



Economic Theory

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**METHODOLOGICAL AND PRACTICAL
GUIDELINES FOR THE DEVELOPMENT
OF ENVIRONMENTAL ENTREPRENEURSHIP
WITHIN THE FRAMEWORK
OF PUBLIC-PRIVATE PARTNERSHIP**

Abstract

Given the severity of the environmental problems that the world is facing, it is clear that to ignore the principles of sustainable development is both irrespon-

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sible and unjustifiable in any sector of a national economy. Although right now environmental enterprises stand out among business entities, there is every reason to believe that eventually all economic actors will have to attain attributes that prove their adherence to the sustainable development principles. Environmental entrepreneurship is, in fact, a qualitative feature of entrepreneurship in general. At the present stage of social development, corporate social responsibility is largely environmental by nature. The paper aims to develop a set of methodological and practical guidelines for the development of environmental entrepreneurship within the framework of public-private partnerships. This has never been done before in such a context and thus constitutes the paper's scientific contribution, as unlike the existing guidelines, this particular set is established by identifying and ordering the structural elements of environmental entrepreneurship and distinguishing its development stages.

Key Words:

public-private partnership, eco-innovation, ecological entrepreneurship, methodological and practical guidelines, nature-oriented economy, sustainable development.

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1 figure, 4 formulae, 35 references.

Introduction

Global and regional climate issues have been discussed at international scientific and practical conferences for decades. The United Nations Climate Change Conference is the most famous and well-respected of these. In 2021 in Glasgow, the participants of this conference agreed on measures to protect the environment in the coming years and agreed on new commitments to contain the global warming in the 21st century within 1.5 degrees. While the Kyoto Protocol and the Paris Climate Agreement were mainly informational, analytical and edu-

cational, the Glasgow Climate Pact adopted in 2021 focuses on practical measures that cannot be implemented without a public-private partnership that will enable comprehensive solutions to reduce carbon emissions.

One of the aggregate indicators that reflects the global nature of environmental issues is the Environmental Performance Index (EPI). This index includes a number of important estimates, but its value depends most on the amount of waste per capita and the disposal of this waste. Citing a senior adviser to the Swedish waste management association Avfall Sverige and referring to the data of World Bank analysts, A. Pavlenko rightly noted that the developed world remains the largest generator of waste. In high-income countries, where only 16% of the world's population lives, more than 2 billion tons of annual solid waste is generated. For example, on average each Swede generates 700 kg of waste per year, with more than half of it going to recycling and composting. Europe and America strive to meet Swiss standards by innovating waste recycling, using waste energy and consuming less (Pavlenko, 2021). In these conditions, the issue of environmental entrepreneurship is both relevant and important.

Environmental entrepreneurship is a type of economic activity that is aimed at following the basic provisions of the concept of sustainable development while making profits for entrepreneurs. Given the severity of global environmental problems, as well as local environmental problems in Ukraine, it should be indisputable that ignoring the principles of sustainable development is irresponsible and unjustified in any sector of the economy. Despite the fact that today environmental entrepreneurship is separate from entrepreneurship as such, there is every reason to believe that over time, all businesses will have to attain attributes that prove their adherence to the sustainable development principles.

In general, we can identify three vectors of environmental entrepreneurship, namely national state policy in the field of natural resources protection and environmental protection, commitments of national governments to international environmental organizations and neighbouring countries, and environmental business initiatives. For example, Senior Parliamentary Development Adviser Julia Keutgen (2020), commenting on the achievement of sustainable development goals by national parliaments of EU member states, lauds the example of Germany and Romania in terms of implementing sustainable development values. In Germany, all draft laws are accompanied by an assessment of their impact on sustainability, and the Parliamentary Advisory Council on Sustainable Development formally verifies the validity of such an assessment. Assessment is carried out using the online platform eNAP (www.enap.bund.de). The Federal Government reports to the Bundestag on the state of implementation of the National Sustainable Development Strategy once per the legislative period and details the specific measures that were taken to achieve the Goals and further develop the strategy.

