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Editorial

In today's dynamic business environment, companies face challenges related to innovation, international cooperation, ethics in distance learning, and the practical aspects of innovation. This special issue of the journal focuses on various topics, examining different aspects of modern business. Each text is an in-depth analysis and reflection on a selected area, revealing the challenges and perspectives associated with the issue.

Turkey is a crucial partner for Poland in the Middle East and Asia. Economic and research cooperation between the two countries is the subject of ongoing discussion among policymakers. Business institutions, research centres and public organisations are actively engaged in dialogue regarding past experiences and future directions of Polish-Turkish cooperation. The article „Polish-Turkish Cooperation in the Area of Technology and Innovation: Conditions and Development Direction" provides a comprehensive summary of the debate on Polish-Turkish cooperation in innovation and technology, exploring the potential of the two nations in this field and opportunities for further development. The authors, who participated as panellists in the March 2023 debate, provided insights into the key themes and outcomes of the discussion.

The move to distance learning after the COVID-19 pandemic has raised ethical issues. The following article, „Unethical Behaviour in Distance Learning: Polish Students' Perspectives", presents the results of a study of behaviour in this area. The study aimed to identify and analyse different categories of unethical behaviour students perceive. Semi-structured interviews were conducted with 24 students at the Cracow University of Economics, and the interview transcripts were analysed using an open coding method. The interviewees' views on unethical behaviour were divided into three categories: situations that were considered unethical but did not occur, situations that were heard about from various sources and were deemed unethical, and behaviours that students personally experienced and considered unethical. The survey contributes to students' understanding of unethical behaviour, which will help to reduce such behaviour in distance education. By addressing these issues, educators and institutions can better support students' academic success and improve the quality of online education.

The article „Models of Innovation Activity by Family Enterprises" draws the reader's attention to the analysis of models of innovation activity by family enterprises in the Polish market. The author analyses the peculiarities of family firms' approach to innovation in the Polish market and provides valuable insights into their model preferences. The findings have important implications for business practice and open the perspective for further research on the role of innovation in family firms. In the context of the closed and open model theories, the author assumes that family firms are likelier to choose a closed model than an open one. This belief is based on a literature review which suggests that family firms prefer autonomy in the innova-

tion process. This research aimed to identify models of innovation activity of family firms in Poland. The author focused on three patterns of opening innovation processes: centripetal, centrifugal, and bidirectional. Based on the research conducted in 2022, which focused on the characteristics of innovation activity in family businesses, the article presents the analysis results of 121 companies, winners of the ranking of the most valuable Polish family businesses.

The article titled „ Overview of social attitudes and applications towards the use of crowdfunding in renewable energy" focuses on the role of crowdfunding in developing renewable energy in Poland. It answers the question of how crowdfunding can be an essential source of financing for renewable energy projects. Practical examples of successful crowdfunding campaigns in Poland are presented, and the potential of this financing model for sustainable energy development in the country is shown.

Another article, „Regarding the concept of innovation and its practical connotations", focuses on the role of the individual as a critical creator of innovation in corporate human resource management. The author analyses the influence of individuals on the innovativeness of organisations, particularly in the context of the ability to introduce innovation in human resources. The publication aims to understand the innovation concept and identify the factors that shape this ability. The research focuses on respondents' perceptions of innovation and the analysis of the impact on the HR function in the companies surveyed. The research questions concern the definition of „HR innovation" and assessing whether current conditions are conducive to applying innovative methods and tools in HR management. The research hypotheses assume that HR innovation is the ability to make changes and put innovation into practice. The research hypotheses assume that HR innovation is the ability to make changes and implement innovations in practice and that using innovative methods and tools conditions the HR function. The research aims to confirm these hypotheses and draw conclusions about innovation's role in HR in companies.

The special issue of the journal provides a comprehensive analysis of contemporary challenges and opportunities related to innovation, international cooperation, the ethics of distance education, and the practical aspects of renewable energy development to demonstrate the diversity of perspectives and approaches to these issues and inspiring further research and practical activities in the field of innovation and business development.

Janusz Nesterak
Thematic editor

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Polish-Türkiye cooperation in the area of technology and innovation: Conditions and development directions

Zofia Gródek-Szostak, Mustafa Cem Aldağ, Karolina Kotulewicz-Wisińska, Karolina Wanda Olszowska

Abstract: **Background:** The year 2023 is a special time for Polish-Türkiye diplomatic relations. It is the 100th anniversary of the proclamation of the Republic of Türkiye and the 100th anniversary of its recognition by Poland. One area of this public and economic diplomacy is the debates on the different dimensions of the experiences, practices or frameworks of mutual cooperation between Poland and Türkiye, organised by the Foundation for Research on Türkiye in cooperation with the Regional Centre for International Debate in Krakow. The article is a synthesis of considerations undertaken in the area of Polish- Türkiye economic cooperation, with a particular focus on technology and innovation.
Research objectives: The article aims to describe the potential pathways for enhancing mutual economic and political relations between Poland and Türkiye.
Methods: The paper is based on content analysis of the debate on Polish-Türkiye cooperation in the area of innovation and technology, the potential of both countries in this respect, and the possibilities for its development. The debate took place in March 2023, and the authors were one of the panellists. The findings enrich statistical data coming from the Polish Central Statistical Office.
Results: The paper highlights the strong economic ties between Poland and Türkiye, underscoring their joint endeavours across various industries. Both governments have ambitious plans to significantly boost their trade balance by 2023, with a particular emphasis on sectors like energy, mining, IT, automotive, and textiles, showcasing a mutual commitment to growth and partnership.
Conclusions: Establishing and developing economic cooperation between Poland and Türkiye can benefit both countries. The mechanisms and initiatives mentioned above can help to increase trade and investment flows, create new business opportunities, and promote mutual learning and innovation.
Keywords: Türkiye, Poland, cooperation, economic relations, 100th anniversary
JEL Codes: H1; H8

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1. Introduction

Türkiye is Poland's main partner in the Middle East and Asia. Despite periodic challenges, the country has a strong economy based on rapidly developing and modernising industry, agriculture and tourism (Mierzwa, 2015; Burak, 2015, Atasever et al., 2023). Economic and research cooperation is discussed and debated by decision-makers from both countries (Ochoa-

Dąderska et al., 2023). Business-related institutions, scientific centres, and public organisations discuss past experiences and future directions of Polish-Türkiye cooperation.

2023 is a special year both for Türkiye and for Polish-Türkiye relations. It marks the 100th anniversary of the proclamation of the Republic of Türkiye and the 100th anniversary of its recognition by Poland. It is also very meaningful as it is the 100th anniversary of the Treaty of Friendship signed between Poland and Türkiye in Lausanne in 1923. This jubilee creates space for discussion on the possibilities of further development of mutual economic and political relations in both countries. One of the areas of this public and economic diplomacy are debates on various dimensions of experiences, practices or frameworks of mutual cooperation between Poland and Türkiye, organized by the Foundation for Research on Türkiye in cooperation with the Regional Center for International Debate in Krakow.

The subject of the article is a summary of the debate on Polish-Türkiye cooperation in the area of innovation and technology, the potential of both countries in this respect, and the possibilities of its development. The article is a synthesis of considerations undertaken in the area of Polish- Türkiye economic cooperation, with a particular focus on technology and innovation.

2. The potential of Polish-Türkiye cooperation

Economic development includes quantitative changes (increase) in basic macroeconomic variables (e.g., production, employment, investments, size of functioning capital, income and consumption) and qualitative. These relate to the socio-economic system or organisation of society and include technical and technological progress, improvement of the system of national and global economic links, increasing qualifications of the workforce, modernisation of the structure of the economy, increase in the micro- and macroeconomic level of efficiency, and the emergence of new products and improvement of the existing ones. Development is also defined as the result of quantitative growth and qualitative progress in social, economic and natural systems (Chmiel, 2018).

Economic development is determined by natural resources, the economic and monetary policy of the state, the efficiency of institutions, the level of education and health care, the distribution of wealth in society, the level of democracy, market openness, environmental protection, infrastructure development, and the research and development budget. In addition, considering the economic peculiarities of Poland and Türkiye, the determinants of their economic development are different (Siudek, 2013).

2.1. The level of economic development of Poland

Poland owes its GDP growth largely due to EU membership. Only in the years 2004–2018, the share of EU countries' demand in creating Polish GDP increased from 15.6% to 21.2%, according to the report of Polski Instytut Ekonomiczny (PIE) [the Polish Economic Institute] "Poland's benefits from the single market" (PIE, 2021). Poland's GDP per capita per purchasing power parity is approximately 31% higher than it would have been if it had not joined the EU (Szubański, 2023; Śleszyńska, 2023). It was exports that mainly contributed to the growth of Polish GDP after the accession. Two-thirds of Poland's economic growth was based on exports (Ambroziak et al., 2023; Hagemejer et al., 2021).

Poland is open to foreign direct investments (FDI), which increased dynamically after Poland's accession to the EU. From 2004–2021, foreign investments in the Polish market exceeded USD 244 billion, with Germany, France, Spain and the United Kingdom being the most active. The

investments were mostly in the service sector, wholesale and retail trade, and the industrial sector, mainly in the automotive industry. Poland ranks 9th among European destinations of planned FDIs. In 2021, there were 23,200 companies with foreign capital in Poland (Statistics Poland, 2022). According to investors, investments announced in 2021 brought 21,000 new jobs. Three car manufacturing plants in Poland are owned by foreign concerns: FCA Poland in Tychy, Opel Manufacturing Poland in Gliwice and Volkswagen Poznan in Poznan. In the 2010s, manufacturing plants for LCD monitors, TV sets, and computers (Sharp, LG, Toshiba, Dell, and TPV) were established. Foreign entities also dominate in business services, which since the late 1990s have been one of the fastest-growing sectors of the Polish economy.

Poland has the third largest agricultural area in the EU and Polish agriculture employs about 10% of all workforce, yet agriculture generates 3% of GDP. Approximately 2 million private farms use 90% of the farmland. Poland is the third largest producer of cereals in the EU (PIE, 2021) and has the most developed automotive, food, energy, metallurgical, machine and electromechanical industries. Mining and processing mineral resources play an important role in the domestic economy. However, most Polish GDP is generated by small and medium-sized enterprises, whose share of the GDP is 49.6% (PARP, 2021).

2.2. The level of economic development of Türkiye

Türkiye's economic model is based on a free market economy with the state playing a strong role (Bilici, Çevik, 2023; Janus, Ertunç, 2021). The foundation of the Türkiye economy is industry (29.5% of GDP in 2021, employing 26% of the workforce) and services (54% of GDP, 55% of the workforce). The share of the latter is steadily increasing. The automotive, petrochemical and electronics industries are among the strongest in the country. In recent years, they have outdistanced the traditional sectors of the Türkiye economy: textiles and clothing (Informator ekonomiczny: Turcja, 2022). Among services, tourism takes prominence (4% of GDP). It is sensitive to various perturbations, especially regarding security (including epidemics). Agriculture (6.08% of GDP) is less prominent, although it still generates approximately 20% of jobs. The sector suffers from low productivity because it relies on small farms. Approximately 11% of Türkiye's territory is used as agricultural land. Wheat is Türkiye's main crop, and the country is the world's third-largest tobacco exporter. It is also the largest producer of hazelnuts (approximately 70% of global production).

Since November 2021, Türkiye has implemented a new economic development model focused on production, export and employment (Gródek-Szostak et al. 2021). The generated surpluses in foreign trade are to stabilise the economy, prices and the national currency. Türkiye's development strategy assumes that by 2023 (the 100th anniversary of the Republic), Türkiye will be the 10th global economy in terms of the size of the generated GDP. In 2021, the value of Türkiye exports amounted to approximately USD 225 billion, but it is assumed that by 2023 it will have increased to USD 500 billion. The regions with the greatest development potential for Türkiye exports include countries with which Türkiye has historical and cultural ties: the Balkans, the Middle East, North Africa and Central Asia. On the other hand, Western Europe and Eastern Asia are considered increasingly difficult to reach. The greatest risk for these forecasts is domestic demand. Consumption is growing slowly, and the business environment does not support investment and innovation.

Türkiye remains Poland's leading partner in the Middle East. According to data for 2021, Türkiye ranks 23rd on the list of the most important destinations for Polish exports and 35th among the most important destinations for imports to Poland. In terms of trade in goods,

Türkiye ranks 18th. The potential of Polish-Türkiye cooperation is best characterised by trade turnover, which has increased in recent years. Polish exports to Türkiye accelerated. In 2021, the trade turnover amounted to EUR 7,905.9 million, an increase of 27.3% compared to 2020. On the other hand, Polish exports (Statistics Poland, 2022) amounted to EUR 2,648.3 million (an increase of 18.7%, y/y), and imports from Türkiye amounted to EUR 5 billion 257.6 million (an increase of 32.1%, y/y).

Since 2017, Poland has been recording a growing deficit in trade with Türkiye. In 2021 it amounted to EUR 2.6 billion compared to EUR 1.7 billion in 2020. After 11 months of 2022, a continuation of the dynamic growth of the trade exchange is visible. Compared to the same period in 2021, Polish exports increased by almost 45%, and imports by almost 27%. The expected trade turnover for 2022 should exceed EUR 10 billion. Please observe that in the first quarter of 2022 Türkiye made the largest ever export to Poland (USD 1,433 million), an increase of 6.6% compared to the same period in 2022. Almost one-fifth of Türkiye exports go to the countries of the Middle East, which are one of the most important destinations for Türkiye's commercial expansion. Goods exported there have a value over eight times higher than those shipped to Poland.

According to Statistics Poland (2022) data, Poland's top export goods to Türkiye are machines and mechanical devices (34% of exports to Türkiye in 2023), including harvesting machines (5% of exports). Combine harvesters and internal combustion engines are top export products in this group. Non-rail vehicles also have a large share (17% of exports to Türkiye), including passenger cars (4.8%), car parts, truck tractors and trucks. Türkiye also buys base metals from Poland (15.9%), especially iron and steel scrap (8.9% of exports), but also chemicals (8.7%), including washing powders (2.4 %) and plastic products (8.7 %).

On the other hand, Poland receives from Türkiye mainly textiles (27.3% of imports), including clothing (9.7% of imports), with a large increase in the sub-group of clothing sets in 2023 (+102%). However, Poland also buys non-rail vehicles (23%), starting from cars (9.7% of imports) to machines and mechanical devices (16.3%). In 2023, the largest import increase from Türkiye concerned truck tractors (+291% y/y). In the first quarter of 2023, the export of fresh fruit and vegetables (84.9%), electronic and electrical equipment (20.4%) and the automotive sector (18.4%) increased the most. Apparently, the breach of supply chains from China during the pandemic redirected some orders from Polish clothing store chains to Türkiye.

According to the data of the Statistics Poland, in 2021 the value of services provided by Polish enterprises in Türkiye amounted to EUR 142.3 million, which means an increase compared to 2020 (when it amounted to EUR 95.7 million).

3. Research Method and Material

The paper is based on content analysis of the debate on Polish-Türkiye cooperation in the area of innovation and technology, the potential of both countries in this respect, and the possibilities for its development. The debate took place in March 2023, and the authors were one of the panellists. The key categories explaining Polish-Türkiye economic cooperation are bilateral agreements, free trade agreements (FTA), investment incentives, joint ventures, business matchmaking events, sector-specific initiatives, and cultural exchange. The text was created as an interdisciplinary analysis of data on Polish-Türkiye cooperation in various technological and economic fields. A four-member international team of authors representing various disciplines

analysed the available data and juxtaposed the results available from both the Polish and Türkiye sides. The result was an original study presenting cooperation between the two countries.

4. Results and discussion

Poland and Türkiye have a long history of diplomatic and economic relations. Both countries are members of NATO, and their political and economic systems share many similarities. In recent years, there has been a growing interest in enhancing economic cooperation between Poland and Türkiye, as both countries seek to expand their trade and investment ties and strengthen their economies. There are several conditions and mechanisms that can be leveraged to establish and develop Polish-Türkiye economic cooperation (Table 1).

Table 1. Support mechanisms for Polish-Türkiye economic cooperation

Cooperation support mechanism	Characteristics
Bilateral agreements	Bilateral agreements are one of the most fundamental mechanisms for establishing and developing economic cooperation between Poland and Türkiye. These agreements can create a framework for mutual economic relations, covering trade, investment, and economic cooperation. Bilateral agreements can include provisions on customs, tariffs, rules of origin, investment protection, intellectual property rights, and dispute resolution. Negotiating and signing bilateral agreements can be facilitated by regular high-level meetings between officials from both countries.
Free trade agreements (FTA)	An FTA between Poland and Türkiye can help to reduce trade barriers, such as tariffs, non-tariff barriers, and regulatory differences. An FTA can increase trade flows between the two countries, create new business opportunities, and attract foreign investment. An FTA can be negotiated bilaterally or through regional trade blocs like the European Union.
Investment incentives	Poland and Türkiye can offer investment incentives to encourage businesses to invest in each other's markets. These incentives can include tax breaks, subsidies, streamlined regulations, and other incentives that reduce the costs of doing business. By offering investment incentives, both countries can attract foreign investment, create jobs, and boost economic growth.
Joint ventures	Companies from Poland and Türkiye can form joint ventures to explore new markets, share technology and expertise, and increase their competitiveness. Joint ventures can help to overcome barriers to entry, such as language and cultural differences, and provide a platform for mutual learning and innovation. Joint ventures can be established in various sectors, including manufacturing, energy, agriculture, tourism, and technology.
Business matchmaking events	Poland and Türkiye can organise business matchmaking events and trade fairs to promote networking and business opportunities between companies in both countries. These events can help to identify potential business partners, exchange information on market trends and opportunities, and showcase products and services. Business matchmaking events can also facilitate contact between businesses and government officials.
Sector-specific initiatives	Poland and Türkiye can develop sector-specific initiatives to enhance cooperation in energy, agriculture, tourism, and technology. For example, Poland has a robust renewable energy sector, and Türkiye has a growing market for clean energy. Both countries can collaborate to share expertise and promote trade and investment in this sector. Similarly, Poland is a major producer of food products, and Türkiye is a major consumer of food products. Cooperation in this sector can create new opportunities for both countries.

