Aspects of Transportation by Railways in the EAEU and the People’s Republic of China</b> .....	141
Yury Mishalchenko, Grigoriy Gumenyuk, and Maria Mishalchenko	
<b>Prospects for the Implementation of Sustainable Development Agenda in the Agricultural Sector of the Economy</b> .....	149
Galina Gritsenko, Svetlana Levina, and Svetlana Dovbysh	
<b>Modern Imperatives of Economic Security System Development: National Priorities and Challenges</b> .....	159
Natalia Meshkova, Olga Boyarskaya, Elena Golovchanskaya, and Julia Stepanova	
<b>The Use of Blockchain Technology for Transport and Logistics Systems in the Digital Economy</b> .....	171
Irina Vaslavskaya, Irina Koshkina, and Rimma Zaripova	
<b>Additional Education as a Resource for Sustainable Development of a University</b> .....	183
Natalia Ionova, Inga Filippova, Ksenia Derevianko, and Anastasia Kopyeva	
<b>Tax Transparency in Sustainability Reporting</b> .....	195
Svetlana Zhutiaeva, Mikhail Makarov, and Alexander Usanov	
<b>Rehearsal of a Local Flood and Climate Change</b> .....	205
Vitaly I. Akselevich, Gennady I. Mazurov, and Artur V. Sauts	
<b>Prospects for Comprehensive Forecasts When Assessing the Load of Railway Transport Infrastructure</b> .....	217
Ekaterina Malovetskaya, Elena Voskresenskaya, and Anna Mozalevskaya	
<b>On the Use of Digital Technologies in the Process of Tourist and Recreational Development of UNESCO World Heritage Sites in Danger</b> .....	227
Babek Asadov, Alexander Baranov, and Inga Filippova	

<b>Preserving Macro-environment Sustainability in the Russian Federation: Key Trends and Risks</b> .....	239
Ludmila N. Babkina, Oksana V. Skotarenko, and Elena S. Kuznetsova	
<b>Forecasting Profit from Sales Based on the Bit Analysis Methodology as an Element of the Process of Sustainable Economic Growth (ESG) Concept.</b> .....	253
Gniyatulla Ishbayev, Anatoly Kuritsyn, and Natalia Lazareva	
<b>Transformation of the Transport and Logistics Industry in the Context of Digital Economy Development.</b> .....	265
Rimma Zaripova, Alexander Nikitin, and Alsu Rustamova	
<b>ESG Parameters of Technopreneurship</b> .....	275
Elena Ivleva, Elena Sintsova, and Nina Shashina	
<b>Modeling and Forecasting Social Processes in the Labor Market</b> .....	281
Olga S. Elkina and Stanislav E. Elkin	
<b>Formation of a Technological Model as an Information System Form of the Ecosystem</b> .....	301
Tatiana N. Kosheleva, Vitaly A. Mordovets, and Alexey V. Novoselov	
<b>Promotion of ESG Principles in the Russian Banking Sector</b> .....	313
Olga L. Bezgacheva, Anastasia V. Cheryapina, and Nadezhda M. Purina	
<b>Professional and Personal Development of a Student as a Key to Sustainable Development of the State</b> .....	323
Elena M. Zorina, Anzhelika Yu. Ivanova, and Elena I. Chirkova	
<b>Management of a School Team's Sustainable Development</b> .....	337
Marina V. Lazareva, Lyudmila A. Deikova, and Elena V. Gubanova	
<b>Mathematical Modeling of Transportation Flows</b> .....	349
Elizaveta A. Petrova, Tamara K. Filimonova, and Galina A. Ovseenko	
<b>Key Resources for Sustainable Development of Intersectoral Cooperation</b> .....	359
Natalya Golubetskaya, Kirill Kazachenko, and Ekaterina Kovalenko	
<b>Technological Integration of Environmentally Friendly Industries as a Factor of ESG Transformation.</b> .....	367
Lyudmila M. Davidenko, Alexander E. Miller, and Ansagan N. Beisembina	
<b>Innovation Clusters as a Factor of Sustainable Territorial Development in the Context of Digital Transformation</b> .....	377
Dmitry Napolskikh	