A somewhat similar state of affairs is observed in Romania, where based on the decision of the «permanent office of both houses» all committees are obliged to analyse the impact of each legislative proposal on the implementation of 2030 Agenda of the National Sustainable Development Strategy. In practice, this requires each parliamentary committee to take into account sustainable development goals when considering laws. The 2016 Declaration on the 2030 Agenda of the National Sustainable Development Strategy, adopted by both houses of parliament, provided the necessary inter-party political will to lay the foundations for the implementation of the Sustainable Development Strategy at the national level. As a result of this inter-party initiative, the parliament was able to position itself as one of the main players in monitoring the implementation of the National Sustainable Development Strategy (Keutgen, 2020). Today at the governmental level, Ukraine has set up Interdepartmental Working Group on Ensuring the Achievement of the Sustainable Development Goals, a temporary advisory body to the Cabinet of Ministers of Ukraine that ensures coordination of actions between executive bodies in terms of achieving global goals in Ukraine. This step is extremely important, but it is only the beginning of work on creating a fundamental basis for the development of environmental entrepreneurship within the system of conceptual goals of sustainable development. At the same time, it must be recognized that the interests of business are not always consistent with the interests of the state and society due to the additional costs and risks that often negatively affect the profits of entrepreneurs. Thus, it is important to develop environmental entrepreneurship through public-private partnerships. A number of conditions must be met to achieve this task, the most important among which is the provision of effective analytical and information support for decision-making related to the development of environmental entrepreneurship.

Literature Review and Problem Statement

Development of environmental entrepreneurship is receiving a lot of attention both in scientific journals and at thematic conferences. In Ukraine, these problems, on the one hand, are identical to those in other countries, and, on the other hand, are exclusively local in nature. This is a common instance, as environmental problems are global in nature but their causes are often local like the case of wastewater and industrial emissions in large urban agglomerations. Some of the local environmental problems are, in fact, ecological catastrophes. In Ukraine these include radioactive exposure of residents of one of the panel houses in Kramatorsk (1980-1989), the explosion at the Chornobyl nuclear power plant (1986), the phosphorus accident near Ozhydov – man-made disaster (2007), the accident in Horlivka – a man-made disaster at the plant of PJSC Concern Styrol (2013). Local environmental disasters in other parts of the world

include the 1984 man-made disaster in Bhopal (India), where one of the methyl isocyanate liquid storage tanks exploded at the Union Carbide carbonyl pesticide plant, the accident at the Fukushima-1 nuclear power plant in 2011, a leak of an unknown chemical, probably chlorine, from a chemical plant in Leshan in 2020 (Sichuan Province, China), etc.

The advantage of the nature-based national economy is that the basis for economic development does not incur significant social and intellectual costs. At the same time, the disadvantages include the following: (a) economic development is limited to dependence on certain natural resources, (b) exhaustibility of natural resources, (c) insufficient attention or disregard for the social component, (d) the emergence of environmental problems, etc. (Tulai, 2017). This is why the conditions and problems of environmental entrepreneurship differ throughout countries and regions of the world depending on the level of development of national legal systems, civil society, organizational infrastructure and the level of integration of the country into international environmental organizations.

Since Ukraine's signing of the Association Agreement with the EU, significant progress has been made in the field of environmental entrepreneurship, in particular in the field of agribusiness (Sumets et al., 2021). All Ukrainian agricultural products exported to the EU are certified by Organic Standard, which is the first national certification body in the field of organic certification, whose certificates are recognized in the EU. Ukraine needs to adapt its legislation in order to integrate into the European Union market fully. In the field of compliance with sanitary and phytosanitary measures alone, the requirements of almost three hundred different EU legal acts must be taken into account (Kucher et al., 2021). So far, Ukraine has completed 52% of these tasks. According to a report by the European Commission, Ukraine was the second biggest exporter of organic products to the EU out of 123 countries in 2019. In percentages, Ukraine accounts for 10% of all EU organic imports. In particular, Ukraine exports grain to the EU: 76.9% of all grain in the EU (except rice and wheat) is of Ukrainian origin. The share of wheat from Ukraine is 31.8%, oilseeds (except soybeans) – 18.2%, second only to Turkey. Soybeans account for 13% of imports from Ukraine and come in 4th, fruits – 11% and 3rd place. Ukraine is also one of the largest exporters of oil cake, fruit juices and vegetables (Mensah, 2019).

The paper aims to outline methodological and practical guidelines for the development of environmental entrepreneurship within the framework of public-private partnership.

