sustainability

MDPI

Article

Investigating the Role of Innovation in Inclusive and Sustainable Development in Ukraine and South Korea

Liubov Syhyda [1], Liudmyla Saher [1,2], Marcin Gąsior [3], Nataliia Sygyda [4], Nadiia Artyukhova [1], Sylwia Skrzypek-Ahmed [5], Oleksandr Dluhopolskyi [5,6,*] and Robert Rehak [7]

1 Academic and Research Institute of Business, Economics and Management, Sumy State University, 40007 Sumy, Ukraine
2 Institute of Economic Research, Slovak Academy of Sciences, 811 05 Bratislava, Slovakia
3 Faculty of Management, Lublin University of Technology, 20-618 Lublin, Poland
4 Department of Business Administration, Busan University of Foreign Studies, Busan 46-234, Republic of Korea
5 Faculty of Public Administration and Business, WSEI University, 20-209 Lublin, Poland
6 Faculty of Economics and Management, West Ukrainian National University, 46027 Ternopil, Ukraine
7 Faculty of Commerce, University of Economics in Bratislava, 852 35 Bratislava, Slovakia; robert.rehak@euba.sk
* Correspondence: dlugopolsky77@gmail.com

Abstract: While other studies have analysed the problems of innovation and innovative development at the global level or for some specific countries or enterprises, this study provides a comparison of publication activity in the sphere of innovation and innovative development in two countries with different levels of economic and sustainable industrial development. This study investigates publications on the innovation and innovative development problems regarding sustainable industrial development in Ukraine and South Korea. A bibliometric study was conducted. The data were collected from the SciVal platform. The authors used the modern techniques and procedures of bibliometric analysis and data visualisation. The results show that (1) South Korea demonstrates higher publication activity on innovation and innovative development than Ukraine; (2) in the articles, authors of both countries highlight the problem of increasing innovative activity; (3) authors from South Korea form a denser network of relationships with authors from other countries; (4) in both cases, the leading cluster formed around the keyword "innovation"; and (5) for Ukraine and South Korea, innovative activities are connected with sustainable development. This study combines qualitative and quantitative research methods. It was carried out in two phases: data preparation and data analysis, using the techniques and procedures of bibliometrics. The results demonstrate the importance of the publication of scientific papers on the effects of a country's innovative activities to raise public awareness, foster the country's innovation, and thus stimulate sustainable development.

Keywords: innovation; innovative development; sustainable development; bibliometrics; Ukraine; South Korea

Citation: Syhyda, L.; Saher, L.; Gąsior, M.; Sygyda, N.; Artyukhova, N.; Skrzypek-Ahmed, S.; Dluhopolskyi, O.; Rehak, R. Investigating the Role of Innovation in Inclusive and Sustainable Development in Ukraine and South Korea. *Sustainability* **2023**, *15*, 11195. https://doi.org/10.3390/su151411195

Academic Editor: Fabrizio D'Ascenzo

Received: 27 May 2023
Revised: 12 July 2023
Accepted: 14 July 2023
Published: 18 July 2023

1. Introduction

Innovation and innovative activity are powerful tools for increasing the competitiveness of enterprises, regions, and countries. The level of innovative activity is an excellent indicator of a country's efforts towards sustainable development and its ability to be up to date. Innovations are fundamental tools for high-tech product manufacturing and technological improvement in industries. This theme is deeply developed by world organisations and agencies and presents increasing evidence in academic and scientific spheres. The issue of research on innovation in countries is relevant at this time to various international agencies and organisations. These international agencies and organisations provide their own sets of indexes to measure the innovative activity of countries on a global scale.

Thus, the World Intellectual Property Organization each year publishes the Global Innovation Index. In 2021, Switzerland, Sweden, and the United States of America took the

first three places. Moreover, in 2021, South Korea took 5th place for the first time. Despite its potential, Ukraine was in the 49th position [1].

Bloomberg is one more agency looking for innovation leaders in the world. This agency calculates the Bloomberg Innovation Index. According to the Bloomberg Innovation Index, South Korea, Singapore, and Switzerland are the leaders. Ukraine took 58th place [2]. Therefore, Ukraine is far from an innovation leader and needs to work harder. Nevertheless, international agencies and organisations conduct deep research on innovative activities worldwide.

The Russia-Ukraine war has significantly changed conditions and negatively affected life in Ukraine, including its innovation potential and development of innovative activities. At the moment, there are no answers to questions about the war's duration, the date of its end, and the essence of the peace concept. However, the war has entered a phase of relative stability, in which it is possible to predict options for future economic development and innovative activities. The need for forecasting options for reconstruction and development is enormous. Taking into account the fact that some regions have been destroyed and the infrastructure in these areas will not be subject to restoration efforts, also because of causing significant adverse environmental consequences, there is a practical opportunity to carry out innovative projects in these territories, particularly regarding the restoration of habitats from ecological, economic, and social perspectives. Accordingly, this forms a suitable basis for scientific research in the field of innovative development, including comparison with a country that had similar problems at a particular time and successfully and quickly managed not only to solve the issues but also acquired rapid economic development.

Considering the practical aspects of innovative activity as they relate to the theoretical aspects, this study investigates the academic and scientific works of scientists related to innovation. First, we were interested in scientific works connected to innovation in Ukraine. For comparison, we also researched scientific works connected to innovation in Korea, a country with powerful innovation potential, a fast pace of innovation, and sustainable development.

2. Literature Review

Increasing industrial growth and sustainable development create conditions for shifting the innovation type's importance and the emergence of new kinds of innovation. Thus, the importance of eco-innovation rises significantly.

In [3], exploring four types of eco-innovation (product, process, market, and source of supply), the authors proved that the financial capabilities of the enterprise are important in environmental innovation and create pre-conditions for eco-innovative development. Moreover, the authors mentioned the positive impact of eco-innovation on an enterprise's financial performance. In [4], the authors highlighted the complementary link between an enterprise's innovative capabilities and eco-innovation. This interrelation showed that an enterprise's "normal" innovation (technological or non-technological) stimulates future eco-innovation. The authors also proved the connection between different types of innovation [5]. In the article, the authors showed that open innovation significantly affects eco-innovation, and their integration can help provide an improved open eco-innovation model. Moreover, in [6], the authors also studied open innovation and its influence on increasing eco-innovation performance. In [7], the authors confirmed that the eco-innovation implementation process influences organisational and operational barriers. The authors proposed and validated an eco-innovation maturity model (Eco-Mi) to overcome these barriers and implement eco-innovation more effectively.

In the researched articles, the authors highlighted the importance of eco-innovation for humanity. They demonstrated the connection between different types of innovation. Additionally, they showed that enterprises with experience in implementing other types of innovation could produce more successful eco-innovations.

A group of scientists also worked on the problem of the influence of innovation and innovative activities on enterprise effectiveness.

The authors in [8] analysed the influence of different types of innovation on firm growth over the business cycle. They affirmed that firms with innovations based on R&D activities can better resist business cycle fluctuations. Accordingly, the authors in [9] proved the positive impact of innovation efficiency on enterprise efficiency. Thus, the scientists determined that the implementation of innovative projects enables a significant increase in the financial indicators of an enterprise.

After investigating firm-level data in emerging economies, the authors in [10] verified that innovative activities, especially R&D activities, and quality management help to improve an enterprise's profitability and performance.

In [11], the authors investigated the innovative activities of small businesses [12]. They analysed innovation antecedents to determine the factors that drove business owners to innovate. Wulandari [13] analysed the influence of the characteristics of small and medium-sized enterprises on the owners' intentions to implement marketing and technological innovations. The authors determined that motivation and social status influence marketing innovative development, while financial stability and risk appetite directly affect technological innovation intentions.

Analysis of the possibility of applying innovative tools by small and medium-sized enterprises on the way out of the economic crisis [14] caused by the COVID-19 pandemic [12] demonstrated the need for innovative development of SMEs and the search for new opportunities to support and develop business activities.

The authors in [15] analysed the dynamics of the indicators of innovative activity and innovative capacity identification. Then, they developed recommendations to increase the efficiency of enterprises' innovative activities. Additionally, in [16], the authors highlighted the mismatch of innovative activity financing in Ukraine, and in [17], the authors demonstrated uneven development of innovative activity across regions of Ukraine.

An analysis of the dynamics of innovative development and NRT [18] confirmed the hypothesis regarding the importance of the quality of scientific activity to ensure a country's socio-economic development. In [19], the mutual directions of the influence of the indicators of innovative growth, the country's competitiveness, and sustainable development were established.

In [20], the opportunities and consequences of the results of the Fourth Industrial Revolution for business management were highlighted. The study results provide insight into the business world's position and the importance of adaptability and innovation in this scenario. In addition, understanding the principles of innovation management and determining the specifics of using open analytical sources of big data by consumers can help to achieve leadership in certain sectors of the world economy.

The economic system itself can receive additional multiplier effects from implementing a justified innovation policy, which must be considered when evaluating the microeconomic indicators of economic growth [21], including the effects of structuring the GDP according to the innovativeness criterion. Managing innovation at a global level enables faster responses to complex market conditions and sustains business resilience through problem solving [21].

Thus, innovation and innovative activity are the sources of increased enterprise performance and growth of national and global economies.

One more important direction of scientific investigation is human capital and innovation.

Thus, the authors in [22,23] investigated the link between the mobility of R&D workers and the innovative activity of new and old employers. The authors determined a positive correlation—labour mobility stimulates the overall innovation of a country or region due to knowledge transfer.

In [24,25], the scholars analysed the problems of personnel motivation and stimulation of innovative activity at an enterprise.

The authors in [26,27] identified the current strategic guidelines for growth of the intellectual potential of the human capital of enterprises and institutions under the conditions of innovative transformation. At the same time, the articles established a relationship

between the intellectualisation of human capital and innovation that affects the stability of economic systems. On the other hand, the authors in [28] determined the impact of human capital and the level of its development on economic change, digital transformation, and, accordingly, the development of innovative activities. Also, an important aspect is understanding the relationship between state investments in human capital and a country's economic growth. However, research in [29] showed that, for developing countries, the co-integration relationship is absent in the long-term because several factors related to investing in the development of human capital have a direct negative impact on economic growth (e.g., corruption, significant level of migration, etc.).

Accordingly, in [30], the authors defined the parameters of investment attractiveness [31], among which were innovation and research.

These works confirmed that innovative activity is impossible without strong, highly qualified employees producing new creative ideas.

Research on the innovation market and innovative development is impossible without understanding the key and secondary factors influencing the mentioned processes [32]. Thus, studying the essence of internal financial risk [33] can help to reduce the percentage of market innovation failures due to financial problems, investment problems, etc. [34]. Analysis of the development of information and communication technologies [32] has determined the significant impact of innovation, education [35–37], and research components [38,39] on the process of digitalisation of the economy [40–42], which determines, in turn, the need for the development of strategic cooperation between the public, business, and higher education sectors.

The current conditions also increase the role of social innovation. Although this problem is not new, research keeps investigating it. Therefore, the authors in [43] paid attention to categorisation and determining the types of social innovation.