<b>CSR and ESG Transformation of Russian Brands: Cases of Food Industry Companies</b> .....	389
Veronika V. Lizovskaya and Artem A. Moldovan	
<b>Convergence of Sustainable Economic Development in Russian Regions</b> .....	401
Anastasia Kurilova, Dmitry Gura, and Svetlana Vasilyeva	
<b>Technologies of Eco-Branding of the Region's Industrial Complex</b> .....	413
Lyudmila M. Davidenko, Maxim A. Miller, and Nurzhanat M. Sherimova	
<b>Implementation of Industrial Policy to Ensure Sustainable Development of the Economy of the Russian Federation</b> .....	425
Vitaly A. Mordovets, Yuri N. Vlasov, and Anna M. Khakhina	
<b>Issues of Transformation of Economic Relations and the Application of Contemporary Financial Instruments in the Energy Sector of the Russian Arctic Zone</b> .....	439
Olga N. Korableva, Vera D. Nikiforova, and Alexander A. Nikiforov	
<b>Specifics of Sustainable Development of Medical Tourism in South Korea</b> .....	451
Artur V. Kuchumov, Polina Yu. Eremicheva, and Ilia V. Bogrov	
<b>Competitive Activities as a Means of Improving Professional Training of Students in the Sphere of Technology and Interaction with Business</b> .....	465
Vera A. Fedotova, Guzel Il. Seletkova, and Natalia F. Bolshakova	
<b>Factors of Organizational Sustainability</b> .....	477
Elena V. Lylova	
<b>Selection of Financial Planning Methodology to Meet the Goals of ESG Strategies</b> .....	487
Elena Sintsova, Artem A. Moldovan, and Olga Voskresenskaya	
<b>Assessment of the Production Complex Sustainability of Leading Industrial Regions of the Russian Federation</b> .....	497
Anastasia V. Kupryakova, Miron A. Rastov, and Iury V. Gorbunov	
<b>Disclosure of Non-financial Information in Corporate Reporting as a Way to Company's Sustainable Development under the Implementation of ESG Technologies</b> .....	507
Anna Rumyantseva, Natalia Lazareva, and Elena Goncharova	
<b>On the Problem of Social and Labor Adaptation of the Age Population in Modern Conditions</b> .....	519
Svetlana G. Nikolaeva and Luiza A. Yandarbaeva	

**State Financing of Siberia in the Context of Sustainable Development Goals** ..... 529  
 Dinar R. Baetova, Alla V. Zinich, and Oksana A. Gololobova

**Development of Green Economy and Balance of Economic Interests in Society** ..... 541  
 Sergey Yu. Solodovnikov, Tatsiana V. Serhiyevich, Elena V. Ushakova, and Oleg A. Smakotin

**New Regionalization and Evolution of the Concept of “Environmental Safety”** ..... 551  
 Sergey Yu. Solodovnikov, Tatsiana V. Serhiyevich, Aleksandr L. Pastukhov, and Vera A. Fedotova

**Risks of an Increase in International Technological Cooperation in the Context of Industry 4.0** ..... 561  
 Sergey Yu. Solodovnikov, Olga D. Ugolnikova, Aleksandr S. Dobkin, and Anastasia V. Ivahova

**Evolution of the Idea and Practice of Sustainable Development** ..... 573  
 Anna Rumyantseva, Sergey Yu. Solodovnikov, and Ksenia V. Skoraya

**The Problem of Legal Regulation of Intimate Services: The Use of Artificial Intelligence** ..... 583  
 Elena Voskresenskaya, Aleksey Dalinin, and Aleksey Volnov

**Strategic Competences Development as a Key Sustainability Factor: A Case Study of Bakery Production Company in Russia** ..... 591  
 Ksenia A. Kouzmina, Marina V. Vorobyova, and Dmitry V. Dmitriev

**Interaction Between the State and Business as a Management Process of Ensuring Sustainable Development** ..... 601  
 Tatyana N. Kosheleva, Vitaly A. Mordovets, Natalya Yu. Kuchieva, and Edgar O. Vardanyan

**Problems of Energy Efficiency Improvement in Mechanical Engineering** ..... 609  
 Anna Kalyashina, Yuri Smirnov, and Rimma Zaripova

**Public-Private Partnership as an Effective Tool for Managing the Sustainable Development System in Russia** ..... 619  
 Elena Vitsko, Elena Sintsova, and Valentina Kordovich

**Implementation of Digital Solutions in the Housing and Utilities Sector in the Context of Digital Transformation** ..... 629  
 Vera A. Fedotova and Olga A. Ganina