To facilitate the accomplishment of this goal, we have set out three objectives, namely:

- identification of the structural elements of environmental entrepreneurship (using the method of content analysis);

- codification of the elements of environmental entrepreneurship (using the method of systematization, elements of set theory, as well as metrics and topology);
- establishment of the developmental stages of environmental entrepreneurship (using process-structural scientific approach).

Research Results

Much of the analysed scientific literature is devoted to the consideration of environmental entrepreneurship from the standpoint of sustainable development. At the same time, each of the authors pays attention to different aspects of this problem, such as the application of mechanisms for the development of environmental entrepreneurship (Kucher et al., 2021), adherence to the principles of sustainable development in the operation of environmental enterprises (Mensah, 2019; Mitcham, 1995; Weber et al., 2021; Barska et al., 2020), building business models and innovations in the field of environmental entrepreneurship (Mensah, 2019), characteristics of the structure and stages of development of environmental entrepreneurship in the context of sustainable development (Kniaz, 2015).

A number of scientific papers are devoted to the study of environmental entrepreneurship as an element of global or local ecosystems. The authors introduce the concept of «business ecosystem», give signs and prerequisites for the development of business ecosystems (Johnson & Schaltegger, 2019; Gast et al., 2017; Lüdeke-Freund, 2019), specify the components of business ecosystems from the standpoint of structural and systemic approaches (Dudin et al., 2019; Malecki, 2018; Stam & van de Ven, 2019), analyse the dynamics of their development (Shwetzter et al., 2019), including institutional dynamics (Fuentelsaz et al., 2018), logically substantiate the signs of paradoxical development of entrepreneurship as a component of ecosystems (Kuratko et al., 2017). Some are creative in the sense of extending environmental entrepreneurship to other types of business activities, including tourism (Swan & Morgan, 2016), public-private partnership, set up of joint businesses, cluster entrepreneurship (Doh et al., 2019), venture business, including business based on startup projects (Fraiberg, 2017).

On the other hand, some works justify the development of environmental entrepreneurship as an objective challenge of modernity (Kuckertz, 2019), which prompts a change in the view of general approaches to entrepreneurial initiatives and the social responsibility the business bears (Demirel et al., 2019). From this point of view, substantiation is provided for the exceptional role of human resources in making economic decisions based on sustainable development

(Bombiak, 2019), as well as in motivating market participants to maintain a responsible attitude to the environment and future generations (York et al., 2016; Kupalova, 2011).

Babych et al. (2016) distinguish the main sectors of environmental entrepreneurship (X):

1) entrepreneurship that ensures the effectiveness of environmental measures (X_1);

2) targeted ecological production (means of protection, environmentally friendly products, etc.) (X_2);

3) energy production and conservation (energy saving, energy efficiency and development of renewable energy sources) with the introduction of innovative technologies (X_3). Here, the results of previous studies should be taken into account (Yuzevych et al. (2016);

4) consulting technology, expert systems technology, and some decision support systems (X_4), considered by Skrynkovskyy (2008; 2011).

Given the results of research by Borovyk (2012), we can identify the following features of environmental entrepreneurship:

1) dominant share of environmentally safe utility in the overall utility of the product;

2) meeting environmental needs (from the consumer's point of view);

3) profit (additional) from the «realization» of environmental utility (from the standpoint of entrepreneurs);

4) resources (value, stocks, sources of funds) of the ecological system, which Kniaz and Kosovska (2015) consider as factors influencing the needs of consumers;

5) changes in consumer behavior in the digital society that were studied by Popova et al. (2019).

Having analysed the scientific literature (Doh et al., 2019; Babych et al., 2016; Yuzevych et al., 2016; Pavlenchuk et al., 2021), we can identify such promising areas of green business development: rational use of resources and energy, introduction of waste-free production technologies; production of environmentally friendly products that meet international standards; large-scale restructuring of technological processes based on environmental requirements; development of cooperation with international environmental organizations, etc. Based on the essence of sustainable development (as defined by the UN Commission on Sustainable Development), economic, social and environmental values must be considered systematically in the process of business operations.