Moreover, in [44], the authors concentrated on types of "doing well by doing good" innovations. These innovations aimed to overcome specific social problems.

Additionally, in [45], the authors proposed the structure of the social innovation process, which is non-sequential and contains five phases. Also, the authors proved that the social innovation process could involve different stakeholders.

In [46], the authors paid attention to another aspect of social innovation. They highlighted the correlation between creativity, entrepreneurial intention, and social innovation. The authors proved that creativity and entrepreneurial intention create the basis for social innovative development. In [47], the authors demonstrated the impact of social networks on creativity and innovation and their role as a driving force in creating social value.

In both [48,49], the scientists highlighted the importance of stakeholder interaction and collaboration while providing social innovation. For example, cooperation between government and non-governmental organisations, national innovation systems, and social entrepreneurship. Such collaborations can help implement social innovations faster, easier, and in a less costly manner.

In total, innovation and innovative processes are well-discussed in the scientific literature. Therefore, the authors investigated the scientific literature on innovation in more detail.

This study aimed to analyse innovation and innovative development publications in Ukraine and South Korea as potential tools for the countries' sustainable economic and social development and technological improvement.

3. Materials and Methods

The scholarly works of scientists of a particular country can be a reliable tool for researching a scientific topic's developmental path. They reflect the fundamental challenges of science and practical activities in a country in a specific period. Accordingly, studying scientific works can help create a road map for the development of scientific topics in a particular country. Scientists and practitioners from other countries can apply it appropriately in further research.

In addition, comparing one country's scientific achievements with the works of scientists from other countries on the same topic can help to identify gaps, simplify and reduce the time of working on a scientific problem, help avoid many mistakes, and support a decisive scientific breakthrough.

The basis of this study was a bibliometric analysis aimed at expanding the understanding of the innovation problem in Ukraine and South Korea.

The choice of Ukraine and South Korea for comparison was not accidental. The development of innovative activity in Korea can be an example to follow. In a relatively short time, Korea transformed from a developing country into a powerful innovative one, confirmed by its leading position in the top ratings. Ukraine has solid innovation potential and substantial achievements in innovation. This creates the basis for its rapid innovative growth. However, more is needed regarding introducing innovations to the market and their commercialisation. In this context, Korea's experience can be examined to help ensure the development of innovations and their successful implementation and popularisation, providing high consumer value and creating added value.

Korea is a vivid example of a country that is able to produce engaging innovative ideas and successfully implement them to arouse public interest. South Korea has experienced rapid post-war reconstruction while having a rather dangerous and unpredictable neighboring country. Considering their similar experiences under the existing conditions will be very useful for Ukraine.

Therefore, a bibliometric analysis of the scientific works of Ukrainian scientists compared to the scientific results of Korean scientists can help to find ways for Ukraine to close existing gaps and learn from previous experience to ensure a quick, innovative leap in strengthening innovative activity.

Bibliometric research is relatively formalised and contains both qualitative and quantitative components. Bibliometric analysis is of interest to many scholars. Thus, in [50], researchers conducted a comparative study between the Web of Science and Scopus based on the journal coverage of the two databases. The results showed that the effects of the bibliometric analysis performed according to the logical search criteria might differ depending on which database was used. It largely depended on the uneven distribution of journals by field, publishing country, and language.

Researchers in [51] assessed the impact of bibliometric analysis on scholarly production. The authors found that the popularity of bibliometric analysis as a research tool is growing. In addition, scientists have identified a tendency towards increased interest in bibliometric studies among academia and professionals. Ellegaard, O. [52] also researched a set of articles related to bibliometric analysis (search query "bibliometric * OR scientometric * OR webometric * OR altimetric * OR informetrics *"). In this study, he confirmed the importance of bibliometric analysis in determining the level of interest of scientists and professionals on the topic and established areas for further scientific development.

Donthu et al. [53] presented the methodology of bibliometric analysis. Scientists have created the bibliometric analysis toolbox, including the following techniques: (1) performance analysis, including publication-related metrics, citation-related metrics, and citation-and-publication-related metric; (2) science mapping, including citation analysis, co-citation analysis, bibliographic coupling, co-word analysis, co-authorship analysis; and (3) enrichment techniques, including network metrics, clustering, and visualisation. In addition, the researchers proposed a bibliometric analysis procedure, which included 4 stages: (1) define the aims and scope of the bibliometric study; (2) choose the techniques for bibliometric analysis; (3) collect the data for bibliometric analysis; and (4) run the bibliometric analysis and report the findings. Best practice (questions) guidelines were formulated for each of the stages.

To analyse the problem of innovation in Ukraine compared to that in South Korea, we used the SciVal platform (scival.com, Copyright © 2021 Elsevier B.V.; accessed on 6 December 2022). A set of data was obtained from the Scopus scientometric database using two keywords in the search field title, abstract, and author keywords. The data were

received on 6 December 2022, from the Sumy State University access point. The choice of the SciVal platform for meta-analysis was explained by the fact that this platform enables work with many articles to be conducted quickly and easily, including annotations and citations. In addition, it is possible to conveniently analyse the data and obtain a summary, which adds value to the study.

The structure of the bibliometric analysis was as follows (Figure 1).

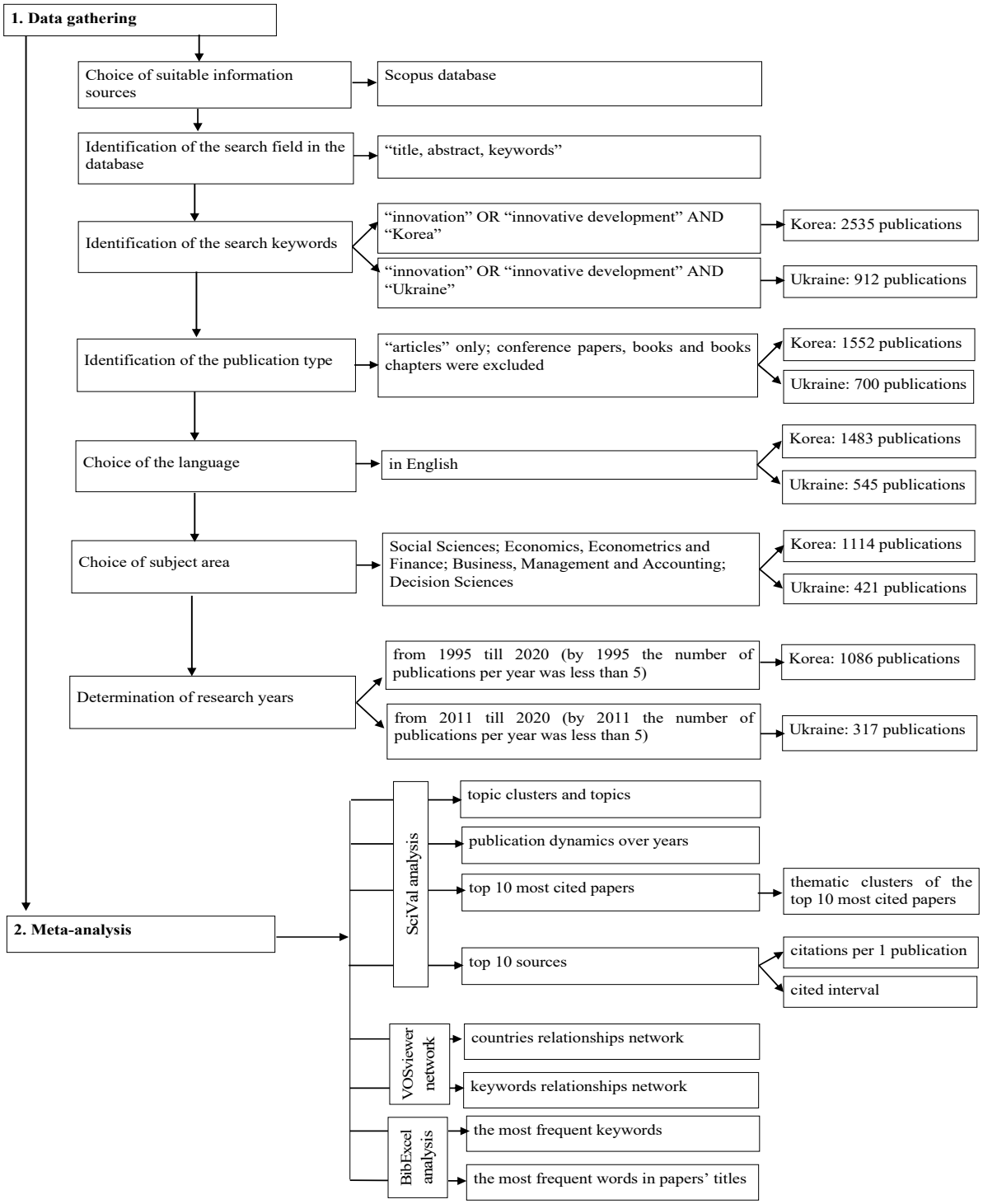

Figure 1. Scheme of research methodology. Source: authors' approach.

4. Results

First, using SciVal, the authors analysed the clusters of topics in the subject areas "Innovation, innovative development, and Korea" and "Innovation, innovative development, and Ukraine" for works published in 2018–2020.

Within the subject area "Innovation, innovative development, and Korea", the SciVal tool highlighted 70 topic clusters (Table 1). Three topic clusters belonged to the top 1% of worldwide sets by prominence in the Scopus database.

Table 1. Top 1% and 2% of worldwide clusters by prominence in the subject area of "Innovation, innovative development, and Korea" in 2018–2020.

Topic Cluster	Scholarly Output	Publication Share (%)	Field-Weighted Citation Impact	Prominence Percentile
COVID-19; SARS-CoV-2; Coronovirus (TC.1500)	1	0	0.45	100
Electricity; Energy; Economics (TC.81)	16	0.05	1.67	99.264
Ozonization; Degradation; Wastewater Treatment (TC.206)	1	0	0.43	99.064
Industry; Innovation; Entrepreneurship (TC.24)	123	0.26	1.13	98.997
Industry; Research; Marketing (TC.36)	13	0.03	1.9	98.863
Supply Chains; Supply Chain Management; Industry (TC.146)	3	0.01	1.03	98.06

Source: authors' analysis at SciVal platform.

These topic clusters (TCs) were TC.1500, TC.81, and TC.206 (Table 1). All three topic clusters dealt with different types of innovation. Three more topic clusters were in the top 2% of worldwide sets by prominence in the Scopus database. These topic clusters were TC.24, TC.36, and TC.146. Moreover, topic cluster TC.24 "Industry; Innovation; Entrepreneurship" had the most considerable scholarly output (123 publications) and publication share (0.26%).

According to the analytical platform SciVal, the set of publications contained 179 topics. The top 5 topics are listed in Table 2. One of these topics directly dealt with "Industry; Innovation; Entrepreneurship". Forty-five topics were in the top 1% of worldwide issues by prominence. One topic had 100% prominence. This topic was related to COVID-19, which is a burning and prospective topic.