# Technologies of Eco-Branding of the Region's Industrial Complex



Lyudmila M. Davidenko, Maxim A. Miller, and Nurzhanat M. Sherimova

**Abstract** Symbiosis of technology of production and sale of ecological products, establishment of technological links in the promotion of ecological branding of industrial products and the development of recommendations for participants of “green” integration can become the basis for prospective research in the directions of “green” economy. According to global trends, taking into account the energy transition, the transformation of human capital towards a new perception of the ecosystem is expected in the near future. In this regard, the need of companies and their contact audience for special environmental branding technologies are increasing. The aim of the study is to substantiate the need for eco-branding of the industrial complex of the region based on the systematisation of approaches to promote green branding, green production and green financing. Achievement of the goal is associated with the processing of reliable statistical information, which allows us to identify the prospects of ESG transformation, as well as to detail the factors of eco-branding influence on the management system of companies. The paper provides the sectoral specialisation of environmental branding of small- and medium-sized businesses in the Republic of Kazakhstan. For the development of technological integration of clean industries, the authors propose a model design of a digital guidebook for participants of “green” integration. The conclusion is made about the expediency of scientifically grounded coordination in the areas of development of clean production technologies, green marketing and eco-branding of small- and medium-sized enterprises in the Republic of Kazakhstan. For the development of technological integration of cleaner production, the authors propose a model design of a digital guidebook for participants of “green” integration. The conclusion is made about the expediency of science-based coordination in the areas of clean pro-

---

L. M. Davidenko (✉) · N. M. Sherimova  
Toraighyrov University, Pavlodar, Kazakhstan

M. A. Miller  
Omsk Scientific Center of Siberian Branch of Russian Academy of Sciences,  
Omsk, Russian Federation

duction technology development, “green” marketing, environmental management and “green” financing.

## Introduction

In the conditions of global industrial development with the use of digital systems for managing production processes and supply chains, it becomes obvious that society is able to make an important step on the path of its development, which is associated with the restoration of ecological balance in the factors of industrial production. This is caused by the fact that despite the scale and territorial location of industrial complexes, it is easier to respond to threats of disturbance of technological processes. Companies can continuously measure process emissions and measure the quality of raw materials at the “input” and finished products at the “output”. In the context of large-scale digitalisation, it has become easy to establish business relationships with direct and indirect stakeholders (Belousova et al., 2022; Puriwat & Tripopsakul, 2022). Supply chain management systems have changed and the need to build additional warehousing facilities has been exhausted. At the same time, the management of large companies needs to resource innovative green economy programmes. There is a consensus among scholars that the development of green technologies stimulates innovation in cleaning and improving green processes (Xu et al., 2023).

Simultaneously with the formation of the Industry 4.0 ecosystem, there are objective prerequisites for the integration and technological transformation of enterprises and then the consistent planning and financing of ESG projects (Ocicka et al., 2022). Another important aspect of building a new type of ecosystem relates to technological innovation in the energy industry as a knowledge-intensive and high-risk industry. It has environmental and social responsibilities (Sumarsono et al., 2023; Yu et al., 2023). The gradual reduction of raw material dependence stimulates the economy to open new industrial facilities that will meet high-level technological redesigns. The sectoral specialisation of industrial regions is shifting to manufacturing, thereby becoming closer to the final consumer, which requires increased branding of finished products (Muthuswamy & Sharma, 2023). According to experts, eco-branding should become a tool that can be used to connect all stages of production and marketing of high-tech products that meet environmental standards. Sustainable growth of companies and the regions in which they operate will only be possible if environmental, social and governance (ESG) objectives are addressed. Such challenges are reflected in the digital transformation strategies of companies (Grishunin et al., 2022). That is why it is logical to argue that the eco-branding system is based on ESG principles and needs to systematise approaches to stimulate green branding, “green” production and “green” finance.

## Materials and Methods

The following methods are used to improve the environmental branding management system: the collection method, the comparative method and the method of strategic planning and forecasting. Using the collection method, materials on ESG management transformation were studied. The comparative method was used to analyse the potential of innovation activity of potential participants of green technological integration. When using the method of strategic planning and forecasting, the issues of modelling relationships in promoting environmental branding of Kazakhstani companies and their partners were considered.

In the course of the research on the actualisation of eco-branding technology of the industrial complex of the region, the official information of international organisations and research centres dealing with the issues of “green” economy and ecological branding was used.

Analytical work was carried out with open and reliable sources of information provided by the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan and close co-operation with the participants of the National ESG Club, JSC “Institute of Economic Research” of the Republic of Kazakhstan.