In a formalized form, the relationship between the sectors of environmental entrepreneurship and their components is as follows:

$$X \supset \begin{cases} X_1 = f(a; b); \\ X_2 = f(c; d); \\ X_3 = f(e; g); \\ X_4 = f(h; i), \end{cases} \quad (1)$$

where, a – entrepreneurship in the field of dissemination of environmental technologies on the terms of leasing and franchising, as well as under license;

b – entrepreneurship in the field of providing services for the optimization of communications and energy supply systems;

c – creation and implementation of environmental protection technologies;

d – production of environmentally friendly goods;

e – energy production;

g – energy saving;

h – consulting technologies;

i – expert systems technology, as well as some decision support systems.

Sectors X_1, \dots, X_4 correlate to a, \dots, i as effective and factorial features. In addition, the value of factorial features can have an exclusively unambiguous interpretation, which is formally identified as either 0 or 1. That is, if we consider X through the prism of metric space, then

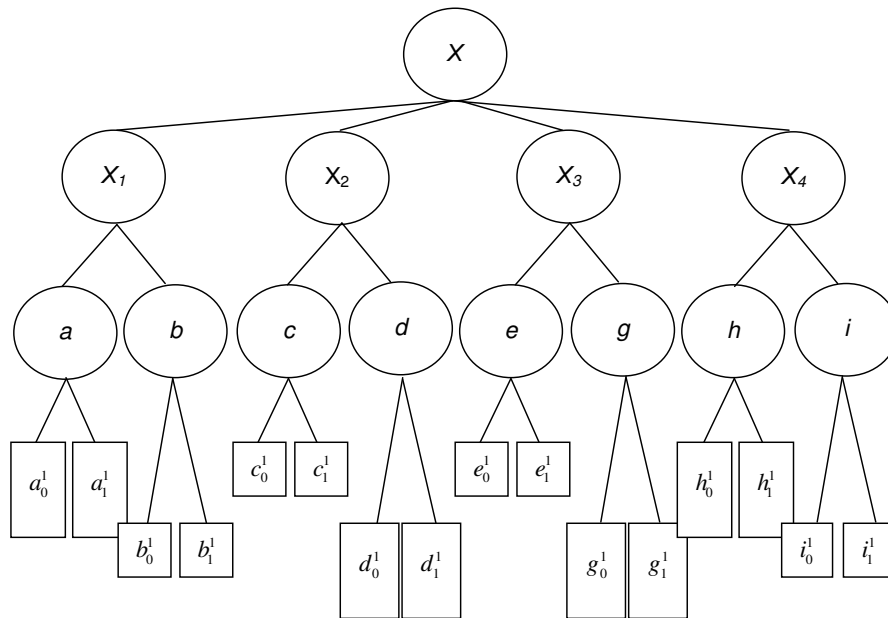
$$\left. \begin{aligned} d(a_0^1; a_1^1) &= \begin{cases} 0, & a_0^1 = a_1^1; \\ 1, & a_0^1 \neq a_1^1; \end{cases} \\ d(b_0^1; b_1^1) &= \begin{cases} 0, & b_0^1 = b_1^1; \\ 1, & b_0^1 \neq b_1^1; \end{cases} \\ \dots\dots\dots \\ d(i_0^1; i_1^1) &= \begin{cases} 0, & i_0^1 = i_1^1; \\ 1, & i_0^1 \neq i_1^1. \end{cases} \end{aligned} \right\} \quad (2)$$

In formula (1), several metric spaces were formed, namely

$$\left. \begin{aligned} a_1^1 &\Leftrightarrow r; a_1^1 \in a \mid d(a_0^1; a_1^1) < a_1^1; a_0^1 \sim a \setminus d; \\ b_1^1 &\Leftrightarrow r; b_1^1 \in b \mid d(b_0^1; b_1^1) < b_1^1; b_0^1 \sim b \setminus d; \\ &\dots\dots \\ i_1^1 &\Leftrightarrow r; i_1^1 \in i \mid d(i_0^1; i_1^1) < i_1^1; i_0^1 \sim i \setminus d. \end{aligned} \right\} \quad (3)$$

Fig. 1 presents a graphical interpretation of environmental entrepreneurship in the system of public-private partnership as a set of metric and topological spaces.