Table 2. Top 5 topics by prominence ranking that appear within the subject area of "Innovation, innovative development, and Korea", 2018–2020.

Topic	Topic Number	Scholarly Output	Prominence Percentile	Top First Source by Citations
Radiological Findings; Clinical Features; COVID-19	T.1100120	1	100	Parvin, G.A., Ahsan, R., Rahman, M.H. et al. (2020). Novel Coronavirus (COVID-19) Pandemic: The Role of Printing Media in Asian Countries. *Frontiers in Communication*, 6 [54]
Middle East Respiratory Syndrome Coronavirus; Coronavirus Infections; Hajj	T.6636	1	99.95	El Sayed, E.M.A.M. (2020). How AI, data science and technology is used to fight the pandemic COVID-19: Case study in Saudi Arabia environment. *Research in World Economy*, 11 (5) [55]
Electronic Word-Of-Mouth; Online Reviews; Brand Community	T.1190	1	99.946	Yoon, S., Zhang, D. (2018). Social media, information presentation, consumer involvement, and cross-border adoption of pop culture products. *Electronic Commerce Research and Applications*, 27, 129–138 [56]

Table 2. *Cont.*

Topic	Topic Number	Scholarly Output	Prominence Percentile	Top First Source by Citations
Technology Acceptance Model; Mobile Payment; UTAUT	T.95	5	99.945	Jung, T.H., Lee, H., Chung, N. at al. (2018). Cross-cultural differences in adopting mobile augmented reality at cultural heritage tourism sites. *International Journal of Contemporary Hospitality Management*, 30(3), 1621–1645 [57]
Cause-Related Marketing; Corporate Social Performance; Corporate Philanthropy	T.184	6	99.931	Park, S.-Y., Lee, C.-K., Kim, H. (2018). The influence of corporate social responsibility on travel company employees. *International Journal of Contemporary Hospitality Management*, 30(1), 178–196 [58]

Source: authors' analysis at SciVal platform.

Within the subject area "Innovation, innovative development, and Ukraine", the SciVal tool highlighted 66 topic clusters (Table 3) and 110 topics (Table 4). Two topic clusters belonged to the top 1% of worldwide sets by prominence in the Scopus database, and three belonged to the top 2%.

Table 3. Top 1% and 2% of worldwide clusters by prominence in the subject area of "Innovation, innovative development, and Ukraine", 2018–2020.

Topic Cluster	Scholarly Output	Publication Share (%)	Field-Weighted Citation Impact	Prominence Percentile
Electricity; Energy; Economics (TC.81)	1	0	0.37	99.264
Climate Models; Model; Rainfall	1	0	0	99.13
Industry; Innovation; Entrepreneurship (TC.24)	21	0.04	1.1	98.997
Industry; Research; Marketing (TC.36)	5	0.01	1.19	98.863
Supply Chains; Supply Chain Management; Industry (TC.146)	1	0	7.58	98.06

Source: authors' analysis at SciVal platform.

Table 4. Top 5 topics by prominence ranking that appear within the subject area "Innovation, innovative development, and Ukraine", 2018–2020.

Topic	Topic Number	Scholarly Output	Prominence Percentile	Field-Weighted Citation Impact
Green Supply Chain Management; Environmentally Preferable Purchasing; Green Practices	T.2569	1	99.937	7.58
Cause-Related Marketing; Corporate Social Performance; Corporate Philanthropy	T.184	1	99.931	0
Cultural Ecosystem Services; Service Value; Natural Capital	T.2046	1	99.917	3.14
Information Modeling; Facilities Management; Revit	T.1496	1	99.776	1.21
Business Model Innovation; Sustainable Business; Digital Transformation	T.8491	1	99.774	0

Source: authors' analysis at SciVal platform.

Like in Korea, there were publications within topic cluster TC.81 (top 1 %). Also, all three topic clusters belonging to the top 2% were the same as Korea's: (1) TC.24, (2) TC.36, and (3) TC.146 (Table 4). This proved that articles that dealt with innovativeness in Ukraine touched on up-to-date problems.

Moreover, according to Table 4, topic cluster T.8491 "Business Model Innovation; Sustainable Business; Digital Transformation" was among the 5 most ranked topics. Therefore, in the investigated articles, the authors researched innovation in connection with sustainable business.

To examine the problems of innovation and innovative development in Ukraine and South Korea, the authors compared publications connected with this topic in more detail.

The distribution of scientific papers over the years is illustrated in Figures 2 and 3 (Korea and Ukraine, respectively).

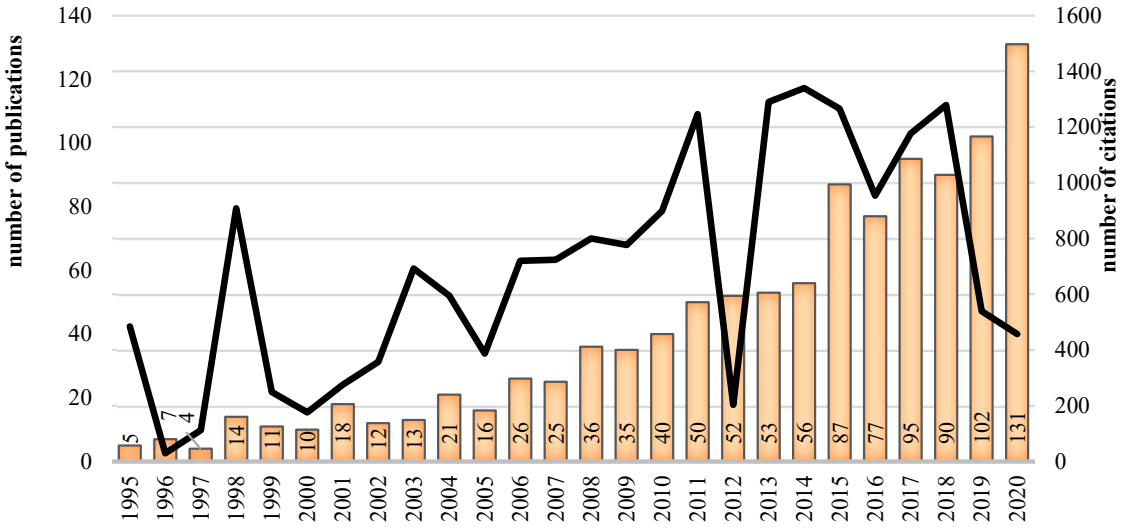

Figure 2. Total numbers of publications and citations in the subject area of "Innovation, innovative development, and Korea" between 1995 and 2020. Source: authors' analysis at Scopus Database.

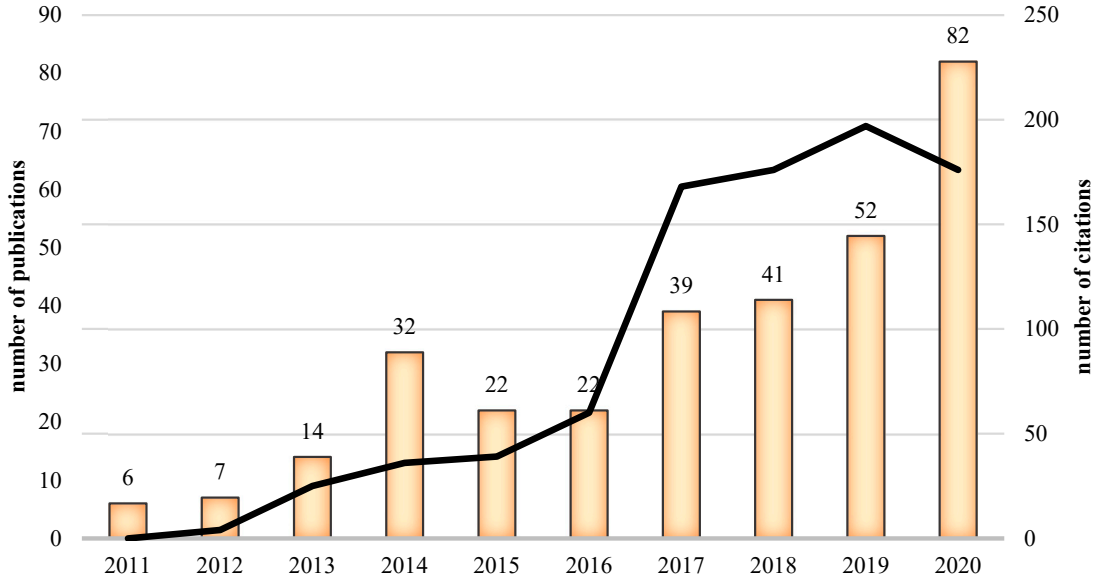

Figure 3. Total numbers of publications and citations in the subject area of "Innovation, innovative development, and Ukraine" between 2011 and 2020. Source: authors' analysis at Scopus Database.

Thus, according to Figure 2, Lee J. and Rubenstein A.H. [59] published the first study in the investigated field in 1980. However, the growth in publication activity started in 1995. Therefore, there were four main stages of publication activity in the sphere of innovations and innovative development in Korea.

The first stage started in 1980 and lasted until 1994. The volume of studies did not exceed four studies per year during this period. We did not take this period into account in our further investigation, as, in total, scientists published just 30 articles. The second stage was between 1995 and 2010. In this time, the volume of studies grew moderately and did not reach 50 investigations per year. From 2011 until 2018, the number of publications increased significantly and advanced to almost 100 studies during the third stage. Thus, in 2019, the fourth stage began. The number of publications exceeded 100 works. In 2020, scientists published 131 articles. This was the peak of publication activity within the investigated period. Moreover, three-quarters of all articles were published within the last ten years.

The citation rates over the years showed that the highest rate of citations was in 2014, with 56 published articles (1340 in total). In this year, Lee J.H., Hancock M.G., and Hu M.-C. published the article "Towards an effective framework for building smart cities: Lessons from Seoul and San Francisco" [60] (Table 5). This was the third most cited article, with a citation rate equal to 402 times. Also, in 2013, 53 articles were mentioned 1290 times, and in 2018, 90 papers were cited 1279 times.

Table 5. The top 10 most cited papers in the subject area of "Innovation, innovative development, and Korea" between 1995 and 2020.