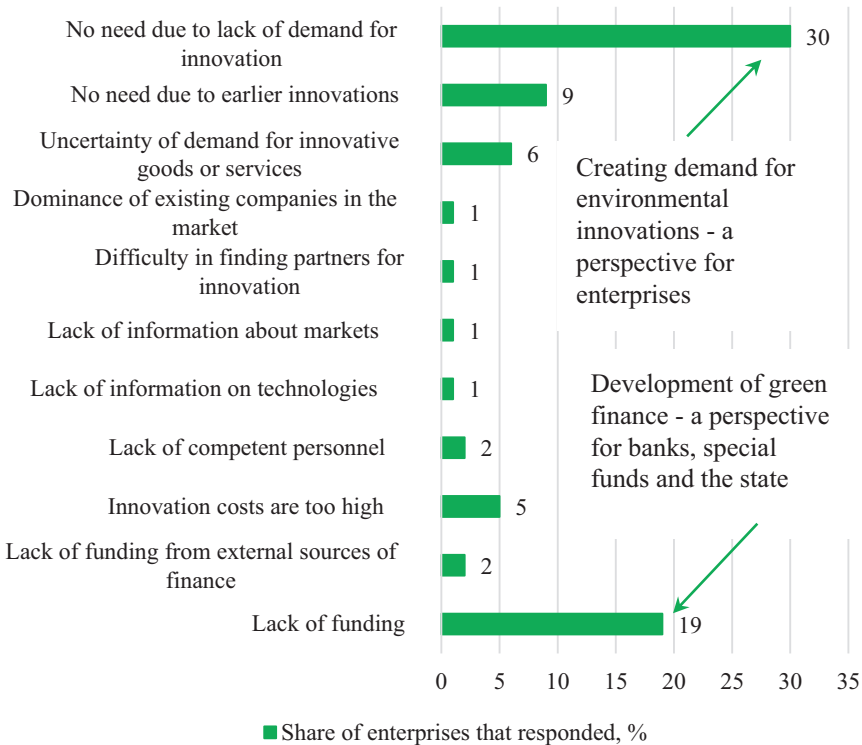
According to official statistics, in 2022, 3390 enterprises (only 11% of the total number) out of 30,750 Kazakhstan enterprises have implemented innovations. According to the survey conducted by the Bureau of National Statistics, there are certain circumstances that will require owners and managers to make efforts to switch to “green” technologies. Of the total number of enterprises, 30% said that there was no need for innovation due to lack of demand for it; 19% indicated a lack of financial resources to carry out innovation activities (Fig. 1).

To actualise the mechanisms of eco-branding and “green” technological integration, statistical data on the entry of partner countries into the intellectual property market of the Republic of Kazakhstan have been studied. Among the potential partners for the joint organisation of clean production facilities are partners from the Russian Federation, South Korea, Japan, the USA, the Republic of Belarus and other countries (Fig. 2).

The graphical method and analysis and synthesis of scientific specialised literature in the field of sustainable development were used to illustrate the findings and conclusions.

## Results

Taking into account the fact that environmental innovations require improvement of both products and business processes, the current situation with the development and implementation of environmental innovations in industrial enterprises of the

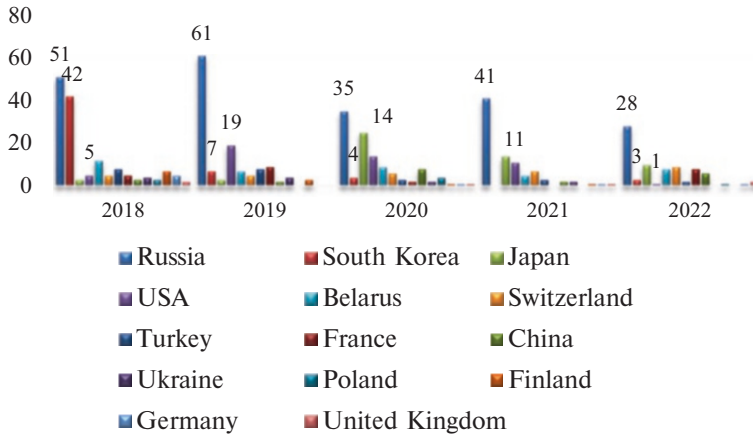


**Fig. 1** Reasons for non-implementation of innovation activities at enterprises, share of responding enterprises and % of total number (Bureau of National Statistics of Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, 2022)

non-resource sector of the economy can be classified as “requiring a reassessment of the value system due to environmental challenges”.

By processing statistical information, we can conclude that technological integration of environmentally friendly industries is important and promising for Kazakhstan and its partners. One of the platforms for generating environmental ideas is ESG Club. The participants of the business platform were Kazakhstan Stock Exchange, Capital Kazyna Management JSC, RSE Kazakhstan Institute of Standardisation and Metrology, National Centre of Expertise and Certification JSC, Union of Verifiers of Kazakhstan “ETS KZ Verifiers”, Association of Independent Directors “Qazaq Independent Directors”, Public Environmental Fund “Nature First”, CT Solutions LLP and companies within GPI group.

In recent years, large industrial companies have been developing and making publicly available sustainability reports. Representatives of small- and medium-sized businesses do not have a practice of developing and submitting such reports, but they express assistance in conducting ESG criteria rating assessments. Among the active representatives of Kazakhstani eco-branding are companies that have a positive “green” reputation (Fig. 3).