Cooperation support mechanism	Characteristics
Cultural exchange	Cultural exchange programs can be established to promote understanding and friendship between the people of both countries, which can enhance economic cooperation and trade. Cultural exchange programs can include student exchanges, language courses, and cultural events. Such initiatives can help to create a positive image of each country in the eyes of the other and facilitate business contacts.
Diplomatic support	Diplomatic channels can be used to facilitate economic cooperation between the two countries. Regular high-level meetings between officials can help identify areas of mutual interest and overcome any obstacles. Joint economic committees can be established to coordinate economic relations and provide a forum for discussion and negotiation. Diplomatic support can also be used to promote investment opportunities, facilitate the resolution of disputes, and provide information on market conditions.

Source: own elaboration

Türkiye is the 18th destination for Polish exported goods globally and the 4th outside the EU. The country imports more from Poland than it exports. During the Polish-Türkiye Economic Forum in 2019, entrepreneurs discussed the prospects for economic cooperation in the energy, mining and IT/ICT industries and in the area of automotive innovation. The Türkiye market is well-known to Polish entrepreneurs in the energy, mining, machinery and furniture industries. On the other hand, Türkiye construction and textile companies are strongly present in Poland. Parallel to the Business Forum, Polish and Türkiye governments held economic consultations regarding, among others, common challenges: the Fourth Industrial Revolution and changes in the global trading system.

Minister Ruhsar Pekcan stressed that the governments of both countries will jointly strive to increase our trade balance from EUR 6 billion to EUR 10 billion for the 100th anniversary of the friendship treaty between Poland and Türkiye in 2023. She describes it as follows:

> "We have had friendly relations for 600 years. It is worth strengthening them and facilitating business contacts, e.g., modernising customs policy. Türkiye offers a number of investment incentives, especially for innovative projects. We are intensively developing a network of incubators at technical universities, to seek innovative technological solutions at the junction of business and science". (KIG, 2019)

As Pekcan explained, the intensive development of industry and services, supported by a high natural increase (3rd among the populations in the Middle East), generates an increase in demand for electricity in Türkiye. According to Türkiye's national development strategy, by 2023 the country will be the 10th largest economy in the world in terms of GDP. This is due to a strong service sector, which generates 60% of Türkiye's GDP, and heavy industry – the automotive, electronics and petrochemical sectors.

Another industry in which Polish-Türkiye cooperation has room for growth is the automotive industry – especially in cooperation between Polish manufacturers of car components and Türkiye partners. Türkiye is the fifth manufacturer in the automotive market in Europe, aiming to enter global markets with its own brand. Poland, in turn, is a leading European centre for producing accessories and innovative car components. These two sides complement each other perfectly.

In the last 15 years, Türkiye investors have implemented projects with a total value of USD 112.3 million. Thus, they have created almost 1,300 jobs in sectors such as textile, automo-

tive and R&D. In the same period, domestic companies implemented investment projects in Türkiye worth a total of USD 281.6 million, and one of the largest Polish investors in Türkiye is Empik Media&Fashion.

Polish entrepreneurs know that the Türkiye industry offers attractive, high-quality products at competitive prices. Many sectors, e.g., defence and automotive, are at the highest global technological level. The offer of the Türkiye agri-food industry is also extremely attractive, and of course tourist and beauty and spa services (Erişen 2023). According to data, more than a million Polish tourists visited Türkiye in 2022, attracted by the local offer and the possibility of travelling to Türkiye only with an ID.

One element that needs to be mentioned in terms of international cooperation, not only Polish-Türkiye, is the Enterprise Europe Network activity, which helps businesses innovate and grow internationally. It is the world's largest support network for small and medium-sized enterprises (SMEs) with international ambitions. The Network is active worldwide. It brings together experts from member organisations that are renowned for their excellence in business support. Member organisations include chambers of commerce and industry, regional development organisations, universities and research institutes, and innovation agencies. Individual businesses cannot become Network members, but they can enjoy the many services offered. The Enterprise Europe Network can also offer a targeted approach for your business sector. Its groups of experts cover all key economic sectors, from healthcare, agri-food and intelligent energy to fashion and textile (Hełdak et al., 2020). In addition, the Network will help companies increase their resilience and support SMEs in their transition to more sustainable and digital business models. Polish and Türkiye entrepreneurs can establish business, trade or research cooperation through the Enterprise Europe Network.

4. Conclusions

In conclusion, establishing and developing economic cooperation between Poland and Türkiye can benefit both countries. The mechanisms and initiatives mentioned above can help to increase trade and investment flows, create new business opportunities, and promote mutual learning and innovation. By leveraging their respective strengths and working together, Poland and Türkiye can overcome barriers to entry and boost economic growth. Moreover, the two countries' long-standing diplomatic ties and shared values provide a solid foundation for economic cooperation development. Therefore, it is essential to continue exploring and implementing new mechanisms for strengthening economic relations between Poland and Türkiye in the future.

References

Ambroziak, Ł., Markiewcz, J., Strzelecki, J., Święcicki, I., Wąsiński, M. (2023). *How Poland benefits from the single market*. Warsaw: Polish Economic Institute.

Atasever, M., Chmielarz, W., Zborowski, M. (2023). Comparison and assessment of the power distance index in generation Z in Türkiye and Poland. *Procedia Computer Science*, *225*, 452–467.

Bilici, M. R., Çevik, S. (2023). Financial literacy and cash holdings in Türkiye. *Central Bank Review*, *23*(4), 100129.

Burak, A. (2015). Turkey-Poland 600 years of friendship. *Polish Political Science Yearbook*, *44*, 316–318.

Chmiel, O. J. (2018). Assessing state support for the development of international economic cooperation: A case of Polish trade support institutions' export recommendations for Turkey. *Polish Political Science Yearbook*, *47*(1), 39–53.

Erişen, S. (2023). An empirical study of the technoparks in Turkey in investigating the challenges and potential of designing intelligent spaces. *Sustainability*, *15*, 10150.

Gródek-Szostak, Z., Kotulewicz-Wisińska, K., Olszowska, K. W. (2021). *Prawno-organizacyjne uwarunkowania inwestowania cudzoziemców w nieruchomości w Polsce i Turcji – studium porównawcze*. In A. Jaki & B. Ziębicki (Eds.), Wiedza – gospodarka – społeczeństwo: wyzwania współczesnych organizacji i gospodarek (pp. 117–125). Warsaw: Instytut Nauk Ekonomicznych Polskiej Akademii Nauk.

Hagemejer, J., Michałek J., Svatko, P. (2021). Economic impact of the EU Eastern enlargement on New Member States revisited: The role of economic institutions. *Central European Economic Journal*, *8*(55), 126–143.

Hełdak, M., Kurt Konakoğlu, S. S., Kurtyka-Marcak, I., Raszka, B., Kurdoğlu, B. Ç. (2020). Visitors' perceptions towards traditional and regional products in Trabzon (Turkey) and Podhale (Poland). *Sustainability*, *12*, 2362. https://doi.org/10.3390/su12062362

Informator ekonomiczny: Turcja. (2022). https://www.gov.pl/web/turcja/informator-ekonomiczny

Janus, J., Ertunç, E. (2021). Differences in the effectiveness of land consolidation projects in various countries and their causes: Examples of Poland and Turkey. *Land Use Policy*, *108*, 105542.

KIG. (2019). Relacja: Polsko-Tureckie Forum Gospodarcze https://kig.pl/polsko-tureckie-forum-gospodarcze/

Mierzwa, J. (2015). Polish-Turkish relations in the 19th and 20th centuries: The struggle for independence and modernization. *Journal of Economics and Management*, *20*(A), 5-21.

Ochoa-Dąderska, R., Ochoa-Dąderska, G., Sánchez García, J., Callarisa-Fiol, L., Navikiene, Z., Navikaite, J., Demirci, M., Gródek-Szostak, Z., Niemczyk, A., Szeląg-Sikora, A., Chęcińska-Kopiec, A. & Ochoa Siguencia, L. (2023). *Professional use of ICT-based solutions for social integration: DigIN Report I*. Czestochowa: Instytut Badań i Innowacji w Edukacji.

PARP. (2021). *Raport jubileuszowy, MŚP niezaprzeczalnie najważniejszym ogniwem polskiej gospodarki*, https://www.parp.gov.pl/component/content/article/82282:jubileuszowy-raport-parp-msp-niepodrzeczalnie-najwazlismy-ogniwem-polskiej-gospodarki

PIE. (2021). *Dwie dekady rozwoju polskiego rolnictwa. Innowacyjność sektora rolnego w XXI wieku*. Warsaw: Polski Instytut Ekonomiczny.

Siudek, T. (2013). Rozwój gospodarczy – aspekty teoretyczne i praktyczne. *Roczniki Naukowe Stowarzyszenia Ekonomistów Rolnictwa i Agrobiznesu*, *15*(5), 266-274.

Statistics Poland. (2022). *Działalność gospodarcza przedsiębiorstw z kapitałem zagranicznym w 2021 r.*, https://stat.gov.pl/obszary-tematyczne/podmioty-gospodarcze-wyniki-finansowe/przedsiebiorstwa-niefinansowe/dzialalnosc-gospodarcza-przedsiebiorstw-z-kapitalem-zagranicznym-w-2021-roku,26,5.html

Szubański P. (2023, January 5). Polski PKB jest wyższy o 31 proc. Dzięki członkostwu w Unii Europejskiej. *Rzeczpospolita*. https://www.rp.pl/dane-gospodarcze/art37731511-polski-pkb-jest-wyzszy-o-31-proc-dzieki-czlonkostwu-w-unii-europejskie

Śleszyńska G. (2023, March 10). Członkostwo Polski w UE – próba bilansu. *Obserwator Finansowy*. https://www.obserwatorfinansowy.pl/tematyka/makroekonomia/trendy-gospodarcze/czlonkostwo-polski-w-ue-proba-bilansu/

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Unethical behaviour in distance learning: Polish student perspectives

Svitlana Didkivska

Abstract: **Background:** During the COVID-19 pandemic, a transition occurred towards remote learning. This change posed various challenges. One critical issue was the emergence of unethical behaviour. This problem has the potential to impact students' learning experiences detrimentally.
Research objectives: The study explores university students' unethical behaviours in distance learning. Additionally, it seeks to understand the disparity between students' anticipations and the actual issues they face.
Research design and methods: The research employs a qualitative approach where data were collected from 24 Krakow University of Economics students through semi-structured interviews, focusing on their experiences with unethical behaviour.
Results: The study unveils that students anticipate and are apprehensive about unethical behaviour in distance learning, including the sharing of inappropriate content. However, their actual experiences encompass different issues, such as unwarranted distractions. These distractions have a detrimental effect on the learning process.
Conclusions: The study illuminates the incongruence between students' preconceived notions and their real-life encounters with unethical behaviour during online learning. It emphasises the importance of promoting engagement and adhering to ethical standards. Furthermore, the study advocates broadening the research framework to include educators' perspectives, which is essential for a comprehensive understanding.
Keywords: unethical behaviour, distance learning, analysis of distance education, higher education
JEL Codes: I21, I32, D63

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1. Introduction

As the COVID-19 pandemic has forced educational institutions worldwide to shift to remote learning, students and educators have faced numerous challenges adapting to this new mode of education. Among these challenges is the issue of unethical behaviour during distance learning, which has the potential to negatively impact the learning experience for students (Ruszaj, 2021, pp. 77–82) and the effectiveness of remote education (Parlangeli et al., 2021, pp. 11–18). For example, there was an increase in dishonest behaviour in online learning, encompassing targeted intimidation and unfavourable views towards teachers when anticipations were not satisfied (Plebańska et al., 2021, pp 1–75). Despite numerous approaches being suggested to tackle these challenges, a research gap exists in comprehending unethical actions in distance education from the standpoint of university students (in this case, students of Krakow Uni-

versity of Economics – KUE). This understanding can offer crucial information for educators and administrators to cultivate secure and efficient learning settings. Accordingly, the research goal is to investigate the types of unethical behaviour experienced by students during distance learning and to understand the discrepancy between student's expectations and their actual experiences of unethical conduct in the virtual classroom. This research aims to answer the following research questions:

How do students perceive unethical behaviour in distance learning?

What are the differences between students' expectations and real experience regarding distance learning?

To answer those questions, data were collected from 24 KUE students through semi-structured interviews, in which they were asked about their experiences with unethical behaviour during distance learning. Research exploring unethical behaviour in distance learning from the perspectives of KUE students adds to the understanding of these issues. It provides insights for educators and administrators to create a safe and effective learning environment. The paper is organised as follows: an introduction initiates the narrative. A concise review of relevant literature follows it. Then, the methodology is outlined. Lastly, the paper presents the results, detailed analysis and discussion.

2. Literature review

The ethical issues in distance learning have been studied long before the explosive growth in popularity associated with the beginning of the COVID-19 pandemic (Kitahara & Westfall, 2007, pp. 265–276; Eddy & Spaulding, 1996, pp. 301–394). The use of new communication technologies has led to the adoption of distance education by traditional educational institutes, which has resulted in an increasing demand for learning opportunities and ethical risks connected with them (Simonson, 2012, p. 64). However, the ethical issues associated with distance learning have become a topic of concern. The education industry requires a well-defined set of ethics and values, along with visible legal guidelines, to regulate the exchange and distribution of information (Anitha & Harsha, 2013, pp. 193–201; Braimoh & Osiki, 2009, pp. 49–62). As the industry grows, plagiarism, electronic voyeurism, and licensing have become more prevalent and require further examination (Anitha & Harsha, 2013, pp. 193–201).

As the pandemic began, the issue of unscrupulous conduct intensified owing to the substantial influx of individuals involved in this learning method. Unethical conduct has been observed online during leisure time and educational pursuits, involving heightened activity and targeted harassment towards specific individuals, as well as avoiding communication altogether. These social threats, along with others, have the capacity to result in marginalisation, exclusion, and even self-imposed isolation (Ruszaj, 2021, pp. 77–82). Furthermore, as students spent more time in remote learning, their expectations regarding using modern digital tools and attractive educational materials grew. In cases where these expectations were not met, various negative attitudes towards teachers were observed, sometimes even leading to the use of unethical student strategies, for example, cheating or total ignoring the lecture while being logged in (Plebańska et al., 2021, pp. 77–82). Consequently, there have been more attempts to bring this issue under control, ranging from creating new equipment to track students' eye movements during lessons to monitor their behaviour (Yadav & Rao, 2022, pp. 701–708) or to analysing previous experiences and existing situation (Amalaha, 2021, pp. 19–26; Smolinski et al., 2022, pp. 551–556).

3. Research method and material

The research methodology involved collecting data from 24 KUE students through semi-structured interviews (Adeoye-Olatunde, 2021, pp.1358–1367), which allowed the researcher to ask semi-structured questions related to the research topic while also providing flexibility to explore new avenues of inquiry (Magaldi & Berler, 2021, pp. 4825–4830). In the course of the discussions, interviewees responded to a variety of inquiries about their involvement with remote education. These included inquiries such as, "Have you encountered unethical behaviour of students during distance learning?" and "What do you consider unethical behaviour during distance learning?".

The interviews were conducted remotely using video conferencing software and then transcribed for further analysis. The transcripts were then subjected to thematic analysis (Braun & Clarke, 2023, pp. 1–6), which involved identifying patterns and themes in the data and grouping them based on their similarities. Thematic analysis is a widely used qualitative data analysis technique that involves a systematic and iterative process of coding and categorising data to identify patterns and themes. This method allowed the researcher to explore the data in-depth, identify critical issues and themes, and draw meaningful conclusions (Braun & Clarke, 2023, pp. 1–6).

The responses were classified into three categories: N, H, and P. The N category included responses from participants who had never personally encountered the behaviour but considered it unethical. The H category included responses from participants who had not personally encountered the behaviour but had heard about it from other sources and considered it unethical. Finally, the P category included responses from participants who had personally encountered the behaviour and considered it unethical. This study helped scientists identify the most common types of immoral behaviour encountered by students during online learning, as well as the unacceptable behaviour they consider unacceptable.

4. Results

4.1. N category

The N category presents the data collected from students of KUE who had not personally encountered unethical behaviour during distance learning but considered it to be a possibility and had a total of 18 responses (Table 1). The data is categorised according to different types of unethical behaviour, and the percentage of responses for each category is also specified.

Table 1. Unethical behaviour vision from participants who had never encountered it personally

Types of unethical behaviour	Example quotes from students	% of responses
Inappropriate content	"Providing inappropriate content to the teacher", "everyday activities that were transferred to lectures", "shouting into the microphone", and "if someone had the mic turned on by accident and said something they shouldn't".	25.0
Interrupting classes	"And then it's unethical behaviour for me; it interferes with conducting classes at all, for example, like this or some kind of uncultured talking to lecturers." "It's unethical for me to sabotage a lesson or class, something like that, interrupting the teacher".	20.8

Types of unethical behaviour	Example quotes from students	% of responses
Not paying attention	"Unethical is ignoring these (studying) activities and, for example, make dinner during this time or play on the computer", "the teacher does not even know if the student is working and not just relaxing with the help of his phone".	8.3
Cheating	"Well, it's obvious that it's easier to cheat because everyone is sitting in their room, and in fact, even with the webcam on, you can do it".	8.3
Alcohol drinking	"Drinking alcohol during online lectures, I suspect that something like this could have happened in the past".	4.2
Lying in bed during classes	Watching exercises in bed instead of actively participating.	4.2
None at all	No encountered unethical behaviour.	4.2

Source: own work.