№	Total Citations	Article Title	Author	Number of Affiliations	Countries	Journal/Year of Publication
1	634	Crisis construction and organizational learning: Capability building in catching-up at Hyundai Motor	Kim L.	1	South Korea	*Organization Science*, 1998
2	429	East Asian latecomer firms: Learning the technology of electronics	Hobday M.	1	United Kingdom	*World Development*, 1995
3	402	Towards an effective framework for building smart cities: Lessons from Seoul and San Francisco	Lee J.H., Hancock M.G., Hu M.-C.	3	South Korea, United States, Taiwan	*Technological Forecasting and Social Change*, 2014
4	265	A cross-cultural comparison of internet buying behavior: Effects of internet usage, perceived risks, and innovativeness	Park C., Jun J.-K.	2	South Korea	*International Marketing Review*, 2003
5	255	An integrated service-device-technology roadmap for smart city development	Lee J.H., Phaal R., Lee S.-H.	3	South Korea, United Kingdom	*Technological Forecasting and Social Change*, 2013
6	228	"It's always more difficult than you plan and imagine": Teachers' perceived difficulties in introducing the communicative approach in South Korea	Li D.	1	Macao	*TESOL Quarterly*, 1998
7	223	National learning systems: A new approach on technological change in late industrializing economies and evidences from the cases of Brazil and South Korea	Viotti E.B.	1	Brazil	*Technological Forecasting and Social Change*, 2002

Table 5. *Cont.*

№	Total Citations	Article Title	Author	Number of Affiliations	Countries	Journal/Year of Publication
8	211	ERP training with a web-based electronic learning system: The flow theory perspective	Choi D.H., Kim J., Kim S.H.	3	South Korea	*International Journal of Human Computer Studies*, 2007
9	210	Why and how to adopt green management into business organisations?: The case study of Korean SMEs in manufacturing industry	Lee K.-H.	1	Australia	*Management Decision*, 2009
10	204	When and how does business group affiliation promote firm innovation? A tale of two emerging economies	Chang S.-J., Chung C.-N., Mahmood I.P.	3	South Korea, Singapore	*Organization Science*, 2006

Source: authors' analysis at Scopus Database.

Additionally, according to Table 5, all ten articles were cited more than 200 times. Also, two papers were cited more than 400 times, and one piece was cited more than 600 times. Moreover, scientists from South Korea, the United States, Taiwan, the United Kingdom, and Singapore submitted three articles in multi-country cooperation. Three papers were published by scientists from Macao, Brazil, and Australia. Additionally, multi-institutional collaboration within one country (South Korea) occurred in 4 pieces.

The situation with publication activity in the sphere of innovation and innovative development in Ukraine differed (Figure 3).

The first publication was dated 1991, when Ukraine became independent. The publication trend showed that for the next 20 years, until 2011, only 20 articles were published (the first stage). During the following years (from 2011 to 2018), there was rapid growth in the number of published articles from 6 to 41 papers per year (second stage). The third stage of publication activity began in 2019, and scientists submitted more than 50 articles. Also, Figure 2 shows that 70% of studies were published within the last five years (from 2016 to 2020). The peak was reached in 2020 (82 articles).

The citation rate demonstrated that articles published in 2019 were cited 197 times. The pieces published in 2018 and 2020 were mentioned equally—176 times. Moreover, scientists submitted nine out of the ten most cited articles during 2018–2020 (Table 6).

Table 6. The top 10 most cited papers in the subject area of "Innovation, innovative development, and Ukraine" between 2011 and 2020.

№	Total Citations	Article Title	Author	Number of Affiliations	Countries	Journal/Year of Publication
1	32	Information and communication technologies support for the participation of universities in innovation networks (comparative study)	Prokopenko O., Holmberg R., Omelyanenko V.	3	Sweden, Ukraine	*Innovative Marketing*, 2018
2	23	Methodology of national investment and innovation security analytics	Prokopenko O., Slatvinskyi M., Bikoshkurska N., Biloshkurskyi M., Omelyanenko V.	3	Ukraine	*Problems and Perspectives in Management*, 2019
3	20	Prospects of assessing the impact of external student migration on restoring country's intellectual potential (The case study of Ukraine)	Mishchuk H., Roshchyk I., Sułkowska J., Vojtovič S.	3	Poland, Ukraine, Slovakia	*Economics and Sociology*, 2019

Table 6. *Cont.*

№	Total Citations	Article Title	Author	Number of Affiliations	Countries	Journal/Year of Publication
4	20	The influence of the industry's innovation activities indices on the industrial products' revenue of Ukraine	Ilyash O., Dzhadan I., Ostasz G.	3	Poland, Ukraine	*Economics and Sociology*, 2018
5	19	Economy's innovative technological competitiveness: Decomposition, methodic of analysis and priorities of public policy	Vasyltsiv T., Irtyshcheva I., Lupak R., (. . .), Boiko Y., Ishchenko O.	3	Ukraine	*Management Science Letters*, 2020
6	19	Beyond participation! Social innovations facilitating movement from authoritative state to participatory forest governance in Ukraine	Sarkki S., Parpan T., Melnykovych M., (. . .), Voloshyna N., Nijnik M.	5	Switzerland, Ukraine, Finland, United Kingdom	*Landscape Ecology*, 2019
7	19	Asset and cost management for innovation activity	Labunska S., Petrova M., Prokopishyna O.	2	Bulgaria, Ukraine	*Economic Annals-XXI*, 2017
8	17	Human values as catalysts and consequences of social innovations	Sarkki S., Ficko A., Miller D., (. . .), Soloviy I., Nijnik M.	4	Slovenia, Finland, United Kingdom, Ukraine	*Forest Policy and Economics*, 2019
9	17	Supply chain development drivers in Industry 4.0 in Ukrainian enterprises	Krykavskyy Y., Pokhylchenko O., Hayvanovych N.	2	Poland, Ukraine	*Oeconomia Copernicana*, 2019
10	16	Analysis of economic development of Ukraine regions based on taxonomy method	Andrusiv U., Simkiv L., Dovgal O., Serhieieva O., Sydor H.	4	Ukraine	*Management Science Letters*, 2020

Source: authors' analysis at Scopus Database.

Articles about innovation and innovative development in Ukraine were less interesting to the world's scientific community. Their citation rates were lower. Thus, the most cited article, with 32 citations, was "Information and communication technologies support for the participation of universities in innovation networks (comparative study)" written by Prokopenko, O., Holmberg, R., and Omelyanenko, V. [61]. Second place was taken by the article by Prokopenko, O., Slatvinskyi, M., Bikoshkurska, N., Biloshkurskyi, M., and Omelyanenko, V., entitled "Methodology of national investment and innovation security analytics" [62]. Scientists cited it 23 times. And in third place was a study by Mishchuk, H., Roshchyk, I., Sułkowska, J., and Vojtovič, S., entitled "Prospects of assessing the impact of external student migration on restoring country's intellectual potential (The case study of Ukraine)" [63], with 20 citations. The first two articles had the same co-authors—Prokopenko, O. and Omelyanenko, V. Despite low citation rates, the scientists submitted seven articles within multi-country cooperation between Ukrainian scientists and scientists from Sweden, Poland, Slovakia, Switzerland, Finland, the United Kingdom, Bulgaria, and Slovenia. Moreover, multi-institutional collaboration within one country occurred in all ten articles.

If we compare Figures 2 and 3, we can see that the third stage of publication activity in Korea began in 2011 (the number of publications exceeded 50). In Ukraine, 2011 was the beginning of scientists' growing interest in innovative activity. Thus, the publication gap between Korea and Ukraine was about 20 years. Mainly, scientists' publications highlighted the challenges facing society and the world in a certain period and corresponded to popular trends. Considering the low publication activity in Ukraine since 1991, we can state the low interest of the state and individual business entities in innovation, their unpreparedness for innovation in the realities of that time, insufficient financial investments, etc.

Since Ukrainian scientists began to deal with innovation much later, compared to scientists from developed countries and newly industrialised countries, their achievements had yet to be recognised by their foreign colleagues. However, thanks to Ukrainian developers, Ukraine's innovation potential is becoming more powerful and more represented globally. Thanks to the activity of Ukrainian scientists, their work is receiving wider publicity and is covered in reputable periodicals.

All of the above generally improves Ukraine's position in the world's innovation ratings.

Therefore, the problems of innovation and innovative activity began to be considered in Ukraine later than in Korea and they remain less elaborated on and popular worldwide, as evidenced by the low level of citations. Ukraine is at the very beginning of the path of increasing innovative activity and its popularisation on a global scale.

Detailed analysis of the most cited articles (Tables 5 and 6) allowed to us highlight clusters according to content. The obtained results help to identify the main trends in research (Tables 7 and 8 for Korea and Ukraine, respectively).

Table 7. Thematic clusters of the most cited papers in the subject area of "Innovation, innovative development, and Korea".

Cluster	Ideas	Author(s)
Smart Cities	Coordination of activities of actors from public and private sectors. Role of an open innovation platform.	Lee, J.H., Phaal, R., Lee, S.-H., 2013 Lee, J.H., Hancock, M.G., Hu, M.-C., 2014
Increasing Innovative Activity	Influence of business groups on innovative activities of firms. Specifics of innovative development of latecomers. Shifting from imitation to innovation. Role of active and passive learning strategies in technical and innovative changes. Innovations in green management. Internet innovativeness and innovativeness on a cross-cultural basis.	Kim, L., 1998 Hobday, M., 1995 Park, C., Jun, J.-K., 2003 Viotti, E.B., 2002 Lee, K.-H., 2009 Chang, S.-J., Chung, C.-N., Mahmood, I.P., 2006
Innovations in Education	Role of e-learning and curriculum innovations in education.	Choi, D.H., Kim, J., Kim, S.H., 2007 Li, D., 1998

Source: authors' analysis.

Table 8. Thematic clusters of the most cited papers in the subject area of "Innovation, innovative development, and Ukraine".

Cluster	Ideas	Author(s)
Increasing Innovative Activity	Influence of investment and innovation components on economic development. Dependence between investment and innovation security level. Economy's innovative technological competitiveness. The best practices of EU member countries as a source of increasing innovative activity. Importance of innovative implementation and commercialisation. Dependence between innovation potential and industrial products' revenue. Influence of world economies' competitiveness on the development of innovations. Correlation between industrial product income and the innovation potential of growth. Implementation of Industry 4.0 into enterprise activities.	Labunska, S., Petrova, M., Prokopishyna, O. Ilyash, O., Dzhadan, I., Ostasz, G. Prokopenko, O., Slatvinskyi, M., Bikoshkurska, N., Biloshkurskyi, M., Omelyanenko, V. Vasyltsiv, T., Irtyshcheva, I., Lupak, R., (. . .), Boiko, Y., Ishchenko, O. Andrusiv, U., Simkiv, L., Dovgal, O., (. . .), Serhieieva, O., Sydor, H. Krykavskyy, Y., Pokhylchenko, O., Hayvanovych, N.
Education for Innovation	Participation of higher educational institutions in innovation networks. The role of universities in the development of innovative knowledge. Influence of external student migration on national competitiveness and innovative development. The role of human values in social innovation.	Prokopenko, O., Holmberg, R., Omelyanenko, V. Mishchuk, H., Roshchyk, I., Sułkowska, J., Vojtovič, S. Sarkki, S., Parpan, T., Melnykovych, M., (. . .), Voloshyna, N., Nijnik, M. Sarkki, S., Ficko, A., Miller, D., (. . .), Soloviy, I., Nijnik, M.

Source: authors' analysis.

As we can see from Tables 7 and 8, the authors of the most cited publications on innovation and innovative development in both countries paid special attention to the problem of increasing innovative activity.

After all, innovation is a field that never stops and requires constantly searching for new solutions and areas of influence.