**Fig. 2** Dynamics of foreign industrial design applications in the context of countries of origin, the Republic of Kazakhstan and application quantity (National Institute of Intellectual Property, 2023)

The study found that the practical implementation of work to promote environmental branding can be presented in the form of a digital guidebook—guidebook for green integration actors, where access to certain options can be combined (Figs. 4 and 5).

Environmental branding can be seen as a special category that can combine research prerequisites to change the management system within companies and in their environment (Table 1).

## Discussion

Eco-branding can be considered in the system of technological integration of industrial companies and cluster formations. It carries exclusive functions of integration interaction (Kuznetsov et al., 2019; Yakovleva & Miller, 2021). The integration process can proceed with different intensities, and the number and composition of participants can change. Researchers agree that, in many cases, the efficiency of organising clean production and promoting eco-products will be influenced by green credit policies, low-carbon technological innovation and ESG certification (Chen et al., 2022). Digital smart platforms that create material and human resource effects can accelerate the production and promotion of eco-branded industrial products (Mugurusi & Ahishakiye, 2022).

In the context of globalisation, operational and investment activities can be financed quickly and coherently, thanks to new financial services in the form of cryptocurrencies. It is reasonable to categorise factors related to operating activities by risks and threats, for example, inefficient marketing, inefficient current cost

<p><b>Agro-industrial complex:</b></p> <p>LLP "AGROS VT (natural juices, jams and pickled products of Zailiyskiy Alatau)</p>	<p><b>Biotechnologies, chemistry:</b></p> <p>"ECO Products Group" LLP (production of biodegradable packaging products); "Alina Paint" (production of paintwork materials)</p>
<p><b>Manufacture of perfumes and cosmetics:</b></p> <p>Molecule, Zere Pure Beauty, Alika, Bioton, AVRORA BRANDS, Alatau Organic, Home Spa</p>	
<p><b>Food industry:</b></p> <p>"National Healthy Nutrition Centre "Sharman" (production of mare's milk powder "SAUMAL", organic chocolate products)</p>	<p><b>Ecological textiles, fashion, design:</b></p> <p>AGES&amp;AGES (making menswear from biomaterials), Tofari (making clothes from nettles, linen), Pieper (clothes and accessories from recycled plastic)</p>
<p><b>Trade,sales:</b></p> <p>Clothing, accessories: "September Space", Etc. concept store - marketplaces of Kazakhstani designers, "Matryoshka" - home and casual clothes, "Qazaq Republic" - brand of youth clothes and accessories, "SOUL Concept Store" - shop of clothes, accessories and jewellery from Kazakhstani designers, "Fashion park" - showroom of Kazakhstani designers.</p> <p>Eco products: "Loveeco", "Eco tochka", "Zero waste shop Hello eco", "Live food", "Green Bean", "Amarant", "Eco Coco", Ecocosmetics: "Eco mix", "Bskin", "My organic grocery".</p>	

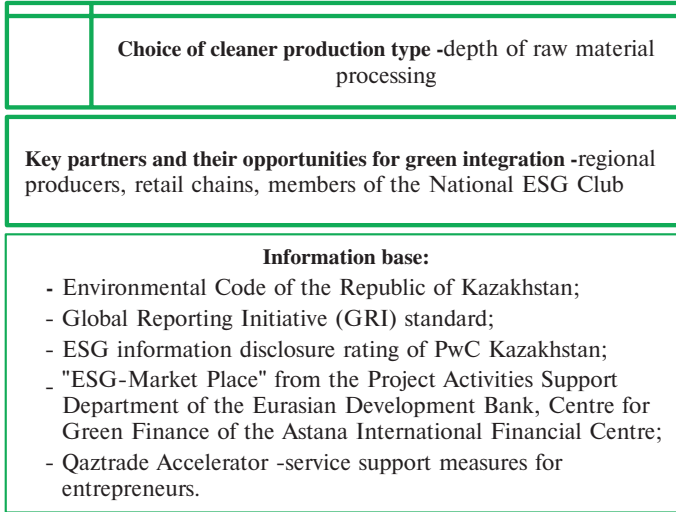
**Fig. 3** Sectoral specialisation of environmental branding in SMEs, Kazakhstan

structure, high proportion of fixed costs, low fixed asset utilisation, high level of insurance and seasonal inventory, insufficiently diversified product range and inefficient production management (Difrancesco et al., 2023).

It can be agreed that the performance of technology companies with public and private capital participation is also determined by a clear internal organisation as well as ESG principles (Ma & Chen, 2023).