The category "Inappropriate content" gained the most responses, highlighting situations such as sharing unsuitable materials with teachers, forgetting to mute the mic, raising one's voice into the microphone, and uttering crude comments. The "Interrupting classes" category obtained five responses, outlining cases like disrupting online lessons or showing disrespect to educators during virtual classes. The "Not paying attention" category received two responses, exemplifying instances like neglecting online assignments and lacking focus during virtual classes.

The "Alcohol drinking" had merely one response, which pointed out the act of consuming alcoholic drinks during digital lectures. "Cheating: had two responses, both touching upon acts of deceit during online assessments or tasks. On the other hand, the "Lying in Bed During Classes" category had only one response, mentioning that some students choose to watch lessons in bed instead of engaging actively.

Finally, a single response suggested that no unethical behaviours have ever been encountered in distance learning environments.

4.2. H category

Table 2 presents the data from the H category (in total 13 responses), which includes responses from students who have not personally encountered unethical behaviour during distance learning but have heard about it from various sources, such as friends or the media.

Table 2. Unethical behaviour vision from participants who heard about these facts from different sources

Types of unethical behaviour	Example quotes from students	% of responses
Interrupting classes	"It is simply letting people who do not belong to a given group into classes, which creates such a bad atmosphere, especially if these people interfere with conducting classes", "Inappropriate content, such as from a teacher to students, such as from a student to a teacher are disturbing and interrupt classes".	20.8
Not paying attention	"Some students just had the microphone on and had the professors' lectures sound off, and he was just talking with someone, so he just didn't hear what professors were telling him".	16.6

Types of unethical behaviour	Example quotes from students	% of responses
Inappropriate content	"There were situations when someone forgot to mute the microphone and flew some unpleasant word".	8.3
Cheating	"Cheating (I don't know exactly, possibly during some exams or something)".	4.2
Disrespect	"I've heard about situation with disrespect to teachers and lack of respect for teachers during lecturers discourages them from engaging more in their work".	4.2

Source: own work.

The most common type of unethical behaviour reported was interrupting classes, with five responses. Students mentioned cases where individuals who were not part of the class entered the online classroom and shouted obscene things, or someone was transferring inappropriate content, thus disturbing the conduct of classes. One student stated that it is unethical to interrupt teaching. At the same time, another emphasised the importance of not allowing people who do not belong to a given group into classes, as it creates a bad atmosphere.

Four responses were related to not paying attention during online classes, with students reporting cases where their classmates would sit on their phones, play games, or not listen to what was happening and instead talk to someone else. Inappropriate content was mentioned in two responses, with one student reporting situations where someone forgot to mute their microphone and said something vulgar or unpleasant. The other referred to situations where there were vulgar or inappropriate situations on the cameras.

Finally, there were single mentions of cheating, disrespect towards teachers, and lying in bed watching online exercises during class.

4.3. P category

Table 3 provides information on the types of unethical behaviour that participants in the P category personally experienced during distance learning. The participants reported a total of 9 incidents of unethical behaviour that they encountered during distance learning.

Table 3. Unethical behaviour vision from participants who heard about these facts from different sources

Types of unethical behaviour	Example quotes from students	% of responses
Not paying attention	"So, it's simply not following the lecture because everything that can distract them (students) is there, and the professor can see it. That's how you actually might form ideas to do something else and not pay attention to the class...", "As we have distance learning someone, when teachers split us into the group, and some students may just mute themselves and do nothing", "…sit on the mobile without paying attention to what is happening in class…", "Sometimes people might completely ignoring the lessons, do other things".	16.6
Inappropriate content	"There were off-topic discussions between lecturers and students about their views; I think it was very unethical because it disrupted classes and simply brought private views to the whole lesson, which in my opinion should not take place…", "Some students were making jokes while lessons…", "Yes, it was rather a little thing that someone didn't turn off the microphone and there was such an Echo, and it was just so noticeable and disturbing".	12.5

Types of unethical behaviour	Example quotes from students	% of responses
Interrupting classes	"People joining meetings before/without permission and making jokes. They disable stuff".	4.2
Disrespect	"Simply showing disrespect to people participating in a lecture with different kinds of actions…"	4.2

Source: own work.

The primary form of misconduct observed by the participants was a lack of focus during virtual lessons. Examples included students being preoccupied with their phones or other gadgets, silencing their microphones and failing to participate, or entirely disregarding the class.

The second most frequently mentioned unethical behaviour involved inappropriate content, with three responses describing instances such as irrelevant conversations between students and instructors about personal opinions, which could occur even in physical classrooms. Additionally, forgetting to mute microphones, which may disrupt the class but is usually accidental and can be quickly resolved with a single click once brought to attention during the lecture.

One individual mentioned the fact of disruption in class due to students joining meetings without authorisation and making jokes. Lastly, a participant reported witnessing disrespect from a fellow student towards others attending the lecture, as the person in question deliberately engaged in various types of inappropriate behaviour.

5. Discussion

The N category (Table 1) shows students' expectations and fears towards unethical behaviour during distance learning, as respondents had to use their imagination to describe potential situations that might happen. Students expressed their worries about inappropriate content being shared during online classes and potential interruptions or disrespectful behaviour towards teachers. Additionally, some students reported concerns about cheating during online exams or activities. The responses indicate that learners recognise the possible hazards and obstacles associated with remote education, expressing concern over preserving the quality and authenticity of their learning journey. The responses also highlight the importance of creating a safe and respectful learning environment in the virtual classroom and implementing measures to prevent cheating and ensure academic honesty.

The H category (Table 2) displays data regarding notable instances of unethical conduct likely to be encountered in the students' informational sphere. The students' familiarity with these matters implies an awareness of the possibilities for unethical actions within digital learning settings. It also signals that students are attentive to news and media channels, which could influence their understanding of appropriate behaviour. Moreover, their responses could emphasise areas of worry for students, as being informed about such misconduct may increase their chances of experiencing it or witnessing it in others. Overall, the answers in this table suggest that students are attuned to the potential for unethical behaviour during distance learning and may actively seek out information on the topic.

The P category (Table 3) presents a more concrete and tangible perspective on the unethical behaviour experienced by students during distance learning. These situations have actually

happened to students and have affected their learning experience. The responses in Table 3 suggest that unethical behaviour during distance learning is not just a theoretical possibility but a real problem that students face. The fact that the most common types of unethical behaviour are related to not paying attention and inappropriate content indicates that students are encountering distractions and disruptions that are affecting their ability to learn. This suggests a need for more effective measures to ensure students remain engaged during distance learning, such as better monitoring of student activity or more engaging teaching methods.

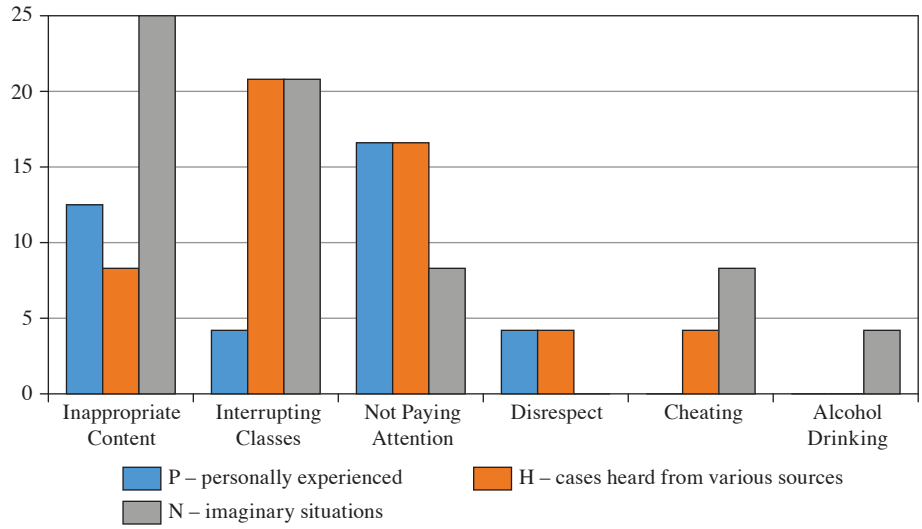

Figure 1. Comparing categories of unethical behaviour

Source: own work.

There is also a visible difference between students' expectations and the actual situation regarding unethical behaviour (Figure 1). We can see that few students actually have any intentions to interrupt the educational process or disturb others while lecturing. Still, quite often, they lose concentration, fall out of learning, or forget that not turning off the microphone might confuse other students or teachers.

The study shows that students have a good understanding of what appropriate behaviour is during online classes and are generally respectful of the learning environment. Moreover, this implies that teachers ought to persist in underlining the significance of suitable internet conduct and furnish students with explicit rules and standards to abide by to maintain a learning atmosphere that is both courteous and favourable for acquiring knowledge.

In light of the findings of this study, several important implications for educational stakeholders emerge. Firstly, there is an apparent need for educational institutions to craft and implement comprehensive codes of conduct explicitly tailored to the online environment. These guidelines should encompass definitions and ramifications of unethical behaviour, offering educators and students a clear understanding of the expectations during distance learning. This measure establishes a foundation of accountability and acts as a deterrent against transgressions.

Another salient implication relates to the prevalence of inattention among students in the virtual classroom. Traditional teaching methodologies may not be as efficacious in engaging students through the screen as they are in physical settings. Consequently, institutions and educators must explore and integrate innovative teaching approaches, such as interactive assignments, polls, and quizzes, to captivate student attention and participation. Moreover, technology could be a double-edged sword, simultaneously presenting challenges and solutions. For instance, while technology facilitates distance learning, it potentially enables dishonesty during examinations. Educational institutions can use AI-driven proctoring tools or attention-monitoring software to counter these challenges. Additionally, furnishing educators with training and resources to effectively wield technology for instruction can be highly beneficial.

Furthermore, a culture of ethics should be actively cultivated within the online academic community. This can be achieved through conscientious efforts by educators to instil the importance of ethical conduct through discussions, seminars, or dedicated curricular modules. As ideals of conduct, educators should exemplify the ethical standards they seek to inculcate in their students. Recognising the potential repercussions of unethical on students' well-being, providing support systems is indispensable. Institutions should establish anonymous reporting channels to protect the mental health and safety of the students.

Instituting feedback mechanisms and a culture of adaptability is another critical implication. Continuous monitoring of the effectiveness of policies through surveys and feedback from the academic community is imperative. Institutions should demonstrate flexibility in making necessary adjustments to policies and strategies based on feedback. Beyond the confines of educational institutions, policymakers bear a critical responsibility. There is a pressing need for a robust legislative framework that safeguards students and preserves the integrity of educational processes in the virtual milieu. This entails enacting and enforcing laws pertaining to cyberbullying, academic dishonesty, and digital rights. Lastly, the global nature of distance learning necessitates international cooperation. The exchange of best practices, policies, and tools among educational institutions across borders is pivotal. Such collaboration paves the way for developing more standardised and universally applicable ethical standards in distance learning.

In sum, the path towards ethical distance learning demands concerted efforts from educational institutions, educators, students, and policymakers. Through a multifaceted approach that integrates policy development, innovative pedagogy, technological solutions, and international collaboration, the pursuit of a more ethical and conducive learning environment can be actualised. However, it is imperative to prioritise enhancing students' concentration as the foremost initiative. The data reveals that the most prevalent issue students actually encounter is a lapse in attention. Addressing this issue is fundamental to the overall efficacy of distance learning.

6. Conclusions

The article sheds light on the various types of unethical behaviour experienced by students during distance learning. The study found that inappropriate content, interruptions, and not paying attention were the most common types of unethical behaviour reported by the students. The data also showed an inconsistency between student expectations and actual experiences. While students had fears and expectations of unethical behaviour, their situations were different. Overall, the study suggests that the most significant challenge for stu-

dents in distance learning is maintaining concentration and focus during classes. Teachers and organisations must create methods that maintain student involvement in virtual lessons while also upholding moral principles and ethical standards. By understanding the types of unethical behaviour experienced by students and addressing them proactively, institutions can create a safe and effective learning environment that promotes academic integrity and student success.

One of the constraints in interpreting the study's findings is the small sample size, which consisted solely of 24 students from the Krakow University of Economics. As such, the insights derived may not fully encapsulate the diversity of experiences across different institutions or geographies. The student population's characteristics at KUE might have a distinct set of cultural, academic, or social traits that impact their perceptions and experiences. To increase the applicability of these findings, it is important to consider using a broader sample encompassing multiple stakeholders, institutions and a more diverse set of demographics.

Another noteworthy limitation is that the study uses data collected through semi-structured interviews, which is a kind of self-reported data. The inherent nature of self-reporting could mean that responses may be influenced by social desirability bias, where students may tend to give socially acceptable answers. Moreover, the students' recollections of experiences might not always be precise. The study also lacked the perspective of educators, which could have provided a more holistic understanding of unethical behaviour in distance learning. Future research could bolster the reliability and depth of insights by incorporating various data sources and including the viewpoints of both students and educators.

Further research studies exploring unethical behaviour in distance learning will greatly benefit from incorporating the teacher's perspective. By broadening the scope to include both sides of the educational process, researchers can better understand the challenges and opportunities presented by this increasingly prevalent mode of instruction.

References

Adeoye-Olatunde, O. (2021). Research and scholarly methods: Semi-structured interviews. *Journal of the American College of Clinical Pharmacy*, *4*(10), 1358–1367. https://doi.org/10.1002/jac5.1441

Amalaha, K. (2021). Ethics in e-learning. *Research Focus*, *3*(1), 19–26. https://doi.org/10.36068/1

Anitha, C. & Harsha, T. (2013). Ethical perspectives in open and distance education system. *Turkish Online Journal of Distance Education*, *14*(1), 193–201. https://dergipark.org.tr/en/pub/tojde

Braimoh, D. & Osiki, J. (2009). Creating a Firewall against Unethical behaviours in open and distance education practice. *Ethical Practices and Implications in Distance Learning*, 49–62. https://doi.org/10.4018/978-1-59904-867-3.ch005

Braun, V. & Clarke, V. (2023). Toward good practice in thematic analysis: Avoiding common problems and be(com)ing a knowing researcher. *International Journal of Transgender Health*, *24*(1), 1–6. https://doi.org/10.1080/26895269.2022.2129597

Eddy, J., & Spaulding, D. (1996). Internet, computers, distance education and people failure: Research on technology. *Education*, *116*(3), 391–394. https://link.gale.com/apps/doc/A18434928/AONE?u=anon~4d2dc1b6&sid=googleScholar&xid=c22e600b

Kitahara, R. & Westfall, F. (2007). Promoting academic integrity in online distance learning courses. *MERLOT Journal of Online Learning and Teaching*, *3*(3), 265–276. https://jolt.merlot.org/Vol3_No3.html

Magaldi, D. & Berler, M. (2021). Semi-structured interviews. *Encyclopedia of Personality and Individual Differences*, 4825–4830. https://doi.org/10.1007/978-3-319-24612-3_857

Parlangeli, O., Palmitesta, P., Guidi, S., Di Pomponio, I., Bracci, M., & Marchigiani, E. (2021). Social distancing, stress and unethical behaviour: A study on Italian university students in the first period of isolation due to COVID-19. In Goonetilleke, R.S., Xiong, S., Kalkis, H., Roja, Z., Karwowski, W., Murata, A. (Eds.), *Advances in Physi-*

cal, Social & Occupational Ergonomics. AHFE 2021. Lecture Notes in Networks and Systems (pp. 11–18). Cham: Springer. https://doi.org/10.1007/978-3-030-80713-9_2

Plebańska, M., Szyller, A., & Sieńczewska, M. (2021). *Raport. Co zmieniło się w edukacji zdalnej podczas trwania pandemii*. Wydział Pedagogiczny UW. https://kometa.edu.pl/uploads/publication/1186/77a7_A_Raport%20II%202021-marzec%20(1).pdf?v2.8

Ruszaj, Z. (2021). Szanse i zagrożenia w edukacji zdalnej. *Edukacja – Terapia – Opieka*, *3*, 77–82. https://doi.org/10.52934/eto.136

Simonson, M. (2012). Ethics and distance education. *Distance Learning*, *9*(1), 64. https://www.proquest.com/openview/e56f6533d5ae7c0ba6e4cd0ee6fc93a8/1?pq-origsite=gscholar&cbl=29704

Smolinski, P. R., Kowalik, J., & Winiarski, J. (2022). Diversity of students' unethical behaviours in online learning amid COVID-19 pandemic: An exploratory analysis. In Themistocleous, M., Papadaki, M. (Eds.), *Information Systems. EMCIS 2021. Lecture Notes in Business Information Processing*. Cham: Springer. https://doi.org/10.1007/978-3-030-95947-0_39

Yadav, B. & Rao, M. (2022). 2nd FICR International Conference on Rising Threats in Expert Applications and Solutions. In Rathore, V. S., Sharma, S. C., Tavares, J. M. R., Moreira, C., Surendiran, B. (Eds.), *Rising Threats in Expert Applications and Solutions. Lecture Notes in Networks and Systems*. Singapore: Springer. https://doi.org/10.1007/978-981-19-1122-4_73

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Models of innovative activity in family business

Agnieszka Sopińska

Abstract: **Background:** A business can conduct innovative activities on its own in a so-called closed model or in cooperation with other external entities, i.e. in an open model.
Research objectives: I aimed to identify models of innovative activity used by family businesses operating in the Polish market.
Research design and methods: For research purposes, I developed brief descriptions of the individual innovation creation models, i.e.: the closed model; the outside-in open model; the inside-out open model; and the coupled open model. I investigated 121 randomly selected companies that were among the winners of the fourth edition of the Most Valuable Polish Family Companies Ranking and that introduced at least one innovation in the years 2019–2021.
Results: The family businesses surveyed preferred to create innovations in a closed model (54.5%). The most common direction of opening the innovation process was outside-in.
Conclusions: The conducted research on the Polish market confirms the thesis put forward by other researchers regarding the low propensity of family businesses to cooperate with external entities in the innovation process; hence, their preference for a closed model of innovation creation.
Keywords: family business; innovative activity; open innovation model; closed innovation model
JEL Codes: O30, O31, O32

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1. Introduction

My research interests include innovation management in business entities. Thus far, I have focused my research on the characteristics of innovative activity in non-family businesses, with an emphasis on innovation creation in the open model (Sopińska & Mierzejewska, 2017; Sopińska & Dziurski, 2018). This time, I focused on the management of innovation in the family business because in many aspects, the innovation processes in family entities show differences from innovation processes implemented in non-family businesses (Broeckaert, Andries & Debackere, 2016; Wściubiak, 2017; Wściubiak, 2018; De Massis *et al.*, 2015; Chrisman *et al.*, 2015; De Massis, Di Minin, & Frattini, 2015; Duran, 2016; Surdej, 2016).