However, even though scientists in both countries paid attention to the issue of innovative activity growth, there was a difference in the direction of the research. Thus, for Ukrainian scientists, innovative activity growth was related to: (1) researching the experience and practices of other countries regarding strengthening the innovation component; (2) finding and securing investments for conducting practical, innovative activities and strengthening the economic component; (3) impact of innovations on competitiveness, including at the global level; (4) establishing the influence of innovations on the income level from the sale of innovative products; and (5) successful practical implementation of innovations, including their commercialisation under the conditions of Industry 4.0.

The most cited articles by Korean scientists within the cluster of innovative activity growth were related to the following: (1) finding ways to quickly transition to innovative activity depending on the transition stage—leader, follower, or outsider (for example, the transition from imitation to innovation, taking into account learning strategies, etc.); (2) considering the influence of various participants on innovative activity; and (3) implementation of innovations in various fields.

In addition, the research topic became wider and involved education and social innovations. It is worth noting that Korean and Ukrainian scientists considered the relationship between innovation and education from two sides. Ukrainian scientists believed higher education institutions and students were apt sources of contributing to the development of the innovation sphere. Korean colleagues were more interested in the implementation of innovations in education.

A particular interest among Korean scientists was developing the idea of smart cities as part of infrastructural development and creating resilient infrastructures. After all, Korea already has experience building smart cities and is constantly developing new ideas.

As Table 9 reveals, the top 10 journals published 303 papers in the "Innovation, innovative development, and Korea" field, accounting for more than 28% of the analysed articles. These journals have high SNIP values. A total of 60% of the journals belonged to Q1, 30% belonged to Q2, and just 10% belonged to Q3. The most significant number of articles were published in 5 journals: *Sustainability* (93 pieces), *Technological Forecasting and Social Change* (48 articles), *Asian Journal of Technology Innovation* (42 articles), *Journal of Open Innovation Technology Market and Complexity* (26 pieces), and *Scientometrics* (25 articles). The most cited were articles from the journals *Technological Forecasting and Social Change* (1884 citations), *Research Policy* (904 citations), and *Sustainability* (796 citations). However, the highest number of citations per publication were in the journals *Research Policy* (75.3 citations per publication), *Technovation* (48.4 citations per publication), and *Technological Forecasting and Social Change* (39.3 citations per publication).

Also, Table 9 gives indicators such as cited intervals. This shows the number of papers published in the journal with some citation quantity. According to Table 9, one article in *Technological Forecasting and Social Change* had a citation interval of $\geq$400; two articles in the same journal had citation intervals of $\geq$200. Six papers were cited more than 300 times—one in *Sustainability*, one in *Technovation*, and four in *Research Policy*. In total, 46% of all publications published in the top 10 journals were cited more than ten times.

Additionally, 50% of the top 10 journals were affiliated with the United Kingdom, 20% with the Netherlands, and 20% with Switzerland.

Table 9. Top 10 Scopus sources by publication in the subject area of "Innovation, innovative development, and Korea" in 1995–2020.

Journal	Q	SNIP	Number of Published Articles	Number of Citations	Citations per 1 Publication	Cited Interval				
						≥400	≥200	≥100	≥50	≥10
Sustainability (Switzerland)	Q1	1.242	93	796	8.6			1		28
Technological Forecasting And Social Change (USA)	Q1	3.037	48	1884	39.3	1	2		1	29
Asian Journal of Technology Innovation (United Kingdom)	Q3	0.549	42	281	6.7					12
Journal of Open Innovation Technology Market And Complexity (Switzerland)	Q2	1.350	26	262	10.1					10
Scientometrics (Netherlands)	Q1	1.565	25	610	24.4				4	14
International Journal of Technology Management (United Kingdom)	Q2	0.652	16	209	13.1				1	7
Technology Analysis And Strategic Management (United Kingdom)	Q2	1.094	16	180	11.3					7
Science And Public Policy (United Kingdom)	Q1	1.207	13	90	6.9					3
Research Policy (Netherlands)	Q1	3.663	12	904	75.3			4	4	2
Technovation (United Kingdom)	Q1	2.937	12	581	48.4			1	3	6

Source: authors' analysis.

In the "Innovation, innovative development, and Ukraine" field, most publications were published in 5 journals (Table 10): *Economic Annals-XXI* (35 publications), *Science and Innovation* (35 publications), *Actual Problems of Economics* (32 publications), *Problems and Perspectives in Management* (29 publications), and *Journal of Advanced Research in Law and Economics* (10 publications).

Table 10. Top 10 Scopus sources by publication in the subject area of "Innovation, innovative development, and Ukraine" between 2011 and 2020.

Journal	Q	SNIP	Number of Published Articles	Number of Citations	Citations Per 1 Publication	Cited Interval
						≥10
Economic Annals-XXI (Ukraine)	Q3	0.485	35	91	2.6	2
Science and Innovation (Ukraine)	Q4	0.215	35	9	0.3	
Actual Problems of Economics (Ukraine)	-	0.324	32	31	1.0	
Problems and Perspectives In Management (Ukraine)	Q2	0.793	29	120	4.1	3
Journal of Advanced Research in Law And Economics (Romania)	-	0.466	10	20	2.0	
Investment Management and Financial Innovations (Ukraine)	Q3	0.692	8	43	5.4	1
European Journal of Sustainable Development (Italy)	-	-	6	6	1.0	
Banks and Bank Systems (Ukraine)	Q3	0.728	5	12	2.4	
Economics and Sociology (Poland)	Q2	1.131	5	46	9.2	2
Innovative Marketing (Ukraine)	Q3	0.545	5	46	9.2	1

Source: authors' analysis.

The most cited were articles from the journals *Problems and Perspectives in Management* (120 citations) and *Economic Annals-XXI* (91 citations). However, the sources with the most citations per publication were *Economics and Sociology* and *Innovative Marketing* (9.2 for both). According to the citation interval, only nine papers were cited in the top 10 journals more than ten times.

Two journals belonged to Q2, and four journals belonged to Q3. Other journals belonged to Q4 or did not have a quartile at al. At the same time, 54% of the publications in the sample belonged to the top 10 journals. As we can see, 7 out of 10 Top 10 Scopus sources were affiliated with Ukraine. Ukrainian scientists mainly published in Ukrainian scientific journals.

Thus, the number of publications in Scopus on innovation and innovative development in Ukraine was less than the number of publications about innovation and innovative

development in Korea, and the citation level was much lower. Ukraine is at the beginning of innovative development and has a lot to be done.

Additionally, using VOSviewer 1.6.16 (vosviewer.com, accessed on 14 May 2023, Copyright © 2021 Centre for Science and Technology Studies, Leiden University, Leiden, The Netherlands), the authors created networks of the relationships between the main publishing countries for both search areas—"Innovation, innovative development, and Korea" and "Innovation, innovative development, and Ukraine" (Figures 4 and 5, respectively).

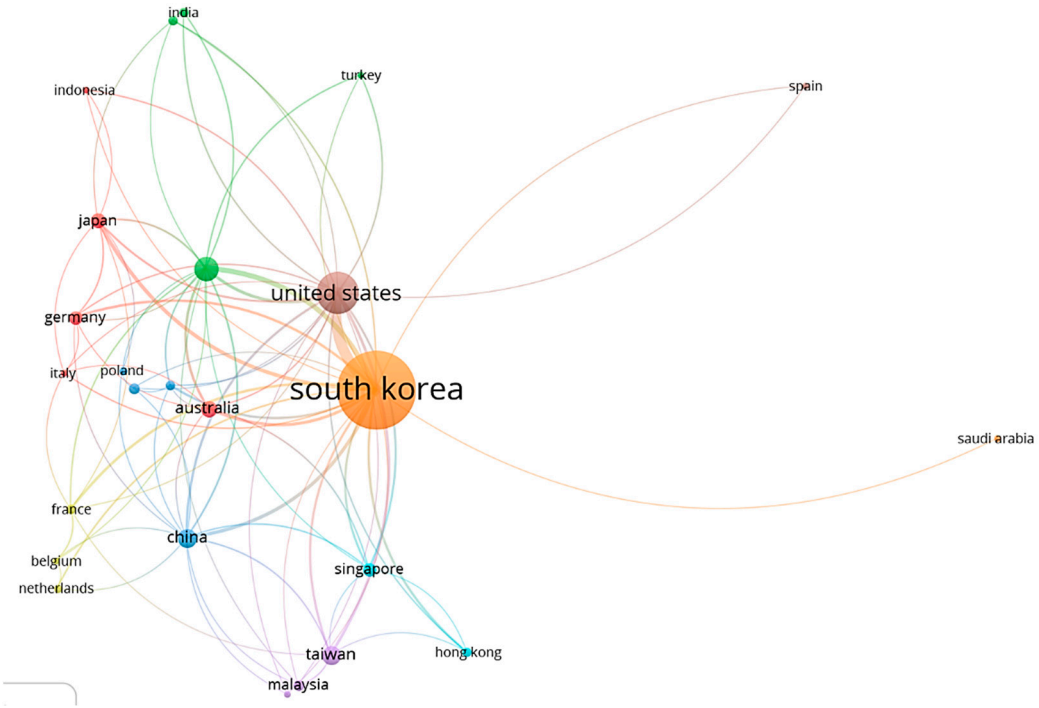

Figure 4. The network of relationships between countries within the subject area of "Innovation, innovative development, and Korea". Source: authors' analysis at Scopus Database, VOSviewer.

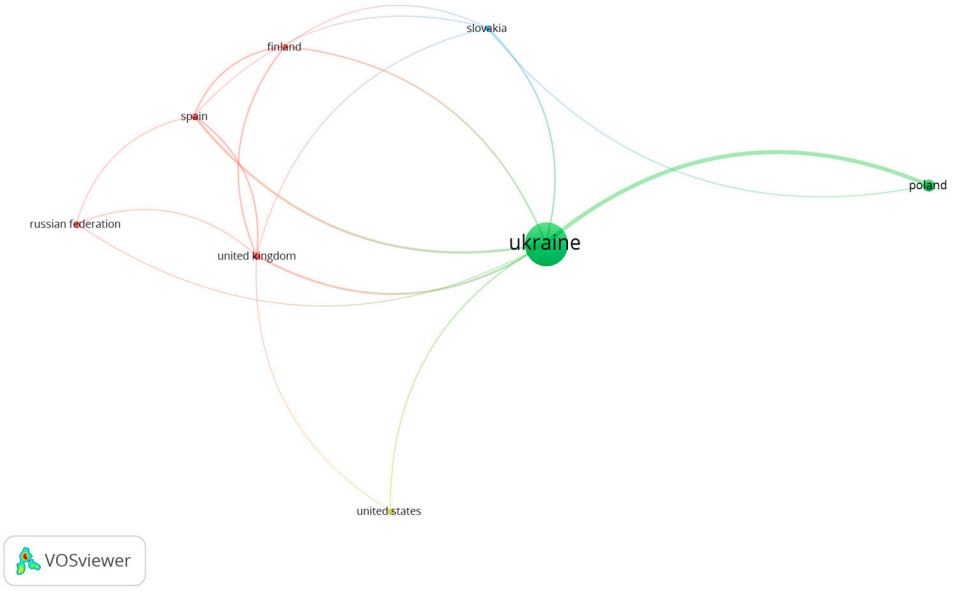

Figure 5. The network of relationships between countries within the subject area of "Innovation, innovative development, and Ukraine". Source: authors' analysis at Scopus Database, VOSviewer.