Given that the modern world is dynamic, changes in the main factors of the organisation's external environment and economic and social instability require adjustments in organisational capacity. The main directions of such work are the introduction of new management mechanisms of ecological management of resources, adjustment of management style, involvement of executives in the decision-making process and support of ecological initiatives. At the same time,





**Fig. 4** A model of a digital guidebook for green integration actors. "Input option"

organisational culture should be adjusted, values should be reoriented from performance of functions to achievement of results and "green" innovations and market values should be supported.

## Conclusion

In the future, the technology and promotion of ecological branding of industrial products of transboundary regions will be favourably distinguished by the complexity of the components of communication and the number of participants. Such work needs science-based coordination in the areas of mastering clean production technologies, "green" marketing, environmental management and "green" financing. This will enable the dissemination of technology in the country and abroad with the mandatory establishment of intellectual property rights. After systematisation of the factors of "green" technological integration, it is necessary to develop tactical and strategic measures for joint eco-branding of industrial products.

Control activities in joint programmes may include the following areas:

- Cost reduction and closure of subdivisions with negative ESG indicators
- Changing the volume of production of products (provision of services) depending on the dynamics of demand for environmentally friendly products
- Intensification of marketing research in the field of ecological goods
- Regulation of prices for eco-products (services)
- Identification and use of internal reserves (e.g. modernisation, hiring branding specialists, obtaining green loans and strengthening discipline).



**Fig. 5** A model of a digital guidebook for green integration actors. The option "Organisation. Promotion"

It is obvious that strategic and operational management of industrial companies and regions must be continuously coordinated. It is impossible to open cleaner production facilities in isolation from fostering an ecological culture. It can be concluded that technological partnerships can accelerate sustainable development through eco-branding.

**Acknowledgements** This research is funded by the Committee of Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant No. AP19676924 "Development of technology and promotion of eco-branding of the industrial complex of the region").

**Table 1** Systematisation of approaches in the field of eco-branding transformation

Approaches to promoting eco-branding	Manifestation in the enterprise management system	Mechanisms of transformation of the green branding system
Stimulating corporate environmental innovation	Transition to the zone of social responsibility	Developing levers of consumer brand commitment by building consumer trust and incentivising consumer commitment through environmental and philanthropic activities (Abid et al., 2020)
Supply chain optimisation in a cleaner production environment	Reducing the factors of environmentally destructive behaviour in the supply chain, distribution of environmental responsibility in the supply chain of the firm	Consideration of industry-specific supply chains of branded products, environmental regulation combined with environmental legislation and public oversight (Xie et al., 2023)
Building brand value as a “valuable corporate asset”	Improving the organisation’s effectiveness in achieving its objectives, including increasing the market value of the company	Developing leverage to interact with the turbulence of the external environment in which the brand manifests itself, both positively and negatively (Rego et al., 2022)
Formation of consumer knowledge base on the environmental impact of goods (clothing)	Effective marketing strategies to protect the environment	Programmes to stimulate personal benefits and values for consumers when buying/consuming eco-friendly clothing (Copeland & Bhaduri, 2020)
Generating “signalling” and “attitudinal” theory based on resources and ecological reputation	Activating B2B branding based on environmental reputation	Promoting ethical behaviour, mitigating the relationship between environmental reputation and brand satisfaction (Opoku et al., 2023)
Synergy of “green” producer image and consumer loyalty	Constructivism based on environmental beliefs, ecological knowledge and concern for the environment	“Green” advertising, green brand image, healthy lifestyles and the pursuit of sustainability (Gültekin & Kilic, 2022; Watson et al., 2023)
Compliance with ESG principles	Improving the company’s competitiveness through sustainable financial performance	Changing receivables management, increasing R&D efficiency, book value and market value of companies (Şerban et al., 2023)
Enhancing “green” finance programmes	Formation of effective “green” finance policies	Establishing environmental regulations and strengthening incentive mechanisms to promote green enterprise development and realise the goal of carbon neutrality (Wang et al., 2022)

## References

- Abid, T., Abid-Dupont, M. A., & Moulins, J. L. (2020). What corporate social responsibility brings to brand management? The two pathways from social responsibility to brand commitment. *Corporate Social Responsibility and Environmental Management*, 27(2), 925–936. <https://doi.org/10.1002/csr.1888>