The essence of a family business is described in the literature through the prism of three criteria: the ownership criterion; the ownership and management criterion; and the succession criterion, *i.e.* the intergenerational transfer of power and ownership. Depending on the fulfilment level of the above criteria, we can distinguish between broad, intermediate, and narrow definitions of the family business (Shanker & Astrachan, 1996, pp. 107–123). The broadest defi-

nitions of a family business assume a less than precise definition of the relationship between business and family in the form of actual strategic control and the intention to keep family control over the entity. Indirect definitions assume that the founder or their successors run the business under their ownership control. Narrow definitions require generational continuity and the participation of more than one family member in the company management. Therefore, there are many parallel definitions of the family business attempting to explain its socio-economic characteristics (e.g. Ward, 1997, p. 252; Cadbury, 2000, p. 5; Donnelley, 2004, p. 430; Sulkowski, 2004, p. 99; Chua, Chrisman, & Sharma, 1999, pp. 19–39).

I adopted the following definition of a family business/company for research purposes. A family business/company is an economic entity of any size and legal form in which: at least two family members work together in the business; at least one family member has a significant influence on management; and family members hold a significant or majority stake in the business. The proposed definition is very similar to that proposed by the Polish Agency for Enterprise Development (PARP) (Kowalewska, 2009, p. 30). However, PARP limits the category of family businesses to the micro, small, and medium-sized business sectors only. My research lacks such a limitation.

I aimed to identify models of innovative activity used by family businesses operating in the Polish market. I based my conclusions on the results of a broader research project conducted in 2022 on the characteristics of innovative activity in family business (Sopińska & Dziurski, 2022). One of the research tasks of this project was to identify how family businesses conduct innovative activity in the Polish market. I preceded the presentation of the empirical research results with a brief description of how family businesses conduct innovative activity based on the existing literature on the subject.

2. Literature review

By definition, family entities can conduct innovative activities both independently and in cooperation with other external entities. However, the literature is far more likely to indicate that family entities conduct innovative activities in a closed model, as they have a relatively lower propensity to engage in collaborative innovation with external entities compared to non-family entities. According to some researchers (Pittino & Visintin, 2011, pp. 57–68; Nieto, Santamaria & Fernandez, 2015, pp. 382–399), the reason for this is the specific social capital of family entities, oriented towards the creation of strong internal relationships (within the family and employees), while distrusting outsiders.

Thus, the reluctance to collaborate on innovation with external partners may stem from the natural desire of family entities to preserve their independence and decision-making autonomy. The fear of losing control throughout innovation processes may significantly complicate relationships with external partners and lead many family entities to pursue innovation activities in a closed model (De Massis, Frattini & Lichtenthaler, 2013, pp. 10–31). M. Yu *et al.* (2013, pp. 32–50) go as far as recommending family entities to be wary of excessive fragmentation of innovation decision-making processes, leaving innovation-related issues to the sole discretion of the top management. A serious obstacle to the development of inter-organisational relationships by family entities may also be their general reluctance to disclose information about their business (Wściubiak, 2018, pp. 233–248.). Frequently, key knowledge resources, which are the source of an organisation's success, remain a closely guarded family secret passed on from generation to generation (Safin, 2007, pp. 288–289).

The propensity to establish inter-organisational relationships may evolve with the life cycle of the family entity. Scholars find the lowest propensity to engage in inter-organisational collaboration with external partners in companies managed by the founding generation (Letonja & Duh, 2016, pp. 213–224). Moreover, the propensity to engage in inter-organisational cooperation is lower for entities undergoing succession, which is probably because the intergenerational transfer of power and ownership is an extremely absorbing process, which significantly limits the entity's ability to engage in external relationships (Wściubiak, 2017, pp. 375–387).

Moreover, the literature emphasises that innovation processes conducted by family entities are characterised, compared to non-family ones, by less openness expressed in terms of the number of external sources of innovation used (Classen *et al*., 2012, pp. 191–215; Alberti *et al*., 2014, pp. 29–48; Classen *et al*., 2014, pp. 595–609; Wściubiak, 2017, pp. 375–387). Family entities may face serious difficulties in managing an extensive network of external relationships, which may even result in higher costs and longer lead times for innovation ventures (Alberti *et al*., 2014, pp. 29–48). Due to the varying nature of collaboration with particular groups of partners, the absorptive capacity of most family entities may also be insufficiently developed to effectively reap the benefits of maintaining a highly diversified network of relationships with external entities (Classen *et al*., 2012, pp. 191–215).

Family entities have a clear preference for cooperation through vertical relationships (*i.e.* with suppliers and customers), followed by research and development institutions, but not with competitors. This is because they perceive establishing relationships with customers, suppliers or R&D institutions as safer than entering alliances with competitors (De Massis, Frattini, & Lichtenthaler, 2013, pp. 10–31). Noteworthy, cooperation between family entities and outside entities frequently takes the form of links of an informal nature, which are based on personal acquaintance (often even friendship) of the company owner with the owners (or managers) of other companies. This results in a better quality of the relationships established by the family entities, which may consequently lead to more fruitful cooperation (Harms, Memili, & Steeger, 2015, pp. 72–83).

Most researchers believe that due to their characteristics, family entities usually prefer to conduct innovation activities in a closed model. Their willingness to cooperate with outside entities in the innovation process is limited and rather oriented towards a one-way knowledge flow, i.e. to family entities. Can we observe the above regularities in regard to family businesses operating in the Polish market? My research answers this question.

3. Material and methods

The presented results are a fragment of broader research conducted in 2022 by my team. They concern innovative activity in family businesses in the Polish market. One of the research tasks was to identify ways of conducting innovative activity by family businesses in the Polish market. Within the framework of the above research task, we sought an answer to two questions:

– Under which model do family businesses conduct innovative activities (open or closed model)?
– Which direction of innovative activity opening do companies creating innovations in an open model prefer?

As a basis for the identification of models for conducting innovation activities in family businesses, I adopted the proposal put forward by H.W. Chesbrough (2003) to divide innova-

tion creation models. Chesbrough was the first scholar to contrast the open innovation process with the closed innovation creation model. According to the concept of open innovation, companies not only can, but should, use both external and internal ideas in their innovation processes and internal and external paths to market. Open innovation involves a purposeful exchange of knowledge that speeds up the innovation creation process. The core of this idea is companies collaborating with various partners, a necessity inherent in the very definition of open innovation. Indeed, cooperation in open innovation manifests itself in the joint action of partners to create innovations and the mutual sharing of their resources, especially knowledge (Laursen & Salter, 2006, p. 27, pp. 131–150).

The opening of innovation processes in a company can follow three patterns. The basis for their distinction is the direction of innovation flow, which can take the form of: outside-in, inside-out, or coupled (Chesbrough, 2003; Chesbrough & Garman, 2010; Gassmann & Enkel, 2005). For research purposes, I developed the following brief descriptions of the individual innovation creation models:

- Closed model – the business creates innovations on its own, which it then implements within the company,
- Outside-in open model – the business creates innovations in collaboration with external partners that are implemented in the company,
- Inside-out open model – the business creates innovations on its own, but they are implemented outside the company,
- Coupled open model – the business creates innovations in collaboration with external partners that are implemented outside the company.

The subjects of the research were family businesses operating in the Polish market, which were among the winners of the fourth edition of the Most Valuable Polish Family Companies Ranking. The ranking was developed in September 2021 by Dun & Bradstreet in cooperation with the editors of *Forbes*, separately for two categories of entities: entities with revenues below PLN 100 million and entities with revenues above PLN 100 million (*Forbes*, 2021).

The sampling was random, and the requirement for a company to enter the sample was that the company had implemented any innovation between 2019 and 2021 (preselection question). The response rate was 61%. The maximum standard error of estimate for a sample of $N = 121$, at a confidence level of $\alpha = 0.05$, was 2%. The INDICATOR Marketing Research Centre conducted the research in June 2022 using the computer-assisted telephone interviewing (CATI) method. We conducted 121 interviews with business executives divided into (1) family members and (2) non-family member employees. All respondents had knowledge of innovation activities. Family members were by far the majority of respondents (they accounted for 90.1% of all interviewees – 109 people). Non-family employees accounted for only 9.9% of respondents (12 people).

Each respondent represented a separate family business operating in Poland; hence, we analysed 121 family businesses. The surveyed entities were mostly older businesses, *i.e.* those established before 2000 (69.4%); those that have been family businesses for two generations (74.4%); large businesses in terms of the number of employees (67.8%); those operating in production (69.4%) rather than in services and trade; with an average (58.7%) correspondence between the family's education and the company's business profile, where only some family members were educated in line with the company's business profile. The entities surveyed equally represented businesses with annual revenues of up to PLN 100 million and those with revenues of more than PLN 100 million per year.

4. Results and discussion

Based on the results, we may conclude that the family businesses surveyed preferred to create innovations in a closed model (Table 1). In total, 66 respondents (54.5%) indicated this innovation method. A total of 55 respondents (45.5%) indicated the creation of innovations in the open model (regardless of the direction of opening). The most common (74.5% of the respondents indicating an open model of innovation creation) direction of opening the innovation process was the outside-in direction. The family businesses surveyed were oriented towards cooperation with outside entities at the innovation creation stage, which they then independently implemented in their company. Eight respondents (6.6%) indicated the inside-out opening of the innovation process and only six respondents (5%) – the coupled open model.

Table 1. Model for conducting innovative activities

What model of innovative activity is implemented in the company? Possible answers	Number of indications	Percentage share
The company creates innovations on its own and then implements them within the company – *closed model*	*66*	*54.5*
The company creates innovations in cooperation with external partners and then implements them within the company – *outside-in open model*	41	33.9
The company creates innovations on its own but implements them outside the company – *inside--out open model*	8	6.6
The company creates innovations in cooperation with external partners and then implements them outside the company– *coupled open model*	6	5.0
Total	121	100

Note: N = 121.

Source: own elaboration.

A more detailed analysis of the response distribution according to selected characteristics allowed for the formulation of more detailed characteristics of entities indicating a particular model of conducting innovative activity. We considered the following characteristics: the size of the entity measured by the number of employees (small, medium, large); the size of the entity measured by the size of annual revenues (up to PLN 100 million per year and over PLN 100 million per year); the activity sector (production, trade, services); the age of the business (established before or after 2000). The analysis results are as follows:

– Creating innovations in a closed model was the most frequent answer for respondents coming from older (established before 31 December 1999) and medium-sized (in terms of the number of employees) manufacturing businesses with annual revenues of less than PLN 100 million.
– The outside-in open innovation creation model was the most frequent answer for respondents coming from older (established before 31 December 1999) and large service companies, both in terms of the number of employees and revenues (above PLN 100 million per year).
– The inside-out open innovation creation model was the most frequent answer for respondents from older (established before 31 December 1999) and medium-sized (in terms of

number of employees) trading companies with annual revenues of less than PLN 100 million.

– The coupled open model of innovation creation was the most frequent answer for respondents from small (in terms of number of employees) service providers with annual revenues of less than PLN 100 million, regardless of the company age.

In turn, an analysis of the response distributions by type of respondent (family member, non-family member) found that:

The closed model of innovative activity was more often indicated by non-family respondents;

The open model of innovative activity was more often indicated by respondents who were family members.

Moreover, the results allow us to assume that the branch of activity, to some extent, determines how businesses conduct innovative activity. In the case of manufacturing activities, the respondents chose the closed model more often than the open model. Family businesses with service and trading activities were the ones to most frequently apply the open model.

5. Conclusions

My research indicates that family businesses are more likely to conduct innovative activities in a closed model than in an open one, which may point to a low propensity for family entities to cooperate in the innovation process. Winnicka-Popczyk (2018, pp. 159–176) reached similar conclusions when conducting research on a sample of 115 family entities in Poland that were included in the Forbes Diamonds 2016 list. Her research clearly showed that the main source of origin of innovations implemented by family entities is their independent creation within their R&D unit (50.4%). Only 33.0% of respondents indicated the implementation of innovations in cooperation with external partners and 30.0% – the purchase of ready-made projects or outsourcing to other entities, such as universities or R&D centres.

Among the studied family entities, the most common direction of opening innovation processes was the outside-in one, which meant cooperation with external entities only at the stage of innovation creation, which was then independently implemented. Moreover, other researchers indicated the outside-in model of innovative activity by family businesses in the Polish market (Klimek & Żelazko, 2018, pp. 61–62). Using the case study method, Klimek and Żelazko analysed five family entities operating in the cosmetics industry. Most of them opted for the outside-in model of open innovation and only one for the coupled model. Although the family entities used diverse knowledge sources in the innovation process, the intensity of cooperation with external partners was considerably low.

Due to the methodological limitations of the presented research (quantitative research, small research sample, and the use of the CATI method), I will continue them in the future. I intend to conduct in-depth qualitative research on the manner of conducting innovative activity by family businesses operating in Poland, which will allow me to capture certain internal mechanisms and dependencies.

References

Alberti, F.G., Ferrario, S., Papa, F. & Pizzurno, E. (2014). Search breadth, open innovation and family firms: Evidences in Italian mid-high tech SMEs. *International Journal of Technology Intelligence and Planning*, *10*(1), 29–48.

Broeckaert, W., Andries, P. & Debackere, K. (2016). Innovation processes in family firms: The relevance of organizational flexibility. *Small Business Economics*, *47*(3), 771–785.

Cadbury, A. (2000). *Family Firm and their Governance: Creating tomorrow's company from today's*. Egon Zehnder International.

Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business School Press.

Chesbrough, H. W. & Garman, A. R. (2010). Otwarta innowacyjność: recepta na trudne czasy. *Harvard Business Review Polska*, *11*(93), 52–53.

Chrisman, J. J., Chua, J. H., De Massis, A., Frattini, F. & Wright, M. (2015). The ability and willingness paradox in family firm innovation. *Journal of Product Innovation Management*, *32*(3), 310–318.

Chua, J. H., Chrisman, J. J. & Sharma, P. (1999). Defining the family business by behavior. *Entrepreneurship Theory and Practice*, *32*(4), 19–39.

Classen, N., Van Gils, A., Bammers, Y. & Carree, M. (2012). Accessing resources from innovation partners: The search breadth of family SME. *Journal of Small Business Management*, *50*(2),191–215.

Classen, N., Carree, M., Van Gils, A. & Peters, B. (2014). Innovation in family and non-family SMEs: An exploratory analysis. *Small Business Economics*, *42*, 595–609.

De Massis, A., Di Minin, A. & Frattini, F. (2015). Family-driven innovation: Resolving the paradox in family firms. *California Management Review*, *58*(1), 5–19.

Donnelley, R. G. (2004). The family business. *Family Business Review*, *1*(4), 427–445.

Duran, P., Kammerlander, N., Van Essen, M. & Zellweger, T. (2016). Doing more with less: Innovation input and output in family firms. *Academy of Management Journal*, *59*(4), 1224–1264.

Forbes. (2021, September 22). *Ranking najcenniejszych firm rodzinnych*, Forbes.pl., https://www.forbes.pl/forum-firm-rodzinnych/2021/forum-firm-rodzinnych-i-ranking-najcenniejszych-firm-rodzinnych-2021/vsx545p

Gassmann, O. & Enkel, E. (2005). Open innovation forschung. In M. Weissenberger-Eib (Ed.), *Gestaltung von Innovationssystemen* (pp. 2–21). Cactus Group Verlag.

Harms, H., Memili, E. & Steeger, J. (2015). Expert insights on the determinants of cooperation in family firms in tourism and hospitality sector. *Journal of Co-operative Organization and Management*, *3*(2), 72–83.

Klimek, J. & Żelazko, B. (2018). Konkurencyjność i innowacyjność firm rodzinnych. In K. Poznańska (Ed.) *Nowe formy innowacji* (pp. 35–65). Oficyna Wydawnicza SGH.

Kowalewska, A. (Ed.). (2009). Firmy rodzinne w polskiej gospodarce – szanse i wyzwania. https://www.parp.gov.pl/storage/publications/pdf/2009_firmy_rodzinne_szanse.pdf

Laursen, K. & Salter, A. (2006). Open for innovation: The role of openness in explaining innovation performance among U.K. manufacturing firms. *Strategic Management Journal*, *27*, 131–150.

Letonja, M. & Duh, M. (2016). Knowledge transfer in family businesses and its effects on the innovativeness of the next family generation. *Knowledge Management Research & Practice*, *14*(2), 213–224.

Nieto, J. M., Santamaria, L., Fernandez, Z. (2015). Understanding the innovation behaviour of family firms. *Journal of Small Business Management*, *53*(2), 382–399.

Pittino, D. & Visintin, F. (2011). The propensity toward inter-organizational cooperation in small and medium-sized family businesses. *Journal of Family Business Strategy*, *2*, 57–68.

Safin, K. (2007). *Przedsiębiorstwo rodzinne – istota i zachowania strategiczne*. Wydawnictwo Akademii Ekonomicznej we Wrocławiu.

Shanker, M. C. & Astrachan, J. H. (1996). Myths and realities: Family Businesses' contribution to the US economy – A framework for assessing family business statistics. *Family Business Review*, *9*(2), 107–123.