As a result, the VOSviewer formed 6 clusters of countries. The following countries formed the most significant clusters: South Korea (681 documents, 21 links, total link strength–196); the USA (194 papers, 20 links, total link strength–148); the United Kingdom (68 documents, 15 links, total link strength–56), China (42 papers, 14 links, total link strength–31), Taiwan (39 documents, seven links, total link strength–19), and Japan (27 documents, nine links, total link strength–26).

After analysing the geographical coverage of the publications in the research field, we could see that scientists from South Korea published 63% of papers, American scientists published 18%, and scientists from Great Britain published 6%.

Therefore, Asian countries had a leading position among other regions in publication activity in the "Innovation, innovative development, and Korea" field.

In the case of Ukraine, fewer countries were involved in the network. The largest cluster was formed between Ukraine (269 documents, seven links, total link strength–40); the United Kingdom (10 documents, six links, total link strength–14), Slovakia (5 documents, five links, total link strength–7), and the USA (7 documents, two links, total link strength–3). Thus, the European region paid the main interest to the problem.

Also, it was essential to identify the most frequent keywords relevant to the area and highlight the existing trends in the research field. The minimum number of occurrences of keywords for both research areas was ≥5. To obtain relevant results, repeated and irrelevant words (such as "article", "literature review", and others) were excluded from further consideration.

For South Korea, the program created ten clusters (Figure 6). All clusters were illustrated in different colours.

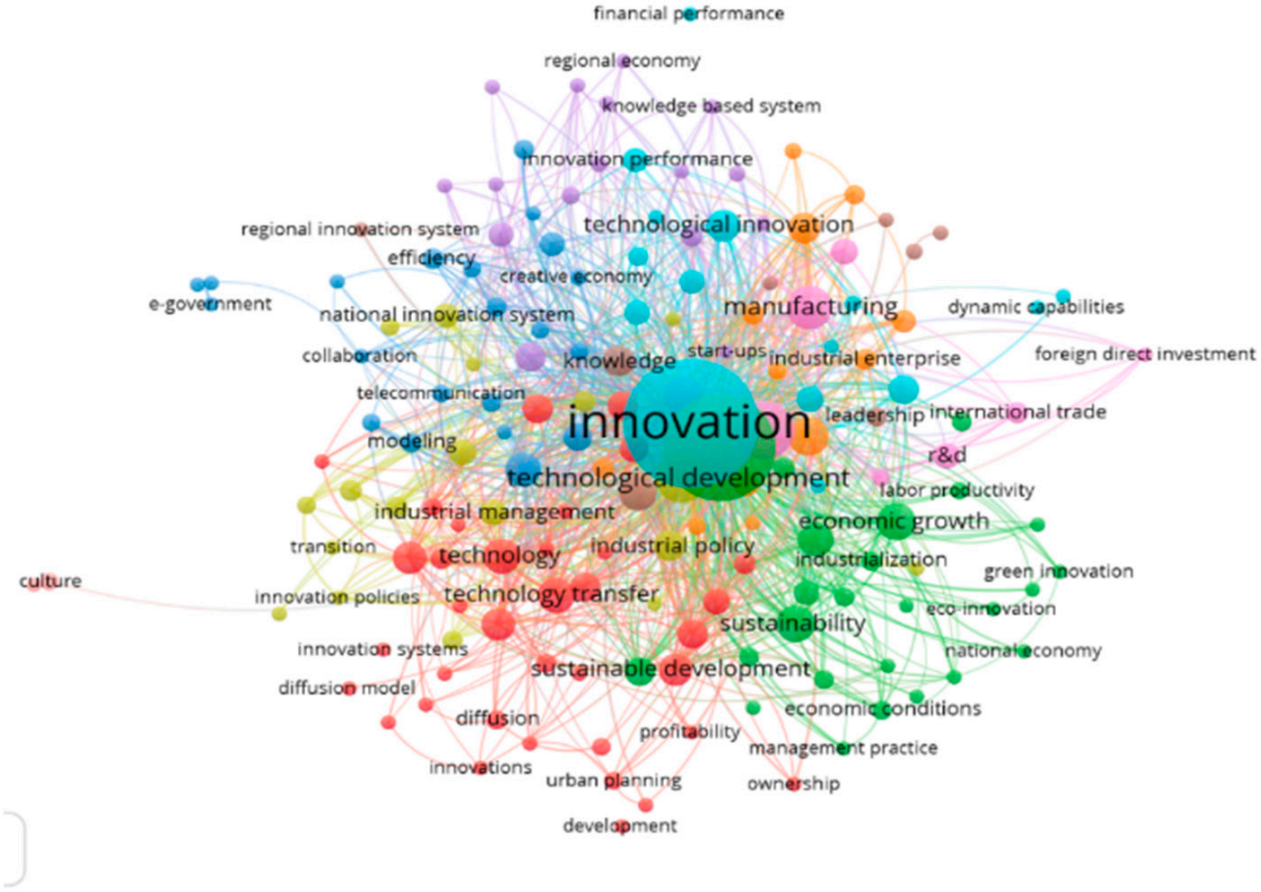

Figure 6. Network of relationships between keywords within the research area of "Innovation, innovative development, and Korea". Source: authors' analysis at Scopus Database, VOSviewer.

The first (most potent) cluster (light blue cluster) formed around the leading keyword "innovation" (154 links, 394 occurrences, total link strength–1364); the second cluster (green cluster) formed around the keyword "Korea" (144 links, 269 occurrences, total link strength—983); the third cluster (yellow cluster) formed around the keyword "technological development" (92 links, 61 occurrences, total link strength–288); the fourth cluster (pink cluster) formed around the keyword "research and development" (76 links, 46 occurrences, total link strength–244); the fifth cluster (orange cluster) formed around the keyword "industrial performance" (70 links, 38 occurrences, total link strength–194); the sixth cluster (blue cluster) formed around the keyword "competition" (61 links, 28 occurrences, total link strength–139); the seventh cluster (red cluster) formed around the keyword "technology" (54 links, 32 occurrences, total link strength–118); the eighth cluster (brown cluster) formed around the keyword "knowledge" (55 links, 24 occurrences, total link strength–107); the ninth cluster (violet cluster) formed around the keyword "economic development" (46 links, 21 occurrences, total link strength–75); and the tenth cluster (light pink cluster) formed around the keyword "culture" (8 links, 8 occurrences, total link strength–9).

For Ukraine, the program created five clusters (Figure 7).

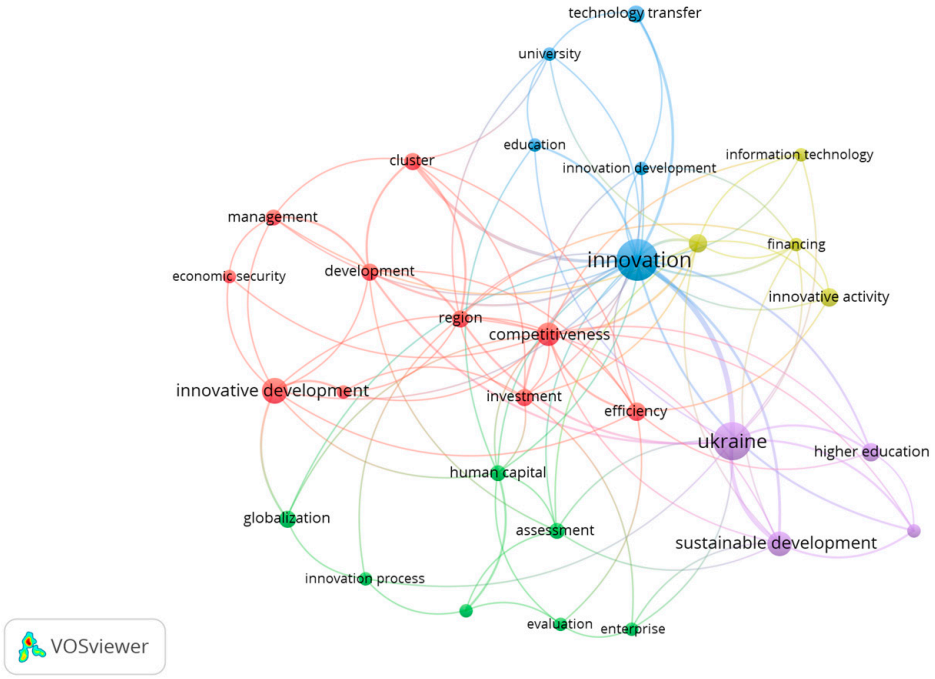

Figure 7. Network of relationships between keywords within the research area of "Innovation, innovative development, and Ukraine". Source: authors' analysis at Scopus Database, VOSviewer.

In the case of Ukraine, we obtained five clusters of keywords, which showed the main directions of research. The main clusters formed around the following keywords: "innovation" with 23 links, 48 occurrences, total link strength–41 (blue cluster); "Ukraine" with 12 links, 31 occurrences, total link strength–35 (violet cluster); "competitiveness" with 14 links, 16 occurrences, total link strength–13 (red cluster); "human capital" with 9 links, 10 occurrences, total link strength–6 (green cluster); and "strategy" with 10 links, 13 occurrences, total link strength–8 (yellow cluster).

The network for South Korea was more powerful. It contained twice as many clusters as the network for Ukraine because it was built on a more significant number of scientific works and showed a broader range of research conducted by the scientists. In Ukraine, just like in the case of Korea, the most prominent cluster formed around the keyword "innovation" as an area of research. In second place was the country's name in both cases. Considering Figure 6, which covers the topic of innovation more broadly, domestic scientists can identify new scientific directions to expediate work in the future.

In both cases, the important keyword was "sustainable development". For both countries, this keyword was a component of clusters formed around the name of the nation. In the case of South Korea, this cluster also contained other keywords related to sustainable development, particularly sustainability, green innovation, and eco-innovation. Accordingly, the scientists' works highlighted both the impact of innovation on sustainable development and the stimulation of innovative activity by the need to achieve sustainable development. The rest of the keywords from this cluster were related to the national economy, economic conditions, and economic growth, which are now closely related to sustainable development and inclusiveness.

In the case of Ukraine, this cluster also included higher education, as educational institutions participate significantly in creating and implementing sustainable development programs with an innovative component.

In addition, using BibExcel [64,65], we studied the most popular words used by authors when formulating article titles or when choosing keywords.

The results of this analysis for articles related to South Korea are presented in Tables 11 and 12.

Table 11. The most frequent keywords (South Korea's case).