Figure 1
Dendrite of metric and topological spaces of environmental entrepreneurship



In this case $X \wedge X_1$, while $X \wedge X_2$, $X \wedge X_3$, $X \wedge X_4$ are ordered pairs, where X – the set, a $X_1 \dots X_4$ – systems of subsets. The relationship between the set and subsets satisfies the following conditions:

$$\left. \begin{array}{l} \because X \supset X_1 \sim \Lambda_1 \therefore \Lambda_1 \sim X \mid X \cap (a \wedge b) \in X; \\ \because X \supset X_2 \sim \Lambda_2 \therefore \Lambda_2 \sim X \mid X \cap (c \wedge d) \in X; \\ \dots\dots\dots \\ \because X \supset X_4 \sim \Lambda_4 \therefore \Lambda_4 \sim X \mid X \cap (h \wedge i) \in X, \end{array} \right\} \quad (4)$$

where $\Lambda_1 \dots \Lambda_4$ – topologies for $X_1 \dots X_4$.

From the standpoint of information and analytical support for the development of environmental entrepreneurship within the framework of public-private partnership, the structural relationships between the components X indicate that environmental entrepreneurship has the characteristics of a system. At the same time, it is important to continuously monitor the causal links between the structural components of environmental entrepreneurship within the topological spaces and to monitor the nature of changes in the factors that affect its state and dynamics of development. These include climate change, changes in the share of harmful substances in the environment, changes in sources of environmental pollution, emergence of innovative technologies in the field of energy conservation, replacement of natural resources with artificial ones, protection of the environment from harmful emissions, etc.

Conclusions

This study made it possible to outline methodological and practical guidelines for the development of environmental entrepreneurship within the framework of public-private partnership. In particular, the structural components of environmental entrepreneurship (components of the first and second levels of the hierarchy) have been identified and systematized, while the stages of development of environmental entrepreneurship have been established.

Summarizing, we consider it prudent to highlight the following.

First, in the current global conditions and given the state of the environment, any business must feature some characteristics of environmental entrepreneurship. Of course, there are national and international environmental standards, international agreements and national legal acts that enterprises are obliged to comply with, but business entities are often so diverse that they do not fit into existing legal norms. This indicates that entrepreneurs have a great credit of trust and responsibility for the decisions they approve.

Second, in modern economic conditions, the state should not turn exclusively toward «policing», i.e., only monitoring certain indicators and fining busi-

nesses for violations. Establishing public-private partnerships is much more effective, especially in those areas where the interests of society intersect with the interests of business.

Third, a key element of establishing an effective public-private partnership is the trust and confidence of both parties in jointly implemented projects. Foremost, this trust is established through the awareness of the parties regarding the rules, criteria and procedures of the partnership, in particular the issues of selection and decision-making. In this context, the proposed methodological and practical guidelines for the development of environmental entrepreneurship as part of a public-private partnership will help increase mutual trust between entrepreneurs and the state during the implementation of joint projects in the field of environmental protection and conservation of natural resources.

Fourth, the developed guidelines should be considered a part of the modification of the system of sustainable development. In view of the above, further research should be aimed at studying the process of balancing business interests and environmental needs of society. To facilitate this, public-private partnerships should be considered in the context of creating mechanisms for the development of environmental enterprises based on multifactorial optimization. For such mechanisms, conception of similar guidelines could be the basis for the creation of algorithms for selection and justification of management decisions, in particular for the launch of startup projects in the field of eco-innovation.

References

- Babych, M., Korobka, S., Skrynkovskyy, R., Korobka, S., & Krygul, R. (2016). Substantiation of economic efficiency of using a solar dryer under conditions of personal peasant farms. *Eastern-European Journal of Enterprise Technologies*, 6(8), 41–47. <https://doi.org/10.15587/1729-4061.2016.83756>
- Barska, A., Jędrzejczak-Gas, J., Wyrwa, J., & Kononowicz, K. (2020). Multidimensional assessment of the social development of EU countries in the context of implementing the concept of sustainable development. *Sustainability*, 12, 7821. <https://doi.org/10.3390/su12187821>
- Bombiak, E. (2019). Green human resource management – the latest trend or strategic necessity. *Entrepreneurship and Sustainability Issues*, 6(4), 1647-1662. [https://doi.org/10.9770/jesi.2019.6.4\(7\)](https://doi.org/10.9770/jesi.2019.6.4(7))
- Borovyk, O. N. (2012). Environmental entrepreneurship and its advantages [in Ukrainian]. In *Proceedings of the IV International scientific and practical videoconference. Management of innovation process in Ukraine: Problems of commercialization of R&D developments* (p. 94–95). Vydavnytstvo