Sopińska, A. (2022). The essence of innovation and innovation management. In P. Dziurski (Ed.), *Critical perspectives on innovation management: The bright and dark sides of innovative firms* (pp. 5–23). Routledge.

Sopińska, A. & Mierzejewska, W. (2017). *Otwarte innowacje produktowe realizowane przez przedsiębiorstwa działającej w Polsce. Podejście zasobowe*. Oficyna Wydawnicza SGH.

Sopińska, A. & Dziurski, P. (2018). *Otwarte innowacje. Perspektywa współpracy i zarządzania wiedzą.* Oficyna Wydawnicza SGH.

Sopińska, A. & Dziurski, P. (2022). *Działalność innowacyjna w podmiotach rodzinnych. Modelowe postawy rodziny wobec działalności innowacyjnej*. Raport z badań nr KZiF/S22/1.52. SGH.

Sułkowski, Ł. (2004). *Organizacja a rodzina, więzi familijne w życiu gospodarczym*. TNOiK.

Surdej, A. (2016). Czy firmy rodzinne są mniej innowacyjne? Mity, fakty i mechanizmy. *Przedsiębiorczość i Zarządzanie*, *17*(6), 149–162.

Ward, J. L. (1997). *Keeping the family business healthy: How to plan for continuing growth, profitability, and family leadership*. Family Business Publishers.

Winnicka-Popczyk, A. (2015a). Innowacyjność polskich przedsiębiorstw rodzinnych w świetle dotychczasowych badań oraz wybranych studiów przypadku. *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Ekonomiczne Problemy Usług*, *116*, 342–350.

Winnicka-Popczyk, A. (2015b). Inwestycje firm rodzinnych w innowacyjność (przegląd zagadnienia w literaturze zagranicznej). *Przedsiębiorczość i Zarządzanie*, *16*(7), 183–197.

Winnicka-Popczyk, A. (2018). Czynniki finansowania innowacji w polskich firmach rodzinnych. *Przedsiębiorczość i Zarządzanie*, *19*(7), 159–176.

Wściubiak, Ł. (2017). Działalność innowacyjna firm rodzinnych – perspektywa współpracy międzyorganizacyjnej. *Przedsiębiorczość i Zarządzanie*, *18*(6), 375–387.

Wściubiak, Ł. (2018). Kreowanie innowacji przez firmy rodzinne w Polsce w świetle analizy danych patentowych. *Przedsiębiorczość i Zarządzanie*, *19*(7), 233–248.

Yu, M., Spriggs, A., Deeds, D. & Sorenson, R. L. (2013). Too many cooks in the kitchen: Innovative capacity, collaborative network orientation, and performance in small family businesses. *Family Business Review*, *26*(1), 32–50.

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Conflict of Interest

The author declare that the research was conducted without any commercial or financial relationships that could be construed as a potential conflict of interest.

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Innovativeness Unveiled: Exploring Concept and Shaping Conditions in Personnel Function

Teresa Myjak

Abstract: **Background:** Innovativeness concerns various organisational aspects and manifests at different social life levels. Innovativeness has its source in the intensity of changes inside and outside the organisation. Many terms for innovativeness revolve around two keywords: ability and inclination.
Research objectives: The paper aims to explain the concept of innovativeness and to recognise the conditions shaping it according to respondents. It also examines conditions affecting the implementation of personnel functions in the surveyed enterprises.
Research design and methods: Empirical data were obtained using the survey technique using the author's questionnaire survey form. Empirical research has been characterised by the object and subject of research and research time and space.
Results: Most respondents generally understand innovativeness as the ability to introduce changes in the personnel area, which partially confirmed the first research hypothesis. No significant discrepancies were observed regarding the conditions that cause or even force the use of innovative ways of performing the personnel function and specific tools in this functional area of the enterprise.
Conclusions: The theoretical considerations and empirical research presented on their basis allowed us to determine how the concept of „innovativeness" is understood in the personnel area. The respondents, representing enterprises of all sizes located in different parts of the Malopolska Region and with different scales of operations, also perceived innovativeness differently.
Keywords: innovativeness, determinants, personnel, change.
JEL Codes: J24, M54, O31, O35

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1. Introduction

Man is an entity creating every area of the company, especially the personnel, and each of them impacts the company's innovativeness. Innovativeness can also be associated with the ability and/or willingness of the organisation to use improved or new solutions, ways of proceeding, and instruments in the personnel sphere; the ability to make changes in the personnel area; the ability to create, disseminate and use knowledge; the ability to put innovation into practice; the process of refining new ideas and turning creative ideas into practical solutions.

Innovativeness depends on specific resources (e.g., technology) but should be linked to people. No machines, devices or processes will start until people act. In the current conditions of the organisation's environment, where the progressive processes of automation and roboti-

sation of activities carried out in various areas of the organisation (also in the personnel area), together with artificial intelligence and the introduction of innovations, are perceived as the most important factors in the development of the organisation, it is necessary to emphasise that the subject of each of these activities is a man and that a lot depends on him. In the organisation, he is the subject of the personnel function. Currently, the personnel function of the company is undergoing the most profound transformations. The HR function is expected to have an innovative approach to its implementation. In the context of the above statements, it will be valuable to research the understanding of innovativeness in the personnel sphere and the conditions for implementing the personnel function in enterprises.

In order to recognise how the concept of innovativeness is perceived in business practice, empirical research was conducted among a deliberately selected research sample. 115 respondents from various enterprises of the Małopolska region took part in the survey. The research problem was formulated as a question: What does the term »innovativeness in the personnel area« mean to you? In addition, the respondents were asked: Do you think the current conditions cause or even force the use of innovative (or modified) ways of performing the personnel function and specific tools in this functional area of the company? The research questions posed gave rise to the definition of research hypotheses:

H1: Innovativeness in the personnel area is understood as the ability to make changes in the personnel area and to implement innovations in practice. H1 consists of two parts. The first part assumes the understanding of innovativeness as the ability to introduce changes in the personnel area; the second – is the ability to implement innovation in practice;

H2: The personnel function in an enterprise is largely determined by using innovative (or modified) ways and tools in its implementation.

The publication has a theoretical and empirical character to which the structure of the work has been subordinated. The theoretical part presents the definition of innovativeness in selected literature. Attention was also paid to the determinants of innovativeness. The empirical part describes the methodological issues of the conducted research and then the results of the research procedure. The study ends with conclusions.

2. Literature review

Innovativeness in organisations attracts great interest in the literature on the subject (Dos-Santos et al., 2022, p. 574). The issues of organisational innovativeness are currently eagerly addressed by both theoreticians and practitioners of management (Motyka, 2021, p. 235).

The literature on the subject contains numerous approaches to innovativeness, which refer to various organisational aspects, e.g. technology, product or human behaviour (Wiśniewska, 2014, p. 33). Innovativeness is also manifested at various levels of social life, both at the individual, group and organisational level (Pająk, 2006, p. 31). It may concern, for example, building lasting relationships between the company and customers (internal and external) and cooperation with creators and other innovative units that implement such projects (Brojak-Trzaskowska, 2008, p. 172). The innovativeness of enterprises is determined by many external and internal factors (Rojek, 2022, p. 487). Innovativeness has its source in the intensity of external changes in various branches of the economy, based on new computer, telephony and multimedia technologies, which strive to introduce new solutions (Berłowski, 2013, p. 51). External factors affect the internal environment, e.g., the work's nature and performance conditions (Pocztowski & Miś, 2022, p. 144). Therefore, the innovativeness of enterprises is expressed in

creating conditions that enable the implementation of innovations (Kamińska, 2014, p. 88) and innovative solutions in response to these changes. Companies capture and generate ideas through their internal processes and transform them into innovative (new) products or services (Juris & Cugova, 2020). The innovativeness of enterprises is determined by, among other things, their activities (Kamińska, 2023, p. 211). As Makieła notes, „In the broad understanding of the term »innovativeness« there is the ability to implement new solutions (new products, new types of activities, new technologies, new entities and institutions, new forms of organisation and management) in all spheres of social and economic life" (Makieła, 2018, pp. 28-29). Organisational innovativeness is a broad concept related to the company's propensity to innovate (Salavou, 2004, p. 33). From a business perspective, innovativeness means realising a great profit, sustainable growth and development (Ramadani & Gerguri, 2010, p. 102). Therefore, man, as a subject of work, should be able to develop and engage his potential in the work process (Myjak, 2021, p. 68).

A review of the literature on the subject leads to the conclusion that many terms of innovativeness oscillate around two keywords: ability and inclinations. „Ability" includes several internal factors relating to the analysed scope of activity and the factors surrounding this area of economic activity. This ability includes knowledge, skills and social competencies. It is also important to have the ability to recognise and read signals coming from the external environment (Białoń & Werner, 2014, p. 35). The company's propensity to innovativeness means its readiness to create and develop new solutions and adapt them from the outside. Propensity is not synonymous with ability. A high propensity to innovativeness may characterise an enterprise but not have the ability (capability) to implement these innovations due to existing barriers. It is, therefore, desirable for an enterprise to have both a high propensity and the ability to generate and implement innovations (Kamińska, 2014, p. 88).

According to Francik (2003, p. 69), innovativeness lies in the ability and inclination to:

- search for new products, technologies, services, markets, management methods, etc.,
- create and implement new products, technologies, services, management methods, etc.,
- take action in an uncertain situation,
- observe the market and competition, anticipating the development of the market situation,
- react quickly to emerging changes,
- break routines, habits,
- make changes in ways of communicating, new methods of work organisation, etc.

Table 1 contains some definitions of innovativeness according to selected authors.

Table 1. Definition of the term "innovativeness"

Author, year	The term "innovativeness"
Sosnowska et al. (2000)	Innovativeness is the ability to permanently generate and implement innovations that recipients recognise due to the high level of modernity and competitiveness on a global scale
Bogdanienko (2004)	Innovativeness is the ability to create and implement changes in various spheres of socio-economic life
Rogoda (2005)	Innovativeness means the introduction by the organisation of new solutions in the field of organisation and management or marketing, as well as characterises the frequency of changes
Kowalak (2006)	Innovativeness means the improvement and development of existing production, operational and service technologies, the introduction of new solutions in the field of organisation and management, the improvement and development of infrastructure for the collection, processing and sharing of information

Author, year	The term "innovativeness"
Talar (2009)	Innovativeness is understood as the ability to create, disseminate and use knowledge (commercialisation of innovation) and is widely recognised as the most important source of competitive advantage, as well as the main factor ensuring the economic development of the country in the conditions of international competition of the twenty-first century
Pomykalski (2009)	Innovativeness is the ability of an organisation to seek, implement and disseminate innovations constantly
Wodnicka (2009)	Innovativeness is the ability and motivation of an organisation to constantly seek and use in practice the results of scientific research, new concepts, ideas and inventions
Kasprzak & Pelc (2012)	Innovativeness is a feature of the culture of modern societies
Ulrich & Brockbank (2013)	Innovativeness is about taking advantage of opportunities and focusing on future successes, not relying on past achievements. This is an important value because it determines the development
Białoń & Werner (2014)	Innovativeness is the ability to create and implement innovations, it is a state that characterizes the ability to design and implement changes at various levels of management
Cannon & McGee (2015)	Innovativeness is the process of refining new ideas and transforming the best, creative ideas into practical solutions
Woźniak et al. (2015)	Innovativeness is the ability to make innovation a reality in practice
Gierszewska (2016)	Innovativeness is the ability to acquire resources, qualifications and key competencies required in various processes
Czyż (2017)	Innovativeness is an extremely complex category, requiring an interdisciplinary approach and a look from many perspectives
Tutaj (2019)	Innovativeness is the ability of an organisation to search, implement and disseminate innovations constantly
Wolniak (2022)	Innovativeness is an important factor which can be done in centralised or decentralized way
Ruba et al. (2023)	Innovativeness is an organisation's propensity to innovate

Source: own elaboration based on the literature on the subject.

The definitions in Table 1 show that innovativeness is quite broadly understood by individual Authors, who interpret it in terms of, for example, the organisation's ability to seek, create, implement and disseminate innovations. Some refer to the indication that innovativeness leads to the implementation of innovations; others, in turn, draw attention to implementing new solutions. All these terms lead to one more statement: innovativeness is an effective instrument for building a competitive advantage of an enterprise.

Innovativeness can be considered considering four specific planes that determine it (Table 2). One of them is an individual, singular level. Essential qualities of the human individual are desirable here, such as creativity, originality, responsibility or self-confidence. On the second level, team cooperation, common goals, diversity and efficiency seem important. Looking from the manager's level, team management, promotion of pro-innovation projects, openness to change and appreciation of employees' inventiveness determine innovativeness. In turn, values supporting innovativeness, knowledge resource management, communication and support for innovative initiatives and projects create organisational determinants of innovativeness.

Table 2. Basic determinants of innovativeness

Level	Determinants of innovativeness
At the individual level	– willingness to take responsibility for one's actions – willingness to take risks – faith in the competencies and effectiveness of undertaken activities – creativity (the ability to find innovative ideas and solutions) – originality (the need to stand out) – the ability to participate in teamwork – emotional intelligence, self-confidence – ability to solve conflicts and problems – communicativeness
At team level	– a diverse team due to different experiences and potential of employees – work in small teams, allowing frequent meetings and free discussion – focus on efficiency and common goals, combined with a sense of common striving to achieve ambitious achievements – a high level of security allowing both expressing a dissenting opinion and supporting non-standard ideas
At the managerial level	– participatory model of team management (the manager supports the autonomy and independence of employees) – striving for continuous improvement and modelling such attitudes in employees – taking on the role of a promoter of innovation and manager of pro-innovation projects – high level of openness to change – ability to manage risk – representing values in which employees' inventiveness is appreciated
At the organisational level	– focus on high efficiency and lack of extensive control processes – values supporting innovativeness, diversity and a culture of empowerment – effective and efficient management of knowledge resources, efficient communication systems – strong decentralisation, decision-making freedom, independence in making decisions – lack of extensive control processes – supporting innovative initiatives and projects from the board level

Source: own elaboration based on (Filipowicz, 2019, pp. 152–153).

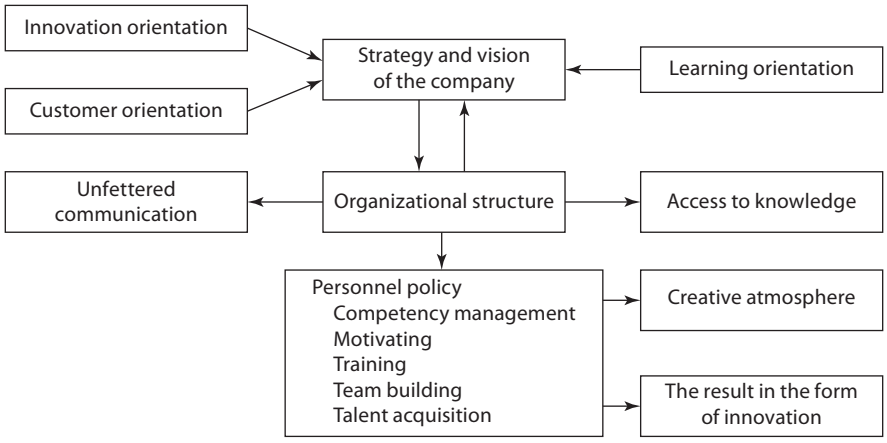

Figure 1. Determinants of innovativeness

Source: (Lewicka, 2010, p. 261).

Figure 1, in turn, presents a schematic approach to the determinants of innovativeness in the enterprise. It largely coincides with the tabular list above. Particular attention is drawn (both in the tabular and graphic juxtaposition) to the „human factor", whose „presence" is marked. Focus on innovation, knowledge, and creativity are just some of the necessary elements conditioning innovativeness. However, they would not have the raison d'être if man had not started his activity.

3. Research Method and Material

The variety of phrases of the term „innovativeness" in the literature inspired the author to examine this issue from the point of view of business practice related to the personnel area of enterprises and with the participation of respondents employed in them. The research aimed to obtain answers explaining the concept of innovativeness in the organisational practice of enterprises. A quantitative research approach using survey methodology was used to achieve the goal. The choice of study and quantitative methodology was based on the conceptualisation of the research. The research problem was formulated through specific research questions: First, what does the term „innovativeness" mean to you in the human resources area? Secondly, do you think the current conditions cause or even force the use of innovative (or modified) ways of performing the personnel function and specific tools in this functional area of the company? A purposeful selection of the research sample was made as part of the research process. The study took the form of a standardised survey, which was distributed in a printed (paper) version. The completed forms were returned in the same form. The author's survey from the questionnaire was used. The survey questionnaire consisted of substantive and recorded questions, open questions with an option for respondents to comment, and closed questions with an option to choose from. 115 business entities took part in the survey. Characterising empirical research, it was indicated:

- the subject of research – the survey involved owners of micro, small and medium-sized enterprises or decision-makers representing the enterprise; one person from each company answered the question,
- the object of research – the research process was carried out based on indications of terms describing „innovativeness" in the personnel area,
- research implementation time – the research was started and finalised in 2022 in production, trade and service enterprises with various range of activities: local, national and international,
- research space – organisations participating in the study were located in the following counties of the Malopolska Region: Nowy Targ, Gorlice, Nowy Sącz and Limanowa.

4. Results

The results presented in the paper reference the part (not all) of the questionnaire. The research results are, therefore, a part of the author's more extensive empirical research. They present the basic research results, which was the author's intention (without making an in-depth analysis). When describing empirical data, descriptive analysis of basic research results was used. Empirical data are presented in full per cent responses. Respondents were asked directly to answer the question of what the term „innovativeness" means to them in the

field of personnel. The respondents had the opportunity to indicate up to three characteristics, so the data in Table 3 do not add up to 100%.

Table 3. Definition of the concept of "innovativeness" in the personnel area

Specification	% of indications
the ability to make changes in the personnel area	54
the ability and/or willingness of the organisation to use improved or new solutions, procedures, and instruments in the personnel sphere	40
the ability to create, disseminate and use knowledge	40
the ability to put innovation into practice	31
the process of refining new ideas and turning creative ideas into practical solutions	23

Source: own elaboration based on research results.