Word	Frequency	Word	Frequency
innovation	959	policy	239
Korea	652	analysis	234
development	385	industrial	215
technology	371	technological	214
South	302	research	197

Source: authors' analysis.

Table 12. The most frequently used words in titles of papers (South Korea's case).

Word	Frequency	Word	Frequency
innovation	370	technology	106
Korea	345	industry	90
South	172	performance	87
korean	153	analysis	84
case	122	development	79

Source: authors' analysis.

Moreover, Table 11 lists the most popular keywords and Table 12 presents the ten most used words when choosing an article title. A comparison between Tables 11 and 12 showed that the first two words were the same regarding frequency of mention. These words were "innovation" and "Korea". However, in third place among keywords was the word "development", and "South" was third among titles of papers. Accordingly, the term "development" was in 10th place among titles of papers, and the word "South" was in fifth place among keywords.

A similar analysis was conducted for articles related to innovation and innovative development in Ukraine (Tables 13 and 14).

A comparison of Tables 13 and 14 showed that the words "innovation" and "development" were popular in both cases. However, the word "Ukraine" was the most used word among titles of articles. At the same time, it was the fifth among keywords.

In both cases, we found that the main scientific clusters were formed mainly around the keywords used most often by the authors.

Table 13. The most frequent keywords (Ukraine's case).

Word	Frequency	Word	Frequency
innovation	138	management	39
development	104	education	36
innovative	68	activity	31
Ukraine	52	system	31
economic	51	financial	30

Source: authors' analysis.

Table 14. The most frequently used words in titles of papers (Ukraine's case).

Word	Frequency	Word	Frequency
Ukraine	122	economic	30
development	99	management	28
innovation	76	system	25
innovative	44	enterprises	23
Ukrainian	34	case	21

Source: authors' analysis.

5. Discussion

In general, the analysis of publications on the problems of innovation and innovative development in each country allowed us to identify the main research trends. This research was based on a study of 1086 articles on South Korea and 317 articles on Ukraine.

A systematic and critical review of the literature on innovation and innovative development in Ukraine and South Korea showed positive publication activity for both countries. However, Ukrainian scientists started to consider innovation problems later than South Korean scientists. Therefore, there were three times fewer publications.

Articles were published in the top 1% and 2% of worldwide clusters in both cases. The common clusters were "Industry; Innovation; Entrepreneurship" (TC.24); "Industry; Research; Marketing" (TC.36); "Supply Chains; Supply Chain Management"; "Industry" (TC.146), and "Electricity; Energy; Economics" (TC.81). Also, the topic "Cause-Related Marketing; Corporate Social Performance; Corporate Philanthropy" was in the top 5 issues by prominence ranking for both countries.

All 10 of the most cited articles in the sample concerning innovation in South Korea were cited more than 200 times. The level of citation in the reports from the sample concerning innovation in Ukraine was much lower and did not exceed 32 citations. In both cases, there were articles written in multi-institutional collaboration and multi-country cooperation. However, there is a need to build deeper links between scholars from different countries.

An in-depth analysis of the most cited articles highlighted the following thematic clusters: Smart Cities, Increasing Innovative Activity, Innovations in Education, and Human Values and Social Innovations.

The data showed that about 28% of the publications in the "Innovation, innovative development, and Korea" field belonged to the top 10% of journals. A total of 90% of these journals belonged to Q1 and Q2. In addition, 50% of the top 10 journals were affiliated with the United Kingdom.

It was verified that among the publications in the "Innovation, innovative development, and Ukraine" field, almost 54% belonged to the top 10% of journals. However, the prestige of these journals was lower—only two journals belonged to Q2 and four belonged to Q3.

Publications in the field of "Innovation, innovative development, and Korea" had a more comprehensive geographical coverage. The centre was South Korea. Moreover,

scientists from other Asian countries, the United States, Western Europe, and Australia also covered the topic.

In addition to scientists from Ukraine, representatives of Western European countries were involved in research in the field of "Innovation, innovative development, and Ukraine". The topic had not yet become more widespread.

In both cases, the essential words used in the articles as keywords or in the titles were "innovation", "development", and the names of the countries—"Korea" and "Ukraine".

6. Conclusions

The study showed that Ukraine still faces many challenges in its transition to innovative development and Industry 4.0. However, the experience and knowledge of other countries, particularly South Korea, can help to develop an innovation map and strategy for Ukraine in terms of further industrial growth.

The study was limited by the capacity of the database from which the study materials were obtained. The research taken into consideration represents a relevant part of all world research concerning the subject of innovation and innovative development as powerful tools on the path to sustainable development.

Further research may relate to a deepening of the topic by finding the influence of innovation and innovative activity on sustainable processes through the review of publications in another database. Another possible area of further research is to identify gaps in the analysed scientific publications and develop solutions to overcome them in order to obtain more fruitful scientific results.

Author Contributions: Conceptualisation, L.S. (Liubov Syhyda), L.S. (Liudmyla Saher) and M.G.; methodology, N.S., N.A., S.S.-A. and O.D.; formal analysis, L.S. (Liubov Syhyda), L.S. (Liudmyla Saher), M.G. and R.R.; investigation, L.S. (Liubov Syhyda), L.S. (Liudmyla Saher), O.D. and M.G.; writing—original draft preparation, L.S. (Liubov Syhyda), L.S. (Liudmyla Saher), N.S. and N.A.; writing—review and editing, S.S.-A., M.G., O.D. and R.R.; visualisation, L.S. (Liubov Syhyda), L.S. (Liudmyla Saher), N.S. and R.R. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the grants "Cognitive model of innovations' commercialization in the conditions of Industry 4.0: intellectual capital protection, marketing and communications" (Ministry of Education and Science of Ukraine, No. SR 0122U000780) and "Changes in the approach to the creation of companies' distribution management concepts influenced by the effects of social and economic crises caused by the global pandemic and increased security risks" (Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and Slovak Academy of Sciences, VEGA 1/0392/23).

Data Availability Statement: Not applicable.

Acknowledgments: The authors are very grateful to the anonymous referees for their helpful comments and constructive suggestions.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Andrișan, G.; Modreanu, A. An Overview of The Fourth Industrial Revolution through the Business Lens. *Bus. Ethics Leadersh.* **2022**, *6*, 39–46. [CrossRef]
2. Antonyuk, N.; Plikus, I.; Jammal, M. Human Capital Quality Assurance under the Conditions of Digital Business Transformation and COVID-19 Impact. *Health Econ. Manag. Rev.* **2021**, *2*, 39–47. [CrossRef]
3. Arranz, N.; Arroyabe, M.; Li, J.; de Arroyabe, J.C.F. Innovation as a driver of eco-innovation in the firm: An approach from the dynamic capability's theory. *Bus. Strategy Environ.* **2020**, *29*, 1494–1503. [CrossRef]
4. Bibliometrics: Tools and Software. Available online: https://liu.cwp.libguides.com/c.php?g=225325&p=4966525 (accessed on 14 May 2023).
5. Cattivelli, V.; Rusciano, V. Social innovation and food provisioning during COVID-19: The case of urban-rural initiatives in the Province of Naples. *Sustainability* **2020**, *12*, 4444. [CrossRef]
6. Cheng, C.C.J.; Shiu, E.C. Leveraging open innovation strategies for fueling eco-innovation performance in dynamic environments. *Sustain. Account. Manag. Policy J.* **2020**, *11*, 1245–1270. [CrossRef]

7. Cunha, J.; Ferreira, C.; Araújo, M.; Nunes, M.L. The mediating role of entrepreneurial intention between creativity and social innovation tendency. *Soc. Enterp. J.* **2022**, *18*, 383–405. [CrossRef]
8. Didenko, I.; Valaskova, K.; Artyukhov, A.; Lyeonov, S.; Vasa, L. Quality of scientific activity as a determinant of socio-economic development. *Econ. Sociol.* **2022**, *15*, 301–318. [CrossRef]
9. Donthu, N.; Kumar, S.; Mukherjee, D.; Pandey, N.; Lim, W.M. How to conduct a bibliometric analysis: An overview and guidelines. *J. Bus. Res.* **2021**, *133*, 285–296. [CrossRef]
10. Dutta, S.; Lanvin, B.; León, L.R.; Wunsch-Vincent, L.; Wunsch-Vincent, S. (Eds.) *Global Innovation Index 2021. Tracking Innovation through the COVID-19 Crisis*, 14th ed.; World Intellectual Property Organization: Geneva, Switzerland, 2021.
11. Ellegaard, O. The application of bibliometric analysis: Disciplinary and user aspects. *Scientometrics* **2018**, *116*, 181–202. [CrossRef]
12. Ellegaard, O.; Wallin, J.A. The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics* **2015**, *105*, 1809–1831. [CrossRef]
13. Gontareva, I.; Litvinov, O.; Hrebennyk, N.; Nebaba, N.; Litvinova, V.; Chimshir, A. Improvement of the innovative ecosystem at universities. *East.-Eur. J. Enterp. Technol.* **2022**, *1*, 59–68. [CrossRef]
14. Hrytsenko, P.; Voronenko, V.; Kovalenko, Y.; Kurman, T.; Omelianenko, V. Assessment of the development of innovation activities in the regions: Case of Ukraine. *Probl. Perspect. Manag.* **2021**, *19*, 77–88. [CrossRef]
15. Ibraghimov, E.A. Management of Innovation in Azerbaijan: Relationships with Competitiveness and Sustainable Development. *Mark. Manag. Innov.* **2022**, *1*, 247–256. [CrossRef]
16. Kaiser, U.; Kongsted, H.C.; Rønde, T. Does the mobility of R&D labor increase innovation? *J. Econ. Behav. Organ.* **2015**, *110*, 91–105. [CrossRef]
17. Kaya, H.D.; Engkuchik, E.N. The Impact of the 2008–2009 Global Crisis on Manufacturing Firms' Fixed Asset Purchases: The Case of Eastern Europe and Central Asia. *Financ. Mark. Inst. Risks* **2022**, *6*, 36–42. [CrossRef]
18. Kazeem, B.L.O.; Adewale, O.V.; Kayode, K.I.; Kayode, O.J. Challenge of COVID-19 and Nigerian Economic Change: The Way Forward. *Health Econ. Manag. Rev.* **2022**, *2*, 69–77. [CrossRef]
19. Khanin, I.; Shevchenko, G.; Bilozubenko, V.; Korneyev, M. A cognitive model for managing the national innovation system parameters based on international comparisons (the case of the EU countries). *Probl. Perspect. Manag.* **2019**, *17*, 153–162. [CrossRef]
20. Klymchuk, A.O.; Mikhailov, A.N. The motivation and stimulation of personnel in effective enterprise management and innovation activity improving. *Mark. Manag. Innov.* **2018**, *1*, 218–234. [CrossRef]
21. Koilo, V. Evaluation of R&D activities in the maritime industry: Managing sustainability transitions through business model. *Probl. Perspect. Manag.* **2021**, *19*, 230–246. [CrossRef]
22. Kozmenko, S.; Vasil'yeva, T.; Leonov, S. The structuring of components of the net domestic product according to the innovation criterion. *Innov. Mark.* **2010**, *6*, 30–41. [CrossRef]
23. Kuzior, A.; Arefieva, O.; Kovalchuk, A.; Brożek, P.; Tytykalo, V. Strategic guidelines for the intellectualization of human capital in the context of innovative transformation. *Sustainability* **2022**, *14*, 11937. [CrossRef]
24. Kuzior, A.; Zozul'ak, J. Adaptation of the idea of phronesis in contemporary approach to innovation. *Manag. Syst. Prod. Eng.* **2019**, *27*, 84–87. [CrossRef]
25. Kyrychenko, K.; Laznenko, D.; Reshetniak, Y. Green University as an Element of Forming a Sustainable Public Health System. *Health Econ. Manag. Rev.* **2021**, *2*, 21–26. [CrossRef]
26. Lee, J.; Rubenstein, A.H. An analysis of factors influencing the utilization of contract research in a developing country, Korea. *Res. Policy* **1980**, *9*, 174–196. [CrossRef]
27. Lee, J.H.; Hancock, M.G.; Hu, M.-C. Towards an effective framework for building smart cities: Lessons from Seoul and San Francisco. *Technol. Forecast. Soc. Change* **2014**, *89*, 80–99. [CrossRef]
28. Lopez, B.S.; Caetano, I.M.S.; Alcaide, A.V. Innovation and Social Networks for Creating Social Value. *SocioEconomic Chall.* **2022**, *6*, 94–105. [CrossRef]
29. Meshcheryakova, T.; Ilin, I.; Kalinina, O. Evaluation of innovation activity science-intensive and high-tech of enterprises. *Int. Sci. Conf. Spbwosce-2017 Bus. Technol. Sustain. Urban Dev.* **2018**, *170*, 01048. [CrossRef]
30. Mishchuk, H.; Roshchyk, I.; Sułkowska, J.; Vojtovič, S. Prospects of assessing the impact of external student migration on restoring country's intellectual potential (The case study of Ukraine). *Econ. Sociol.* **2019**, *12*, 209–219. [CrossRef]
31. Mongeon, P.; Paul-Hus, A. The journal coverage of Web of Science and Scopus: A comparative analysis. *Scientometrics* **2016**, *106*, 213–228. [CrossRef]
32. Morais-da-Silva, R.L.; Segatto, A.P.; Justen, G.S.; Bezerra-de-Sousa, I.G.; De-Carli, E. The social innovation process: Exploring the specificities in a developing context. *Bus. Process Manag. J.* **2022**, *28*, 236–257. [CrossRef]
33. Moskalenko, B.; Lyulyov, O.; Pimonenko, T. The investment attractiveness of countries: Coupling between core dimensions. *Forum Sci. Oeconomia* **2022**, *10*, 153–172. [CrossRef]
34. Moskalenko, B.; Lyulyov, O.; Pimonenko, T.; Kwilinski, A.; Dzwigol, H. Investment attractiveness of the country: Social, ecological, economic dimension. *Int. J. Environ. Pollut.* **2022**, *69*, 80–98. [CrossRef]
35. Most Innovative Countries 2022. World Population Review 2022. Available online: https://worldpopulationreview.com/country-rankings/most-innovative-countries (accessed on 14 May 2023).
36. Naruetharadhol, P.; Srisathan, W.A.; Gebsombut, N.; Ketkaew, C. Towards the open eco-innovation mode: A model of open innovation and green management practices. *Cogent Bus. Manag.* **2021**, *8*, 1945425. [CrossRef]