Lvivskoi Politekhniky https://ena.lpnu.ua/bitstream/ntb/14152/1/55_94-95_120506_maket_ena_ntb.pdf

- Demirel, P., Cher Li, Q., Rentocchini, F., & Tamvada, J. P. (2019). Born to be green: new insights into the economics and management of green entrepreneurship. *Small Business Economics*, 52(4), 759–771. <https://link.springer.com/article/10.1007/s11187-017-9933-z>
- Doh, J. P., Tashman, P., & Benischke, M. H. (2019). Adapting to grand environmental challenges through collective entrepreneurship. *Academy of Management Perspectives*, 33(4). <https://doi.org/10.5465/amp.2017.0056>
- Dudin, M., Ivashchenko, N., Gurinovich, A., Tolmachev, O., & Sonina, L. (2019). Environmental entrepreneurship: Characteristics of organization and development. *Entrepreneurship and Sustainability Issues*, 6(4), 1861-1871. [https://doi.org/10.9770/jesi.2019.6.4\(22\)](https://doi.org/10.9770/jesi.2019.6.4(22))
- Fraiberg, S. (2017). Start-up nation: Studying transnational entrepreneurial practices in Israel's start-up ecosystem. *Journal of Business and Technical Communication*, 31(3), 350-388. <https://doi.org/10.1177/1050651917695541>
- Fuentelsaz, L., Maicas, J.P., Mata, P. (2018). Institutional dynamism in entrepreneurial ecosystems. In A. O'Connor, E. Stam, F. Sussan, & D. Audretsch, D. (Eds.), *Entrepreneurial Ecosystems. International Studies in Entrepreneurship* (vol. 38, pp. 45-65). Springer. https://doi.org/10.1007/978-3-319-63531-6_3
- Gast, J., Gundolf, K., & Cesinger B. (2017). Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions. *Journal of Cleaner Production*, 147, 44-56. <https://doi.org/10.1016/j.jclepro.2017.01.065>
- Johnson, M. P., & Schaltegger, S. (2019). Entrepreneurship for sustainable development: A review and multilevel causal mechanism framework. *Entrepreneurship Theory and Practice*, 44(6), 1141-1173. <https://doi.org/10.1177/1042258719885368>
- Keutgen, J. (2020). *European Union national parliaments of the sustainable development goals: Lessons learned for the Verkhovna Rada*. EU-UNDP Parliamentary Reform Project. https://www.undp.org/sites/g/files/zskgke326/files/migration/ua/PRP_SDGs_and_parliaments_ENG.pdf
- Kniaz, S. V., & Kosovska, V. V. (2015). Justification of the need to create a transfer system of industrial enterprises [in Ukrainian]. *Actual Problems of Economics*, 8(170), 6-23.
- Kniaz, S. V. (2015). The essence of ecological and economic tourist eco-information systems and the relationship between them [in Ukrainian]. *Actual Problems of Economics*, 9(171), 280–285.