The data presented in Table 3 shows that more than half of the respondents understood „innovativeness" in the analysed area to be the ability to introduce changes in the personnel area. Out of five respondents, two considered a different term for innovativeness: the ability and/or willingness of the organisation to use improved or new solutions, ways of proceeding, instruments in the personal sphere, as well as the ability to create, disseminate and use knowledge. Almost every third opted for the ability to implement innovations in practice, and every fourth indicated the process of refining new ideas and turning creative ideas into practical solutions.

Table 4 presents the respondents' responses to the definition of "innovativeness" in the HR area, broken down by the characteristics identifying the enterprises (i.e. size, type and range of activities of enterprises). In the opinion of every fifth respondent (in relation to all respondents) representing a micro and small enterprise, innovativeness was associated with the ability to introduce changes in the personnel area. This was also the opinion of every fourth respondent representing companies operating in the domestic market. For every fifth respondent from companies operating locally, innovativeness was identified with the ability and/or willingness of the organisation to use improved or new solutions, ways of proceeding, and instruments in the personnel sphere. Analysing the respondents' answers – taking into account the opposite pole, i.e. the smallest percentage of indications – it was noticed that innovativeness was defined as refining new ideas and transforming creative ideas into practical solutions. This option was indicated by practitioners representing micro, small and medium-sized service and production enterprises, as well as those operating in the local and international markets.

The next question was formulated: in your opinion, do the current conditions cause or even force the use of innovative (or modified) ways of performing the personnel function and specific tools in this functional area of the company? The vast majority of respondents (84%) answered this question in the affirmative. The opposite opinion was less than every fifth respondent (16%). The respondents' answers broken down by identifying characteristics of the surveyed entities are given about the total number of respondents (Table 5).

Table 4. The concept of "innovativeness" in the area of personnel – respondents' answers broken down by the characteristics identifying the company

Specification	Most indications	Least indications
Employment		
Micro company	the ability to make changes in the personnel area (20)	the process of refining new ideas and turning creative ideas into practical solutions (5)
Small Business	the ability to make changes in the personnel area (20)	the process of refining new ideas and turning creative ideas into practical solutions (10)
Medium business	the ability and/or willingness of the organisation to use improved or new solutions, ways of conduct, and instruments in the personnel sphere (12) the ability to make changes in the personnel area (12)	the process of refining new ideas and turning creative ideas into practical solutions (7)
Type of Activity		
Production	the ability to make changes in the personnel area (14)	the process of refining new ideas and turning creative ideas into practical solutions (3)
Service	the ability to make changes in the personnel area (32)	the process of refining new ideas and turning creative ideas into practical solutions (13)
Trade	the ability to make changes in the personnel area (9)	the ability and/or willingness of the organisation to use improved or new solutions, ways of conduct, and instruments in the personnel sphere (3)
Market		
Local	the ability and/or willingness of the organisation to use improved or new solutions, ways of conduct, and instruments in the personnel sphere (20)	the process of refining new ideas and turning creative ideas into practical solutions (6)
Domestic	the ability to make changes in the personnel area (26)	the ability and/or willingness of the organisation to use improved or new solutions, ways of conduct, and instruments in the personnel sphere (15)
International	the ability to make changes in the personnel area (5)	the process of refining new ideas and turning creative ideas into practical solutions (1)

Source: own elaboration based on research results.

Table 5. Innovative ways and tools in the implementation of the personnel function

Specification		Yes (%)	No (%)
Employment	Micro company	27	8
	Small Business	32	8
	Medium business	23	2
Type of Activity	Production	17	4
	Service	52	12
	Trade	15	No indication
Market	Local	30	6
	Domestic	38	10
	International	9	1

Source: own elaboration based on research results.

5. Conclusions

The presented theoretical considerations and empirical research on their basis allowed us to determine how the term „innovativeness" is understood – in the personnel area. The respondents, representing enterprises of all sizes located in different parts of the Malopolska Region and with different scales of operations, also perceived innovativeness differently. Most respondents generally understood innovativeness as the ability to introduce changes in the personnel area, which partially confirmed the first research hypothesis. Far fewer defined innovativeness as the ability to make innovation a reality in practice. On the other hand, the least indications concerned the perception of the concept of innovativeness in the context of the process of refining new ideas and transforming creative ideas into practical solutions. The second hypothesis was confirmed regarding the conditions that cause or even force the use of innovative methods and implementation of the personnel function and specific tools in this functional area of the company.

It is worth pointing out that the research results cannot be applied to all enterprises to the same extent due to the diversity of respondents. They represent enterprises of various sizes, scopes, and forms of activity. The specificity of enterprises differing, for example, in the size of employment, is different. The understanding of innovativeness in the personnel area by respondents of a small enterprise is determined by different considerations than in the case of a medium-sized or large enterprise. Small businesses also differ from large companies in terms of their personnel practices. Limitations of the research procedure should also be indicated, such as non-random selection of the research sample or limiting the research to one voivodeship.

However, presenting research results in a wider range would be justified, given that the respondents could indicate up to three features characterising the concept of innovativeness, i.e. one, two or three. Further research analyses could be focused on identifying how many respondents indicated one trait, how many indicated two, and how many indicated three. Any additional analysis could contribute to knowledge in this area. In-depth research results could be presented graphically on charts and supplemented with appropriate commentary.

The issues raised are important and current and raise the need to conduct further, in-depth analyses that would allow for broader conclusions in such an important functional area of the enterprise. Future research directions could concern a broader recognition of innovativeness in the personnel area of the organisation and its key determinants in this sphere. Then, a mixed approach (quantitative and qualitative) could be used to highlight the importance of the topic.

References

Berłowski, P. (2013). W stronę jakości czy innowacji? Wartości korporacyjne, jakimi kierują się organizacje polskie i zagraniczne. *Personel i Zarządzanie*, *2*(275), 50–52.

Białoń, L., & Werner, E. (2014). *Zarządzanie działalnością innowacyjną w kontekście społecznej świadomości innowacyjności*. In A. Kamińska (Ed.), *Innowacyjność: uwarunkowania, strategie, wyzwania* (pp. 33–49). Agencja Wydawnicza Placet.

Bogdanienko, J. (2004). *Innowacje jako czynnik przewagi konkurencyjnej.* In J. Bogdanienko (Ed.), *Innowacyjność przedsiębiorstw* (pp. 7–62). Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika.

Brojak-Trzaskowska, M. (2008). *Społeczno-kulturowe determinanty aktywności innowacyjnej przedsiębiorstw.* In E. Okoń-Horodyńska & A. Zacharowska-Mazurkiewicz (Eds.), *Tendencje innowacyjnego rozwoju polskich przedsiębiorstw* (s. 169–183). Instytut Wiedzy i Innowacji.

Cannon, J.A., & McGee, R. (2015). *Rozwój i zmiana organizacji. Zestaw narzędzi*. Wolters Kluwer.

Czyż, M. (2017). *Wpływ jakości kapitału intelektualnego na innowacyjność przedsiębiorstwa*. In J. Kaczmarek & P. Krzemiński (Eds.), *Doskonalenie działania przedsiębiorstw i instytucji wobec przemian społeczno-gospodarczych. Innowacje – finanse – otoczenie biznesu* (pp. 29–40). Fundacja Uniwersytetu Ekonomicznego w Krakowie.

Dos-Santos, S.M.; Pacagnella Junior, A.C.; Fournier, P-L., Morini, C. & Santa-Eulalia, L.A (2022). Critical success factors for the innovativeness of the electronic industry: An analysis in developed and developing countries. *Creativity & Innovation Management*, *31*(4), 573–598.

Filipowicz, G. (2019). *HR Business Partner. Koncepcja i praktyka*. Wolters Kluwer.

Francik, A. (2003). *Sterowanie procesami innowacyjnymi w organizacji*. Akademia Ekonomiczna w Krakowie.

Gierszewska, G. (2016). *Małe i średnie przedsiębiorstwa, innowacyjność, konkurencyjność – głos w dyskusji*. In T.A. Grzeszczyk (Ed.), *Wybrane problemy wzrostu innowacyjności i konkurencyjności przedsiębiorstw* (pp. 9–37). Oficyna Wydawnicza Politechniki Warszawskiej.

Juris, R., & Cugova, A. (2020). Innovative environment in the country and its importance in terms of business innovation as a precondition for the financial performance of company. *SHS Web of Conferences*, 74. https://doi.org/10.1051/shsconf/20207402008

Kamińska, A. (2014). *Bariery wdrażania innowacji w przedsiębiorstwach w Polsce*. In A. Kamińska (Ed.), *Innowacyjność: uwarunkowania, strategie, wyzwania* (pp. 83–102). Agencja Wydawnicza Placet.

Kamińska, A. (2023). The Activity of Business Environment Institutions in Terms of Supporting the Innovativeness. *Scientific Papers of Silesian University of Technology. Organization & Management*, *170*, 203–214.

Kasprzak, W.A., & Pelc, K.I. (2012). *Innowacje. Strategie techniczne i rozwojowe*. Oficyna Wydawnicza Politechniki Wrocławskiej.

Kowalak, B. (2006). *Konkurencyjna gospodarka. Innowacje – infrastruktura – mechanizmy rozwoju*. Instytut Technologii Eksploatacji – Państwowy Instytut Badawczy.

Lewicka, D. (2010). *Zarządzanie kapitałem ludzkim w polskich przedsiębiorstwach*. Polskie Wydawnictwo Naukowe.

Makieła, Z.J. (2018). *Przedsiębiorczość i innowacyjność – wprowadzenie*. In Z.J. Makieła & M.M. Stuss (Eds.), *Przedsiębiorczość i zarządzanie innowacjami: wiedza, technologia, konkurencja, przedsiębiorstwo* (pp. 15–43). C.H. Beck.

Motyka, S. (2021). Wpływ pandemii COVID-19 na funkcjonowanie i innowacyjność polskich przedsiębiorstw z sektora MŚP. In R. Knosala (Ed.), *Inżynieria zarządzania. Cyfryzacja produkcji. Aktualności badawcze 3* (pp. 235–243). Polskie Wydawnictwo Ekonomiczne.

Myjak, T. (2021). Professional development of SME sector employees and the challenges of the economy 4.0. *Annales Universitatis Mariae Curie-Skłodowska, sectio H – Oeconomia*, *55*(2), 65–73. https://journals.umcs.pl/h/article/view/12534/9074

Ulrich, D., & Brockbank, W. (2013). *Tworzenie wartości przez dział HR*. Wolters Kluwer.

Pająk, K. (2006). *Innowacyjność a kapitał społeczny*. In M. Strużycki (Ed.), *Innowacyjność w teorii i praktyce* (pp. 31–45). Warszawa: Szkoła Główna Handlowa.

Pocztowski, A., & Miś, A. (2022). *Zarządzanie zasobami ludzkimi w „nowej normalności"*. In K. Zawadzki, M. Wojdyłło & A. Sudolska (Eds.), *W kręgu rynku pracy i polityki społecznej* (pp. 141–152). Wydawnictwo Adam Marszałek.

Pomykalski, A., *Innowacyjność organizacji*. In A. Pomykalski (Ed.), *Innowacyjność organizacji* (pp. 7–15). Wydawnictwo Naukowe Wyższej Szkoły Kupieckiej.

Ramadani, V., & Gerguri, S. (2010). Innovation: Principles and Strategies. *Strategic Change: Briefings in Entrepreneurial Finance*, *20*, 101–110.

Rogoda, B. (2005). *Przedsiębiorczość i innowacje*. Wydawnictwo Akademii Ekonomicznej w Krakowie.

Rojek, D. (2022). Strategic Management-Related Factors of Enterprise Innovativeness. *Scientific Papers of Silesian University of Technology. Organization & Management*, *163*, 487–504.

Ruba, R.M., Chiloane-Tsoka, G.E. & Van der Westhuizen, T. (2023). Moderating Effect of Business Environmental Dynamism in the Innovativeness – Company Performance Relationship of Congolese Manufacturing Companies. *Economies*, *11*(7), 191.

Salavou, H. (2004). The concept of innovativeness: should we need to focus? *European Journal of Innovation Management*, *7*(1), 33–44.

Sosnowska, A., Łobejko, S., & Kłopotek, A. (2000). *Zarządzanie firmą innowacyjną*. Difin.

Talar, S. (2009). *Zmiany innowacyjności gospodarki a udział Polski w międzynarodowej współpracy i wymianie technologicznej*. In T. Sporek (Ed.), *Procesy otwierania polskiej gospodarki na początku XXI wieku* (pp. 87–111). Wydawnictwo Akademii Ekonomicznej im. Karola Adamieckiego w Katowicach.

Tutaj, J. (2019). *Innowacje – próba pomiaru*. In Z. Malara & J. Tutaj (Eds.), *Innowacje a dobrostan społeczeństwa, gospodarki i przedsiębiorstw: próba pomiaru* (pp. 11– 26). Oficyna Wydawnicza Politechniki Wrocławskiej.

Wolniak, R. (2022). Individual Innovations. *Scientific Papers of Silesian University of Technology. Organization & Management*, 166, 861–875.

Woźniak, M.G., Jabłoński, Ł., Soszyńska, E., Firszt, D., & Bal-Woźniak, T. (2015). *Kapitał ludzki w rozwoju innowacyjnej gospodarki i zarządzaniu innowacyjnością przedsiębiorstwa*. Polskie Wydawnictwo Ekonomiczne.

Wiśniewska, S. (2014). *Innowacyjność jako determinanta rozwoju zasobów ludzkich*. In R. Oczkowska & U. Bukowska (Eds.), *Rozwój zasobów ludzkich organizacji* (pp. 31–54). Difin.

Wodnicka, M. (2009). Strategiczne zarządzanie personelem jako instrument kształtowania innowacyjności w przedsiębiorstwie. In A. Pomykalski (Eds.), *Innowacyjność organizacji* (pp. 179– 187). Wydawnictwo Naukowe Wyższej Szkoły Kupieckiej.

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Overview of social attitudes and applications towards the use of crowdfunding in renewable energy

Justyna Ziobrowska-Sztuczka

Abstract: **Background:** Crowdfunding has become a popular method for raising funds for various projects, including those related to renewable energy sources.
Research objectives: This paper aims to present crowdfunding and the social attitudes of the Poles towards its use in renewable energy sources.
Research design and methods: The first section discusses the theoretical assumptions of crowdfunding and presents the possibilities of using this form of financing in the renewable energy sector in Poland and worldwide. The second section of the paper is devoted to presenting the results of my research on the attitudes of Polish society towards renewable energy sources and the use of crowdfunding in the energy transition in Poland and worldwide. The paper uses literature analysis, criticism, comparative analysis, desk research, and a survey method.
Results: Crowdfunding is used extensively in various projects in the area of renewable energy sources. There is social support for this type of activity (especially in the age groups 18–29 and 30–44 years) and a growing awareness and openness to support initiatives in the area of renewable energy sources.
Conclusions: Based on the analysis, it was concluded that crowdfunding allows local actors to optimize their share of the economic benefits of solar energy projects, including solar energy, and to participate in the energy transition at the same time.
Keywords: crowdfunding, sharing economy, renewable energy
JEL Codes: B55, G29, Q2

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"Renewable energy is becoming increasingly cheaper.
The use of wind and solar energy is practically free.
New models for doing business will emerge in the future.
Energy will become democratized."
(Rifkin, 2011, p. 140)

1. Introduction

The power industry is based on many different sources, mainly fossil. In Poland, this is primarily coal. However, energy materials such as coal, oil, and natural gas are exhaustible. Renewable energy sources can safeguard the security of the state and its citizens in the event of natural disasters or hybrid wars. They, therefore, build the security of both present and future

generations. This is why it is so important to gradually transform the energy sector towards the use of renewable energy sources, as noted by the authors (Mędrzycki, 2019, pp. 6–16; Nowiński, 2021, pp. 42–46; Zabłocki, 2013, pp. 29–43). The current energy crisis, exacerbated by Russia's attack on Ukraine, has highlighted the need for European Union countries to reduce their dependence on Russian fossil fuels and to diversify and secure the EU's energy supply by pushing for greener alternatives, such as renewable energy sources (Tokarski, 2022, pp. 10–16). At the same time, the EU wants to be at the forefront of the green transition to tackle the climate crisis by, among other things, increasing the energy efficiency of public infrastructure, enhancing biologically active areas in urban and functional areas, strengthening the protection of water resources, including the adaptation of urban areas to climate change, or reducing noise and improving air quality. New business models are emerging in the energy market, which can be defined as "the content, structure, and governance of transactions designed to create value through the exploitation of business opportunities" (Amit & Zott, 2001, p. 511) and are a means to bring new technologies, such as renewable energy sources, to market (Chesbrough, 2002, pp. 529–555; Zott et al., 2011, pp. 1019–1042). Many of these models are based on direct energy user participation in energy production: for example, citizens owning shares in photovoltaic installations (Huijben & Verbong, 2013, pp. 362–370). In Western European countries such as among others, France, the Netherlands, Germany, and the United Kingdom, but also in Sweden or the United States, crowdfunding has been used successfully for several years to finance investments in renewable energy sources (Huijben & Verbong, 2013, pp. 362–370). This is a form of funding various types of projects by the community that is or will be structured around these projects (Cézanne et al., 2021, pp. 9–11). The project is then financed through a large number of small, one-off contributions made by people interested in the project (Schwienbacher et al., 2010, pp. 369–390). In Poland, such solutions are not yet popular, although current legislation allows for similar crowdfunding campaigns (Stasik, 2018, pp. 54–62). On the other hand, the number of facilities and the installed capacity of renewable energy sources in our country is growing every year. This paper aims to present crowdfunding and the social attitudes of the Poles towards its use in renewable energy sources. The article describes the issue of crowdfunding, which involves a wide spectrum of people, enabling them to participate in the funding of projects they find valuable or interesting which fits in with the issue of the journal *Social Entrepreneurship Review*, where we find multifaceted, multidimensional analyses of social entrepreneurship in many different contexts (Tkacz, 2016, pp. 20–37; Broniszewski, 2016, pp. 38–47; Jonek-Kowalska, 2020, pp. 78–99, and others). The paper consists of two sections. The first section discusses the theoretical assumptions of crowdfunding and presents the possibilities of using this form of financing in the renewable energy sector in Poland and worldwide. The second section of the paper is devoted to presenting the results of my research on the attitudes of Polish society towards renewable energy sources and the use of crowdfunding in the energy transition in Poland and worldwide. The paper uses the methods of literature analysis and criticism, comparative analysis, document research, and diagnostic survey.