- [org/10.1002/csr.1856](https://doi.org/10.1002/csr.1856)
- Belousova, V., Bondarenko, O., Chichkanov, N., Lebedev, D., & Miles, I. (2022). Coping with greenhouse gas emissions: Insights from digital business services. *Energies*, *15*(8), 2745. <https://doi.org/10.3390/en15082745>
- Bureau of National statistics of Agency for Strategic planning and reforms of the Republic of Kazakhstan. (2022). *On the innovative activity of enterprises in the Republic of Kazakhstan*. <https://stat.gov.kz/en/industries/social-statistics/stat-edu-science-inno/>
- Chen, Z., Zhang, Y., Wang, H., Ouyang, X., & Xie, Y. (2022). Can green credit policy promote low-carbon technology innovation? *Journal of Cleaner Production*, *359*, 132061. <https://doi.org/10.1016/j.jclepro.2022.132061>
- Copeland, L., & Bhaduri, G. (2020). Consumer relationship with pro-environmental apparel brands: Effect of knowledge, skepticism and brand familiarity. *Journal of Product & Brand Management*, *29*(1), 1–14. <https://doi.org/10.1108/JPBM-03-2018-1794>
- Difrancesco, R. M., Meena, P., & Kumar, G. (2023). How blockchain technology improves sustainable supply chain processes: A practical guide. *Operations Management Research*, *16*(2), 620–641. <https://doi.org/10.1007/s12063-022-00343-y>
- Grishunin, S., Naumova, E., Burova, E., Suloeva, S., & Nekrasova, T. (2022). The impact of sustainability disclosures on value of companies following digital transformation strategies. *International Journal of Technology*, *13*(7), 1432–1441. <https://doi.org/10.14716/ijtech.v13i7.6194>
- Gültekin, B., & Kilic, S. I. (2022). Repurchasing an environmental related crisis experienced automobile brand: An examination in the context of environmental consciousness, brand trust, brand affect, and resistance to negative information. *Sosyoekonomi*, *30*(51), 241–260. <https://doi.org/10.17233/sosyoekonomi.2022.01.12>
- Kuznetsov, S. V., Miller, A. E., & Davidenko, L. M. (2019). Development prospects of technological integration: Regional perspective. *Studies on Russian Economic Development*, *30*(1), 15–21. <https://doi.org/10.1134/S1075700719010106>
- Ma, A. K. F., & Chen, Y. (2023). Board attributes, ownership structure, and corporate social responsibility: Evidence from A-share listed technological companies in China. *Society and Business Review*. <https://doi.org/10.1108/SBR-08-2022-0225>
- Mugurusi, G., & Ahishakiye, E. (2022). Blockchain technology needs for sustainable mineral supply chains: A framework for responsible sourcing of cobalt. *Procedia Computer Science*, *200*, 638–647. <https://doi.org/10.1016/j.procs.2022.01.262>
- Muthuswamy, V. V., & Sharma, A. (2023). Role of emerging financial technology on environmental and social governance of textile companies in Saudi Arabia. *Cuadernos de Economía*, *46*(130), 64–72. <https://doi.org/10.32826/cude.v1i130.1007>
- National Institute of Intellectual Property. (2023). *Annual report of the National Institute of Intellectual Property of the Republic of Kazakhstan*. <https://qazpatent.kz/storage/app/media/Annual%20Report%202022.pdf>
- Ocicka, B., Rogowski, W., & Turek, J. (2022). Industry 4.0 technologies as enablers of sustainability risk management. *Ekonomia i Prawo. Economics and Law*, *21*(4), 727–740. <https://doi.org/10.12775/EiP.2022.039>
- Opoku, R. A., Adomako, S., & Tran, M. D. (2023). Improving brand performance through environmental reputation: The roles of ethical behavior and brand satisfaction. *Industrial Marketing Management*, *108*, 165–177. <https://doi.org/10.1016/j.indmarman.2022.11.011>
- Puriwat, W., & Tripopsakul, S. (2022). From ESG to DESG: The impact of DESG (digital environmental, social, and governance) on customer attitudes and brand equity. *Sustainability*, *14*(17), 10480. <https://doi.org/10.3390/su141710480>
- Rego, L., Brady, M., Leone, R., Roberts, J., Srivastava, C., & Srivastava, R. (2022). Brand response to environmental turbulence: A framework and propositions for resistance, recovery and reinvention. *International Journal of Research in Marketing*, *39*(2), 583–602. <https://doi.org/10.1016/j.ijresmar.2021.10.006>