- Kucher, L., Kniaz, S., Pavlenko, O., Holovina, O., Shayda, O., Franiv, I., & Dzvonyk, V. (2021). Development of entrepreneurial initiatives in agricultural business: A methodological approach. *European Journal of Sustainable Development*, 10(2), 321. <https://doi.org/10.14207/ejsd.2021.v10n2p321>
- Kuckertz, A. (2019). Let's take the entrepreneurial ecosystem metaphor seriously. *Journal of Business Venturing Insights*, 11, e00124. <https://doi.org/10.1016/j.jbvi.2019.e00124>
- Kupalova, H. I. (2011). Ecological business as an integral part of sustainable development of Ukraine [in Ukrainian]. *Bulletin of Taras Shevchenko National University of Kyiv. Military-special sciences*, 26, 35-39. http://nbuv.gov.ua/UJRN/VKNU_vsn_2011_26_10
- Kuratko, D. F., Fisher, G., Bloodgood, J. M., & Hornsby, J. S. (2017). The paradox of new venture legitimation within an entrepreneurial ecosystem. *Small Business Economics*, 49, 119-140. <https://link.springer.com/article/10.1007/s11187-017-9870-x>
- Lüdeke-Freund, F. (2019). Sustainable entrepreneurship, innovation, and business models: Integrative framework and propositions for future research. *Business Strategy and the Environment*, 29(2), 665-681. <https://doi.org/10.1002/bse.2396>
- Malecki, E. (2018). Entrepreneurship and entrepreneurial ecosystems. *Geography Compass*, 12(3), e12359. <https://doi.org/10.1111/gec3.12359>
- Mensah, J. (2019). Sustainable development: Meaning, history, principles, pillars, and implications for human action: Literature review. *Cogent Social Sciences*, 5, 1653531. <https://doi.org/10.1080/23311886.2019.1653531>
- Mitcham, C. (1995). The concept of sustainable development: Its origins and ambivalence. *Technology in Society*, 17(3), 311-326. [https://doi.org/10.1016/0160-791X\(95\)00008-F](https://doi.org/10.1016/0160-791X(95)00008-F)
- Pavlenchyk, N., Horbonos, F., Pavlenchyk, A., Skrynkovskyy, R., & Pawlowski G. (2021). Increasing the competitiveness of enterprises based on the use of marketing management tools. *Agricultural and Resource Economics: International Scientific E-Journal*, 7(3), 77-89. <https://doi.org/10.51599/are.2021.07.03.05>
- Pavlenko, A. (2021). Standards of purity. Incinerate, recycle or consume less – how waste is dealt with in different countries [in Ukrainian]. *NV-Biznes*, 18. <https://cutt.ly/SOhxill>
- Popova, N., Kataiev, A., Skrynkovskyy, R., & Nevertii, A. (2019). Development of trust marketing in the digital society. *Economic Annals-XXI*, 176(3-4), 13–25. <https://doi.org/10.21003/ea.V176-02>

- Shwetzter, C., Maritz, A., & Nguyen, Q. (2019). Entrepreneurial ecosystems: A holistic and dynamic approach. *Journal of Industry – University Collaboration*, 1(2), 79-95. <https://doi.org/10.1108/JIUC-03-2019-0007>
- Skrynkovskyy, R. (2008). Investment attraction evaluation technique for machine-building enterprises. *Actual Problems of Economics*, 7(85), 228–240.
- Skrynkovskyy, R. M. (2011). Methodical approaches to the economic estimation of investment attractiveness of machine-building enterprises for portfolio investors. *Actual Problems of Economics*, 118(4), 177–186.
- Stam, E., & van de Ven, A. (2021). Entrepreneurial ecosystem elements. *Small Business Economics*, 56, 809-832. <https://doi.org/10.1007/s11187-019-00270-6>
- Sumets, A., Kniaz, S., Heorhiadi, N., Farat, O., Skrynkovskyy, R., & Martyniuk, V. (2021). Methodical approach to the selection of options for ensuring competitiveness of enterprises in the system of development of agricultural clusters, *Agricultural and Resource Economics*, 7(1), <https://doi.org/10.51599/are.2021.07.01.10>
- Weber, J. M., Lindenmeyer, C. P., Liò, P., & Lapkin, A. A. (2021). Teaching sustainability as complex systems approach: A sustainable development goals workshop. *International Journal of Sustainability in Higher Education*, 22(8), 25-41. <https://doi.org/10.1108/IJSHE-06-2020-0209>
- Swan, C. D., & Morgan, D. (2016). Who wants to be an eco-entrepreneur? Identifying entrepreneurial types and practices in ecotourism businesses. *The International Journal of Entrepreneurship and Innovation*, 17(2), 120–132. <https://doi.org/10.1177/1465750316648580>
- Tulai, O. (2017). Financial and organizational foundations of economic entities': Ecologically oriented activities. *Scientific Bulletin of Polissia*, 4(12), 93-97.
- York, J. G., O'Neil, I., & Sarasvathy, S. D. (2016). Exploring environmental entrepreneurship: Identity coupling, venture goals, and stakeholder incentives. *Journal of Management Studies*, 53(5), 695-737. <https://doi.org/10.1111/joms.12198>
- Yuzevych, V., Klyuvak, O., & Skrynkovskyy, R. (2016). Diagnostics of the system of interaction between the government and business in terms of public e-procurement. *Economic Annals-XXI*, 160(7–8), 39–44. <https://doi.org/10.21003/ea.v160-08>

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