2. Literature review and theoretical background

2.1. Crowdfunding

According to Hervé and Schwienbacher (2018, pp. 1514–1530), one innovative phenomenon that is challenging the norms of finance is "crowdfunding". As another author notes, crowdfunding is not new, but the advent and use of social media have tremendously boosted

crowdfunding (Harrison, 2013, pp. 283–287). The phenomenon of crowdfunding is so popular that the number of definitions on the subject continues to grow, together with the number of books. Definitions come from different sources and distribute the emphasis differently. Steinberg (2012, pp. 12–31), for example, defines the phenomenon as asking the general public for start-up capital for a new venture. Wick adds to the above definition that crowdfunding occurs when a large number of people (the crowd) financially support a project in the form of relatively small amounts of money in exchange for a reward in the form of a donation or possibly in exchange for shares in the venture (Wick, 2013, pp. 5–8). De Buysere's definition, on the other hand, draws attention to the use of the Internet throughout the process and the initiators' use of their social media outreach (De Buysere et al., 2012, pp. 9–12). Crowdfunding is still a relatively recent phenomenon that we can define in our own way while retaining its constant elements. Support from the community is always financial. A collection is carried out via the Internet, specifically via a crowdfunding platform. Supporters receive various rewards for their contributions (so-called payback). The action is mainly placed in a specific time frame. The start and end date of the collection are known. The funding campaign is open, meaning anyone can donate from anywhere and in any amount (Witoszek, 2016, p. 108). In addition, we know by whom the money is being raised, for what purpose the amount of money to be ultimately raised, and whether the goal will be met (Ziobrowska, 2016, pp. 285–287). In addition, an important aspect of implementing a venture on crowdfunding portals is to ensure the quality of the new product or service (Bi et al., 2017, pp. 10–18), to spread the word about the project on social media, and to ensure that the various milestones of the project are met promptly (Mollick, 2014, pp. 133–150). Bottom-up initiatives in crowdfunding can include, for example, cultural, social, artistic, educational, technological, charitable, and many other projects (Sobol, 2014, pp. 137–146). Schwienbacher and Larralde (2010, pp. 369–390) have identified the basic business models of crowdfunding, which include donation-based crowdfunding and passive and active crowd investment. Donation-based crowdfunding has long been a well-known and still very popular way of funding, in which individuals or organisations raise money from a large number of people, known as donors, to support a specific charitable cause, community project, charity, or other philanthropic initiative and expect nothing in return (Hansmann, 1987, pp. 27–42; Nyssens et al., 2006). However, with the development of crowdfunding initiatives and platforms, "crowd" resources for donations have become highly competitive and, therefore, scarce. In a passive form of crowdfunding, investors receive some form of reward, such as personalised products or services, honorary recognition, or other forms of revenue sharing. However, the interaction between the company and its community investors is limited to the reward function. Active crowdfunding, on the other hand, assumes that investors not only provide money but also, in the best way of crowdsourcing, are involved in an ongoing dialogue with the company, helping, for example, to design new features, test products, suggest paths for the company and provide network reach and individual expertise. To this day, new divisions of crowdfunding models and strategies are emerging. Many are taking a hybrid form and are being used to support innovative, green projects.

2.2. Crowdfunding and renewable energy sources

Crowdfunding can be seen as a bottom-up tool for the delivery of sustainable development. Indeed, more and more often, in the context of social and economic bottom-up initiatives for local and global energy demand coverage, there is a discussion of civic micro- and macro-energy (Wasilewski et al., 2015, pp. 45–57). We can speak here of a trend of so-called energy

democracy, which combines technological energy transformation with strengthening democracy and public participation. This notion is related to decentralising energy systems using energy efficiency and renewable energy for ownership transition in the power industry (Morris & Jungjohann, 2016, pp. 379–412). With new green technologies available on the market, such a transition is possible with new actors: individual users – prosumers, energy co-operatives, and community power plants – replacing centralised, corporate power plants (Okraszewska, 2016, pp. 40–41). Energy democracy is increasingly moving towards the financing of renewable energy sources by local communities via crowdfunding, which, as mentioned earlier, involves financing projects through one-off (mostly very small) contributions made by citizens (Dyląg et al., 2019, pp. 11, 97–111). Crowdfunding can provide additional legitimacy to renewable energy projects since, as noted by Lehner (2013, pp. 289–311), the selection process by the crowd is perceived as per se democratic. Crowdfunding in support of renewable energy innovation can support both energy services for the needs of an individual user or household and entire installations offering energy services for community or business needs, integrated or not with the electricity grid (Stasik, 2018, pp. 54–62). Equity crowdfunding can be applied to business projects such as erecting a solar farm. As a result, participants – in exchange for their financial support – can receive, for example, the right to participate in a company, which also entails the prospect of sharing in its profits. By contrast, participation in non-share crowdfunding rewards participants with, for example, prizes in kind or services or simply by donating a product whose manufacture was made possible by the collection. An important advantage of such activities is that an attractive source of regular passive income can be created. The fact that the investment is undertaken as a group makes it more cost-effective compared to individual actions. A project to invest in renewable energy sources in the crowdfunding model requires establishing a special purpose entity that pursues a single objective, such as constructing a wind or photovoltaic solar farm. Investors take shares in the company, allowing them to be actively involved in key decisions. As citizen participation is essential in creating local acceptance for developing renewable energy projects, crowdfunding can be an extremely effective tool. This alternative way of financing enables Renewable Energy Systems (RES) developers to get early funding and authenticate their projects at the same time (Gomez, 2018, pp. 4–36). Some of the most popular crowdfunding platforms in the world for funding renewable energy projects include Solar Mosaic, Abundance Investment, Bettervest, Ecoligo, and Trine which are presented in Table 1.

Table 1. Crowdfunding platforms to finance renewable energy projects

Platform name	Country (seat)	Area of operation
Solar Mosaic	USA	Direct financing of PV projects
Abundance Investment	United Kingdom	Direct financing of wind, solar, and biomass projects
Bettervest	Germany	Direct financing of renewable energy projects in Africa and the Middle East
Ecoligo	Germany	Direct financing of photovoltaic investments
Trine	Sweden	Direct financing of solar pump installations, water pumps, solar panels, and biomass

Source: Own compilation based on data provided by crowdfunding platforms: Solar Mosaic, Abundance Investment, Bettervest, Ecoligo, and Trine.

Solar Mosaic is a US-based crowdfunding platform enabling investors to fund photovoltaic projects directly. In this way, Solar Mosaic allows it to finance small residential solar installations and larger commercial projects. Solar Mosaic reported in 2019 that it had surpassed the USD 1 billion threshold in investment in renewable energy projects, including those in solar (Mosaic, 2023). Another crowdfunding platform shown in Table 1 is Abundance Investment. It is a pioneer in the crowdfunding industry in the UK and has raised over GBP 100 million since 2012 (Abundanceinvestment, 2023). Bettervest, on the other hand, is a German crowdfunding platform that enables financing renewable energy projects in Africa and the Middle East. The platform focuses on projects that aim to improve the living conditions of people in these regions by providing energy from renewable sources (Better Invest, 2023). Ecoligo is a crowdfunding platform based in Berlin that enables investment in photovoltaic projects in developing countries. Through Ecoligo, entrepreneurs and property owners can invest in photovoltaic installations whilst investors receive an annual return on their capital (Ecoligo, 2023). The last one presented in the table is Trine, a Swedish crowdfunding platform that focuses on renewable energy projects in developing countries. Investors can invest in solar water pump installations, solar panels, or biomass projects. The Trine platform allows direct funding for projects that aim to improve people's lives in poor countries (Trine, 2023). The number of renewable energy crowdfunding platforms in the world is constantly evolving. There are now several such platforms in different countries, and their number continuously grows. There is no precise number of renewable energy crowdfunding platforms worldwide, but we can estimate that there are at least dozens of them. Many of these platforms operate in Europe, but some operate in other parts of the world, including Asia, Africa, and North and South America. Table 2 shows a sample of crowdfunding projects that have been implemented in the area of renewable energy sources in recent years.

One of the most recent examples of the effectiveness of crowdfunding in the area of financing renewable energy projects comes from the United Kingdom, where a 5 MW photovoltaic farm was connected to the grid in Merston, West Sussex, which residents entirely own.

Table 2. Selected crowdfunding projects supporting the development of renewable energy sources

Entity/Country	Funds raised	Purpose
UrbaSolar Axpo Group, company (Switzerland, France)	In 2021, EUR 7.5 million was raised through 25 crowdfunding campaigns.	They are used to fund different types of PV systems: ground-mounted power plants, rooftop installations, canopies over car parks, or greenhouses.
Baywind Energy, an energy cooperative that owns wind turbines (United Kingdom)	During 1996–1997, it raised GBP 1.2 million to purchase two turbines, and in 1998, it raised GBP 670,000 to purchase an additional turbine.	Profits from energy resold externally Baywind invests in environmental initiatives.
Local online platform Ethex (Merston, United Kingdom)	In 2016, the money needed – GBP 1.2 million – was raised in just three weeks.	It was agreed that the proceeds from the energy production would be split between the shareholders, but some of it would go to local community projects.
Windcentrale (Netherlands)	In 2013, more than EUR 1.3 million was raised in a campaign lasting just 13 hours.	In 2013, 1,700 households in the Netherlands bought a wind power plant.

Entity/Country	Funds raised	Purpose
Photovoltaic farms by Berg Holding (Poland)	In 2021, more than PLN 1 million had already been raised a quarter after the launch. In the end, PLN 4.05 million was raised from almost 1,000 community investors.	The funds will be used, among other things, to build a 1 MW installation in Nagoszyn.
Italian energy group Enel Green Power (Italy)	Crowdfunding platform established in 2021.	An online crowdfunding platform was launched for a project called Scelta Rinnovabile to enable Italian citizens to participate in ongoing investments.

Source: Own compilation based on data provided by crowdfunding.

They managed to raise the necessary funds through a crowdfunding campaign. The stake was sold via the local online platform Ethex. The money needed – GBP 1.2 million – was raised in just three weeks. The income from the energy produced on the PV farm will be distributed to shareholders, but some of it will go to local community projects (Ethex, 2013). In contrast, the Dutch carried out one of the largest, if not the largest, crowdfunding campaigns related to renewable energy sources. In 2013, 1,700 households in the Netherlands bought a wind power plant. The campaign, which lasted just 13 hours, raised more than EUR 1.3 million, a new world crowdfunding record (Vasileiadou et al., 2016, pp. 142–155). As part of the crowdfunding, the value of the Vestas V80 wind power plant operating in the Dutch town of Culemborg, which has a capacity of 2 MW, was divided into 6,648 shares. Each share is worth EUR 200 and corresponds to an energy production of approximately 500 kWh/year. The Italian energy group Enel, one of the largest investors in the global renewables market, is also a forward-looking project. It has launched a crowdfunding platform where it will offer Italian citizens to sell shares in new investments. Priority will be given to residents of the regions where the various projects will be developed. They will also gain the right to a higher dividend than other shareholders. Enel Green Power, which to date has already made investments in renewable energy sources of around 50 GW, has launched an online crowdfunding platform as part of a project called Scelta Rinnovabile, which aims to enable Italian citizens to participate in the investments being made (Enel Green Power, 2023).

In Poland, crowdfunding in energy is still a new market. Table 3 shows the platforms enabling financing renewable energy source projects in Poland.

Table 3. Platforms for financing renewable energy source projects in Poland

Platform name	Minimum investment amount	Area of operation
Ecobazaar.pl	PLN 50	Investing in green and sustainable development projects, including, for example, photovoltaic installations, wind power plants, or green heat sources.
Enerfunding.pl	PLN 100	Investing in solar, wind, or biomass projects.
Crowdfundme.pl	PLN 100	It enables the financing of projects from a variety of sectors, including but not limited to renewable energy.
Crowdway.pl	PLN 100	It enables the financing of renewable energy projects, including photovoltaic installations, hydrogen cells, and wind power plants, to name just a few.

Source: Own compilation based on data from crowdfunding platforms.

The first platform shown in the table is Ecobazaar.pl, which enables investment in ecology and sustainable development projects, including, among others, photovoltaic installations, wind power plants, or ecological heat sources. Investors can invest in projects for as little as PLN 50 (Eco Bazaar, 2023). Another platform is Enerfunding.pl, which focuses on projects related to renewable energy sources, including solar, wind, or biomass projects. Investors can invest in projects for as little as PLN 100 (Enerfund, 2023). Crowdfundme.co.uk is a platform enabling financing projects in various sectors, including, i.a., those related to renewable energy. Projects related to photovoltaic installations, heat pumps, or wind power plants on the platform can be found. Investors can start investing from as little as PLN 100 (Crowdfundme, 2023). The last of the platforms presented in the table is Crowdway.pl, which is a platform focused on financing projects related to renewable energy, including, among others, photovoltaic installations, hydrogen cells, or wind power plants. Investors can invest in projects from as little as a few hundred PLN. Apart from the crowdfunding platforms discussed in the table, in Poland, there is a website with projects financed using crowdfunding at the address polakpotrafi.pl. If you enter the keyword "RES" into the search engine, quite a lot of information is displayed, but none of it mentions a specific idea to build a wind farm, photovoltaic power plant, biogas plant, etc. We could only find the founders of the EKO Projekt Foundation, which aims to educate the public on RES and create new "green" jobs. However, only a few people expressed interest in the idea (Polakpotrafi, 2023).

Local initiatives such as collecting funds for installing photovoltaic panels on school roofs (Pomagam.pl, n.d.), and sports hall roofs (Polakpotrafi, 2023) are increasingly common in less widespread collections. These projects show that crowdfunding can effectively finance RES projects while involving local communities in energy production processes. Crowdfunding offers a range of opportunities for renewable energy projects. In addition to harnessing users' financial resources and transforming the energy consumer into an energy financier and producer (prosumer), crowdfunding can attract new types of customers, such as those interested in experimenting with new online tools. Furthermore, as Wheat notes crowdfunding can facilitate public support for renewable energy, which can translate into political support (Wheat, 2013, pp. 71–72). Crowdfunding helps entrepreneurs grow their organisations by providing a platform to attract early-stage venture capital funds and expand existing investments (Lam & Law, 2016, pp. 11–20; Bonzanini et al., 2016, pp. 429–444; Kaufman et al., 2021, pp. 143–149). In addition, crowdfunding helps to reduce and share risk among investors and removes the safeguards associated with the traditional banking system. In addition, crowdfunding facilitates investment in smaller projects that investors often neglect. Finally, crowdfunding reduces intimidation and encourages local communities to manage REPs (Bonzanini et al., 2016, pp. 429–444; Kaufman et al., 2021, pp. 143–149).

3. Research method and material

A survey with a sample size of 500 respondents was carried out between October 2022 and January 2023. A quantitative survey was chosen as an additional piece of work to understand the number of respondents advocating a particular position on the use of crowdfunding in the energy transition. A pilot study was carried out beforehand. A survey questionnaire was used, made available electronically on the survio.com platform, requiring respondents to have internet access. Surveys were posted in online forums. It was, therefore, not a randomised research sample. Not everyone was likely to be in the research sample. The study is exploratory. In the

initial phases of the study, the aim is to gather general information and orientation on the topic. Purposive sampling can help obtain a variety of perspectives. Limitations regarding the sample's representativeness or the research context may affect how well the survey results can be generalised to the population or situations outside the survey. However, they are only a supplement to the theory and overview section. Future research will be conducted with a larger sample.

The survey questionnaire included a filter question: *Do you know what renewable energy sources are?* Most respondents indicated an affirmative answer (445 people) and participated in the further survey. Data analysis was carried out using cross-tabulations, collating responses from different questions. In this way, it is easy to see how the respondents answered not only to this one question but also to other issues.

4. Results and Discussion

Men were predominant over women among survey participants, with 58% of respondents being men. All respondents were Polish citizens. The largest number of respondents were aged 30–44, making up 42% of the total. The remaining respondents were between 18 and 29 years of age (28%) and 45–59 years of age (20.2%). The smallest group of respondents was over 60 years of age (8%) and under 18 years of age (1.8%). Most people resided in the Lower Silesian Voivodeship (34%), as well as the Opolskie Voivodeship (27%) and the Silesian Voivodeship (19.6%). People living in the Lubuskie and Lubelskie Voivodeships were the least numerous voivodeships in Poland (they accounted for 1% of the total, respectively). Representatives from the other voivodeships averaged 6–8 people per voivodeship. Most respondents had secondary education (37%) and a university degree (36.2%). More than one in five respondents (22.2%) had incomplete higher education. On the other hand, 4.6% of respondents admitted to having basic (primary) and basic vocational education. Respondents most often described their material situation as average, i.e. they declared that their household budget allows them to cover all expenses, but they cannot afford to spend more (48%). One in four respondents (25%) admitted that their budget allows them to cover all expenses, but unfortunately, they are not able to save. Around 14.2% of those surveyed felt that they were unable to meet even their immediate needs. Those who described their financial situation as relatively very good accounted for 12.8% of the total – people who can afford to cover all their expenses and have money to accumulate savings. Respondents were then asked whether they thought Poland should develop renewable energy sources such as wind and solar farms and hydroelectric power plants. As many as 74.8% of respondents (200 women and 133 men) indicated that due to the energy crisis, Poland should develop renewable energy sources: wind and solar farms, in addition to hydroelectric power plants. Respondents were then asked whether they agreed with the statement that using renewable energy sources positively impacts the economy, human health, climate, and the environment. The distribution of respondents' answers is shown in percentage in Figure 1. As can be seen, as many as 361 people (81%) marked the answer: "strongly agree", 43 persons (10%) marked the answer "rather agree", 10 persons (2%) marked the answer "neither agree nor disagree", 28 persons (6%) marked the answer "rather disagree" and only 3 persons (1%) "strongly disagreed" with the statement.