- Șerban, R. A., Mihaiu, D. M., Țichindelean, M., Ogorean, C., & Herciu, M. (2023). Factors of sustainable competitiveness at company level: A comparison of four global economic sectors. *Journal of Business Economics and Management*, 24(3), 449–470. <https://doi.org/10.3846/jbem.2023.19478>
- Sumarsono, N., Kasali, R., & Balqiah, T. E. (2023). Circular business model, technology innovation and performance: A strategic-based theoretical framework in the Indonesian energy transition. *Renewable Energy Focus*, 45, 259–270. <https://doi.org/10.1016/j.ref.2023.05.001>
- Wang, X., Elahi, E., & Khalid, Z. (2022). Do green finance policies foster environmental, social, and governance performance of corporate? *International Journal of Environmental Research and Public Health*, 19(22), 14920. <https://doi.org/10.3390/ijerph192214920>
- Watson, A., Perrigot, R., & Dada, O. (2023). The effects of green brand image on brand loyalty: The case of mainstream fast food brands. *Business Strategy and the Environment*. <https://doi.org/10.1002/bse.3523>
- Xie, T., Du, J., Boamah, K. B., Xu, L., & Ma, M. (2023). The internal and external factors of environmental destructive behavior in the supply chain: New evidence from the perspective of brand-name products. *Sustainability*, 15(5), 4605. <https://doi.org/10.3390/su15054605>
- Xu, A., Zhu, Y., & Wang, W. (2023). Micro green technology innovation effects of green finance pilot policy—From the perspectives of action points and green value. *Journal of Business Research*, 159, 113724. <https://doi.org/10.1016/j.jbusres.2023.113724>
- Yakovleva, E., & Miller, A. (2021). Technological sustainability of industrial enterprises in intellectual infrastructure theory framework. In *E3S web of conferences* (Vol. 258, p. 06012). EDP Science. <https://doi.org/10.1051/e3sconf/202125806012>
- Yu, W., Gu, Y., & Dai, J. (2023). Industry 4.0-enabled environment, social, and governance reporting: A case from a Chinese energy company. *Journal of Emerging Technologies in Accounting*, 20(1), 245–258. <https://doi.org/10.2308/JETA-2022-014>

https://www.scopus.com/authid/detail.uri?authorId=55895246100

← → ↻ scopus.com/authid/detail.uri?authorId=55895246100

Проверить доступ

### Davidenko, Lyudmila Mikhailovna

Toraiqiyun University, Pavlodar, Kazakhstan 55895246100 <https://orcid.org/0000-0002-7541-8677> Смотреть больше

14 Цитирования из 11 документов | 11 Документы | 3 Выдачи Просмотр 3-данных | [Просмотреть все параметры >](#)

[Редактировать профиль](#) [Подробнее](#)

**11 документов** | Показатели автора | Цитирование из 11 документов | 0 Препринты | 15 соавторов | 0 тем | 0 выданных грантов

**Примечание.**  
Пользователи Scopus Preview могут просматривать только последние 10 документов автора, и большинство других функций им недоступно. У вас есть [доступ](#) через учреждение? Воспользуйтесь доступом своего учреждения, чтобы просматривать все документы и пользоваться всеми функциями.

**11 документов**

Экспортировать все | Сохранить все в список | Сортировать по Дата (самые новые) | [Просмотреть список в формате результатов поиска](#)

**Conference Paper**  
Technologies of Eco-Branding of the Region's Industrial Complex  
Davidenko, L.M., Milic, M.A., Shermova, N.M. | 0 Цитирований  
Springer Proceedings in Business and Economics, 2024, страницы 413-423  
[Просмотреть реферат](#) | [Связанные документы](#)

**Conference Paper**  
Technological Integration of Environmentally Friendly Industries as a Factor of ESG Transformation  
Davidenko, L.M., Milic, A.E., Bobemirova, A.M. | 0 Цитирований  
Springer Proceedings in Business and Economics, 2024, страницы 367-376  
[Просмотреть реферат](#) | [Связанные документы](#)

**Должность автора**  
[Проверить доступ](#) through your organization to view author position.

First author - %  
Last author - %

← → ↻ scopus.com/sourceid/21101077468

Scopus Preview

Поиск авторов | Источники | [Создать учетную запись](#) | [Войти](#)

## Сведения об источнике

Отзыв > | Сравнить источники >

**Springer Proceedings in Business and Economics**  
Годы охвата Scopus: от 2014 до 2024  
ISSN: 2198-7246 E-ISSN: 2198-7254  
Отрасль знаний: [Economics, Econometrics and Finance: General Economics, Econometrics and Finance](#)  
[Business, Management and Accounting: General Business, Management and Accounting](#)  
Тип источника: **Материалы конференции**

[Просмотреть все документы >](#) | [Настроить уведомление о документах](#) | [Сохранить в список источников](#)

CiteScore 2023: **0.7** ⓘ  
SJR 2023: **0.151** ⓘ  
SNIP 2023: **0.140** ⓘ

CiteScore | CiteScore рейтинг и тренды | Содержание Scopus

CiteScore **2023** | CiteScoreTracker 2024 ⓘ

**0.7** = 1 739 цитирований за 2020 - 2023 гг.  
**0.6** = 1 314 цитирований на текущую дату