37. Nemlioglu, I.; Mallick, S. Effective innovation via better management of firms: The role of leverage in times of crisis. *Res. Policy* **2021**, *50*, 104259. [CrossRef]
38. Nezai, A.; Ramli, M.; Refafa, B. The Relationship Between the Scientific Activities in Research Laboratories with Webometrics Ranking of Algerian Universities: An Empirical Investigation. *Bus. Ethics Leadersh.* **2022**, *6*, 67–82. [CrossRef]
39. Oe, H.; Yamaoka, Y.; Duda, K. How to Sustain Businesses in the Post-COVID-19 Era: A Focus on Innovation, Sustainability and Leadership. *Bus. Ethics Leadersh.* **2022**, *6*, 1–9. [CrossRef]
40. Persson, O.; Danell, R.; Schneider, J.W. *How to Use Bibexcel for Various Types of Bibliometric Analysis*; Åström, F., Danell, R., Larsen, B., Schneider, J., Eds.; International Society for Scientometrics and Informetrics: Leuven, Belgium, 2009.
41. Pillay, H.L.; Singh, J.S.K.; Fah, B.C.Y. Innovative Activity in SMEs: Critical Success Factors to Achieve Sustainable Business Growth. *Mark. Manag. Innov.* **2022**, *2*, 31–42. [CrossRef]
42. Prokopenko, O.; Holmberg, R.; Omelyanenko, V. Information and communication technologies support for the participation of universities in innovation networks (comparative study). *Innov. Mark.* **2018**, *14*, 17–29. [CrossRef]
43. Prokopenko, O.; Slatvinskyi, M.; Bikoshkurska, N.; Biloshkurskyi, M.; Omelyanenko, V. Methodology of national investment and innovation security analytics. *Probl. Perspect. Manag.* **2019**, *17*, 380–394. [CrossRef]
44. Przychodzen, J.; Przychodzen, W. Relationships between eco-innovation and financial performance—Evidence from publicly traded companies in Poland and Hungary. *J. Clean. Prod.* **2015**, *90*, 253–263. [CrossRef]
45. Pu, R.; Tanamee, D.; Jiang, S. Digitalization and higher education for sustainable development in the context of the COVID-19 pandemic: A content analysis approach. *Probl. Perspect. Manag.* **2022**, *20*, 27–40. [CrossRef]
46. Ramli, M.; Boutayeba, F.; Nezai, A. Public Investment in Human Capital and Economic Growth in Algeria: An empirical study using ARDL approach. *SocioEconomic Chall.* **2022**, *6*, 55–66. [CrossRef]
47. Rao-Nicholson, R.; Vorley, T.; Khan, Z. Social innovation in emerging economies: A national systems of innovation based approach. *Technol. Forecast. Soc. Change* **2017**, *121*, 228–237. [CrossRef]
48. Safarov, G.; Sadiqova, S.; Urazayeva, M.; Abbasova, N. Theoretical and Methodological Aspects of Innovative-Industrial Cluster Development in the Era of Digitalization. *Mark. Manag. Innov.* **2022**, *4*, 184–197. [CrossRef]
49. Samusevych, Y.V.; Novikov, V.V.; Artyukhov, A.Y.; Vasylieva, T.A. Convergence trends in the "economy–education–digitalization–national security" chain. *Nauk. Visnyk Natsionalnoho Hirnychoho Universytetu* **2021**, *6*, 177–183. [CrossRef]
50. Semykina, M.; Luchyk, S.; Zapirchenko, L.; Semykina, A.; Savelenko, H.; Sikoraka, V. Motivational Mechanism of Activation of Innovative Activity of Personnel and Its Improvement. In Proceedings of the 2021 11th International Conference on Advanced Computer Information Technologies (ACIT), Deggendorf, Germany, 15–17 September 2021; pp. 317–321. [CrossRef]
51. Shaida, O.; Novosad, Z.; Poliakova, J.; Yaremko, L.; Soliman, K.S. The Potential and Results of Innovation Activities in Ukraine: A Regional Section. In Proceedings of the 35th International-Business-Information-Management-Association Conference (IBIMA), Education Excellence and Innovation Management: A 2025 Vision to Sustain Economic Development during Global Challenges, Seville, Spain, 1–2 April 2020; pp. 3071–3076.
52. Silva, G.; Di Serio, L.C. Innovation in small businesses: Towards an owner-centered approach to innovation. *Rev. Bras. Gest. Neg.* **2021**, *23*, 519–535. [CrossRef]
53. Spescha, A.; Woerter, M. Innovation and firm growth over the business cycle. *Ind. Innov.* **2019**, *26*, 321–347. [CrossRef]
54. Parvin, G.A.; Ahsan, R.; Rahman, H.; Abedin, A. Novel Coronavirus (COVID-19) Pandemic: The Role of Printing Media in Asian Countries. *Front. Commun.* **2020**, *5*. [CrossRef]
55. El Sayed, E.M.A.M. How AI, data science and technology is used to fight the pandemic COVID-19: Case study in Saudi Arabia environment. *Res. World Econ.* **2020**, *11*, 409. [CrossRef]
56. Yoon, S.; Zhang, D. Social media, information presentation, consumer involvement, and cross-border adoption of pop culture products. *Electron. Commer. Res. Appl.* **2017**, *27*, 129–138. [CrossRef]
57. Jung, T.H.; Lee, H.; Chung, N.; Dieck, M.C.T. Cross-cultural differences in adopting mobile augmented reality at cultural heritage tourism sites. *Int. J. Contemp. Hosp. Manag.* **2018**, *30*, 1621–1645. [CrossRef]
58. Park, S.-Y.; Lee, C.-K.; Kim, H. The influence of corporate social responsibility on travel company employees. *Int. J. Contemp. Hosp. Manag.* **2018**, *30*, 178–196. [CrossRef]
59. Tracey, P.; Stott, N. Social innovation: A window on alternative ways of organizing and innovating. *Innov. Manag. Policy Pract.* **2017**, *19*, 51–60. [CrossRef]
60. Triyonowati; Elfita, R.A.; Suwitho; Mildawati, T. Does innovation efficiency affect financial performance? The role of ownership concentration. *Invest. Manag. Financ. Innov.* **2023**, *20*, 58–67. [CrossRef]
61. Varadarajan, R.; Kaul, R. Doing well by doing good innovations: Alleviation of social problems in emerging markets through corporate social innovations. *J. Bus. Res.* **2018**, *86*, 225–233. [CrossRef]
62. Vasilyeva, T.A.; Leonov, S.V.; Lunyakov, O.V. Analysis of internal and external imbalances in the financial sector of Ukraine's economy. *Actual Probl. Econ.* **2013**, *150*, 176–184.
63. Vorontsova, A.; Vasylieva, T.; Lyeonov, S.; Artyukhov, A.; Mayboroda, T. Education expenditures as a factor in bridging the gap at the level of digitalization. In Proceedings of the 2021 11th International Conference on Advanced Computer Information Technologies (ACIT), Deggendorf, Germany, 15–17 September 2021; pp. 242–245. [CrossRef]

64. Wulandari, R.; Koe, W.L. The Factors that Influence the Intention of Marketing and Technological Innovation in MSMEs. *Mark. Manag. Innov.* **2022**, *4*, 120–135. [CrossRef]
65. Xavier, A.; Reyes, T.; Aoussat, A.; Luiz, L.; Souza, L. Eco-Innovation Maturity Model: A Framework to Support the Evolution of Eco-Innovation Integration in Companies. *Sustainability* **2020**, *12*, 3773. [CrossRef]