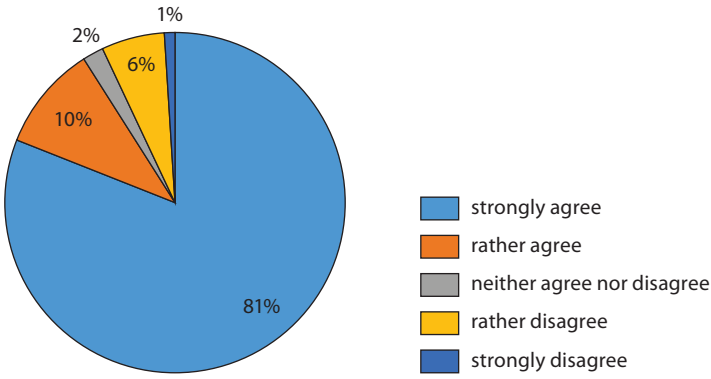

Figure 1. Respondents' opinions on the positive impact of renewable energy sources on the economy, human health, climate, and the environment

Note: *N* = 445, those who knew what renewable energy sources were remained in the sample.

Source: Own compilation.

The responses confirmed that consumers are increasingly aware that renewable energy production positively impacts many areas of life and demonstrates that the modern world needs more and more energy sources. Population growth, the high rate of economic development, and advances in the creation and use of new technologies mean the demand for energy is constantly growing. The majority of survey participants cited the following among the main advantages of introducing renewable energy sources on a wider scale: free and virtually infinite energy (295 people), reduced bills (125 people), solution to an uncertain geopolitical situation (107 people), independence (97 people) streamlining of energy expenditure (91 people), investment in the future (103 people), high efficiency (87 people), ecological solution with a positive impact on climate/environment (77 people), health benefit (57 people). Under "other", the following was entered: reduction of surplus food or uncultivated plants (1 person), reduction of waste (4 people), and long-term guarantee (2 people). Respondents could indicate more than one answer. The results are shown in Figure 2.

The survey results indicate that respondents perceive renewable energy sources as practically inexhaustible and cheaper (free), as their resources are naturally replenished. Considering renewable energy sources for private use (especially photovoltaic installations) – the entire investment is practically limited to the one-time purchase and installation of solar panels with the entire system. When analysing renewable energy sources for commercial use (wind, hydro, geothermal energy), some costs are involved. However, these are still significantly more affordable than those for non-renewable energy sources. On the other hand, among the disadvantages of introducing renewable energy sources on a wider scale the following were indicated: high initial costs (185 people), the long payback period for the investment in renewable energy sources (143 people), limited availability (100 people), and the fewest respondents indicated the harmfulness of some renewable energy sources, e.g., geothermal energy, the use of which can emit harmful gases into the atmosphere or pollute deep water (23 people) in addition to interference with the landscape and natural environment (8 people). Other disadvantages included: the need to understand how modern technology works (1 person), and the need for a sufficiently large space (3 people). Only 10 people did not indicate any disadvantage. Respondents were also asked whether they would like the number of facilities and installed

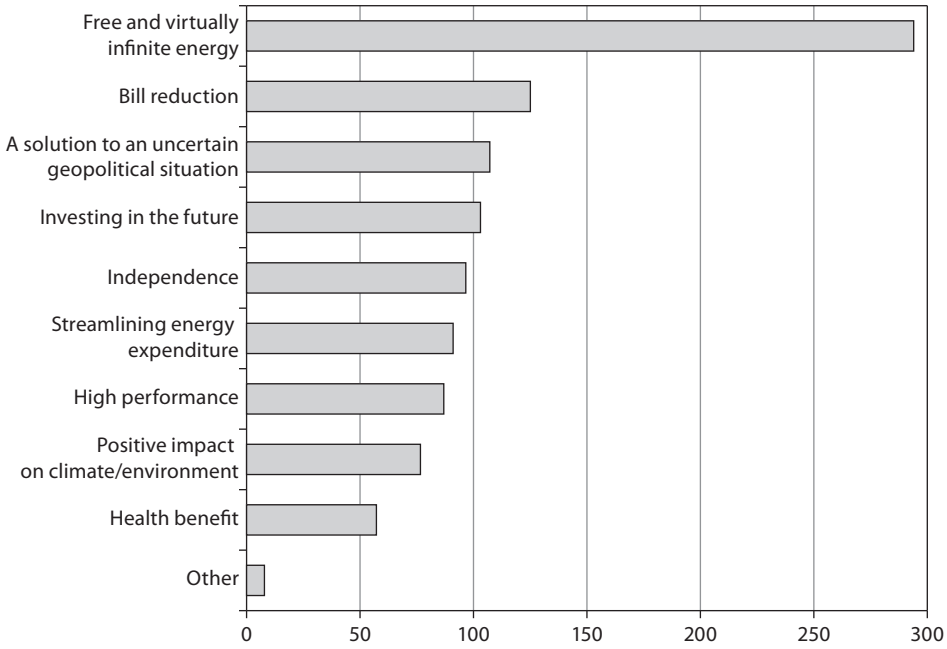

Figure 2. Respondents' opinions on the advantages of renewable energy sources
Note: *N* = 445, those who knew what renewable energy sources were remained in the sample.

Source: Own compilation.

capacity for renewable energy sources to increase in Poland. Nearly 205 people said "definitely yes", 101 people said "probably yes", 105 were "not sure", no one answered "probably no", and 34 people answered "definitely no". The majority of respondents, if given the option, would decide to sell and (or) share the surplus of self-generated energy (e.g., from the use of photovoltaic panels) with neighbours – this was 295 people, 98 people had no opinion, and 52 people replied that they would not decide to do so, justifying it among others by a lack of trust in neighbours or uncertainty about the profitability of such an investment. 445 respondents were also asked about their knowledge of the concept of crowdfunding. 145 people did not know what crowdfunding was about. These were 77 women and 68 men, respectively. On the other hand, 300 people (103 women and 197 men) indicated that they knew what crowdfunding was about and they were the ones who took part in the further survey. When asked whether they thought crowdfunding could positively impact the development of renewable energy sources in Poland, most people answered: "not sure" – 150 people (89 men and 61 women). The remaining individuals considered: "probably yes" (87 men and 12 women), "definitely yes" (20 men and 24 women), "probably no" (1 man and 4 women), and "definitely no" (2 women). The results are shown in Figure 3.

Among those who perceive benefits or are uncertain about the use of crowdfunding in the introduction of renewable energy sources, the following advantages of such a solution were identified: acceleration of the energy transition (113 men and 50 women), optimisation of costs (109 men and 26 women), innovation of the solution (70 women and 42 men), speed of investment (54 men and 43 women), possibility to earn/return on investment (40 men and

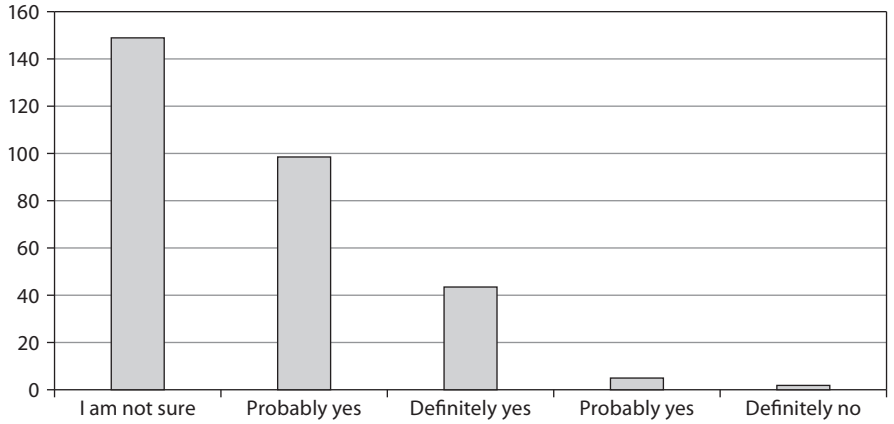

Figure 3. Respondents' opinion on the positive impact of crowdfunding on the development of renewable energy sources in Poland

Note: *N* = 300, there are people in the sample who know what crowdfunding is.

Source: Own compilation.

3 women), support of the idea of sharing resources in the economy (11 men and 11 women), independence from state policy (7 men and 4 women), possibility to be a prosumer (4 women). The results are shown in Figure 4.

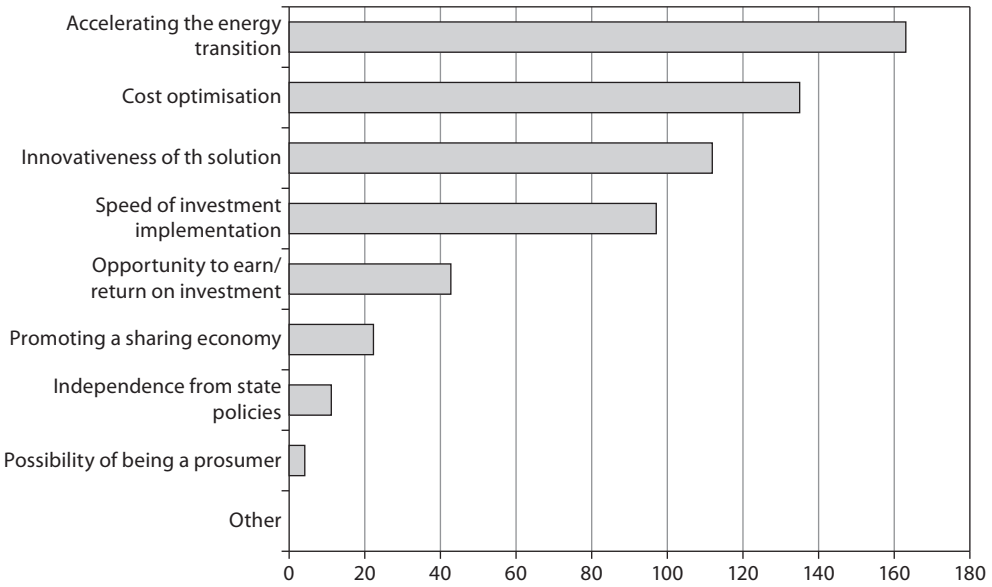

Figure 4. Respondents' opinions on the advantages of using crowdfunding to support renewable energy sources in Poland

Note: *N* = 293.

Source: Own compilation.

The seven people who did not indicate any advantages were from the 60+ age group. 4 people were women and three people were men. They were people with basic (3 people) or basic vocational (4 people) education.

Unfortunately, most respondents (288) were unaware of any specific crowdfunding projects that had raised funding to use renewable energy sources. Only 8 people (3 women and 5 men in the age bracket 18–29 and 30–44 years) pointed to the Photovoltaic Farms campaign and 4 people (4 men in the age bracket 30–44 years) to the action in the United Kingdom, where a 5 MW photovoltaic farm was connected to the grid in Merston, West Sussex, in June, which is entirely owned by residents. Barriers against the use of crowdfunding in the area of renewables included: lack of proper education and information on the subject (210 people – 100 women and 110 men), lack of money (205 people – 87 women and 118 men), unclear regulations (176 people – 89 women and 87 men), lack of projects to invest in (98 people – 13 women and 85 men), no need for using renewable energy sources (56 people – 24 women and 32 men), lack of trust (18 people – 9 women and 9 men). Other options included: lack of popularity in Poland (2 men), lack of a suitable platform for investment (1 man), and lack of real results of such investments (1 man). The results are shown in Figure 5.

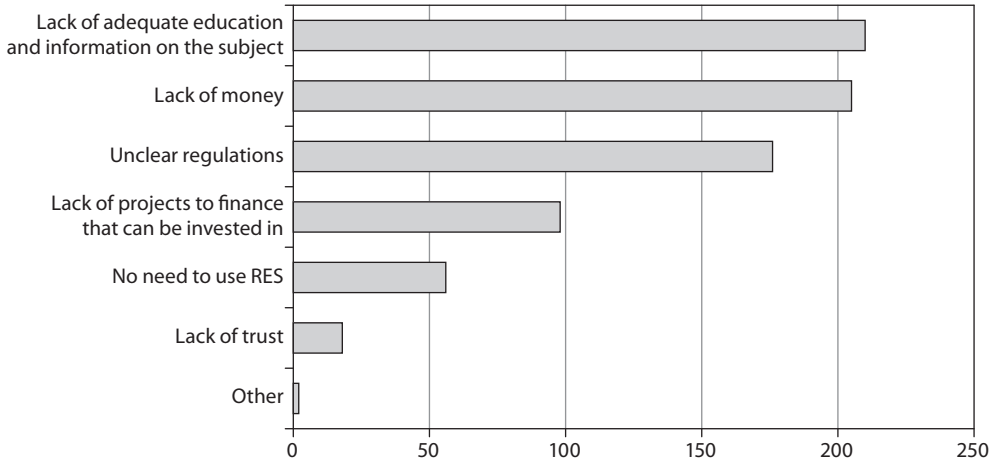

Figure 5. Respondents' opinion on barriers to the use of crowdfunding in supporting the development of renewable energy sources

Note: *N* = 300, all respondents indicated at least one barrier.

Source: Own compilation.

The final question of the survey questionnaire invited respondents to answer whether they would like to participate as a funder in a crowdfunding campaign supporting renewable energy sources. The vast majority answered: "rather yes" (210 people, mainly men aged 18–29). Answers followed this: "definitely yes" – 31 people (mainly men in the age group 18–29), "rather no" – 59 people (mainly men in the age group under 60). This demonstrates public support (primarily by men) for this type of action and a growing awareness and openness to supporting initiatives in the area of renewable energy sources. The results are shown in Table 4.

Table 4. Respondents' willingness to support renewable energy crowdfunding projects

Answer	Age and gender									
	<18		18–29		30–44		45–59		>60	
	M	W	M	W	M	W	M	W	M	W
Definitely yes	4	5	10	3	5	–	3	1	–	–
Rather yes	41	18	78	34	18	10	7	4	–	–
Not sure	–	–	–	–	–	–	–	–	–	–
Rather no	6	3	4	8	2	9	4	3	15	5
Definitely no	–	–	–	–	–	–	–	–	–	–
Total	51	26	92	45	25	19	14	8	15	5

Note: $N = 300$. The abbreviation "M" indicates the male group, and the abbreviation "W" the female group.

Source: Own compilation.

The survey can help raise general public awareness of crowdfunding, its benefits and barriers, and its potential use in the area of energy transition. A survey of public attitudes can help project proponents understand which aspects of their project are most compelling to potential investors and which are least so. They can adapt their communication and strategy to better appeal to public expectations.

5. Conclusions

When summarising the literature and document analysis and our research results, we can conclude that crowdfunding can be a good way to finance projects in the area of renewable energy sources. This is because there is public support for this type of activity and a growing awareness and openness to support initiatives in the area of renewable energy sources. People participating in crowdfunding can contribute to the construction of renewable energy installations while benefiting from the investment. In addition to regaining initial capital, they can earn a fixed annual return over the project's life while the developer frees up funds for future projects. Crowdfunding various green initiatives helps increase public interest in green energy and promotes its development. In this way, investments in renewable energy become more accessible to a wide range of people, helping to accelerate the energy transition. The author's conclusions are compatible with those of other authors cited in the text. The article can contribute to a better understanding of the role of crowdfunding in the energy transition and identify effective strategies for its development and use. Companies can take advantage of the trend of increasing public awareness in this area to build a positive image and greater support for their projects. Energy companies and developers can consider this option to raise capital for projects, especially if traditional funding sources are difficult to access. It is also recommended that educational programs be developed to help the public understand the risks and benefits of this form of investment.

The article does not exhaust the entire subject matter. In the future, the research sample will be expanded, and new crowdfunding projects in this area will be analysed. The lack of a single central platform or database that records all these transactions makes it difficult to gather a complete picture of the phenomenon's scale, particularly about renewables.

References

Abundanceinvestment. (2023). *Mobilise your money for good*. https://www.abundanceinvestment.com/

Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, *22*, 493–520.

Better Invest. (2023). *Your guide to short-term, high-yielding movie investments with BetterInvest*. https://www.betterinvest.club/

Bi, S., Liu, Z., Usman, K. (2017). The influence of online information on investing decisions of reward-based crowdfunding. *Journal of Business Research*, *71*(C). https://www.sciencedirect.com/science/article/abs/pii/S0148296316305707

Bonzanini, D., Giudici, G., Patrucco, A. (2016). The crowdfunding of renewable energy projects. In V. Ramiah, G. N. Gregoriou, *Handbook of environmental and sustainable finance* (pp. 429– 444). http://dx.doi.org/10.1016/B978-0-12-803615-0.00021-2.

Broniszewski, M. (2016). Rozwój podmiotów ekonomii społecznej w Polsce ze szczególnym uwzględnieniem regionu opolskiego – uwarunkowania instytucjonalnoorganizacyjne. *Ekonomia Społeczna*, *2*, 38–47.

Cézanne, C., Rigot, C. S., Saglietto, L. (2021). Bibliometric analysis of research on renewable energy crowdfunding: An assessment and policy implications. *Revue d'économie industrielle*, *175*(3e trimestre 2021), 9–39. https://doi.org/10.4000/rei.10604

Chesbrough, H. (2002). The role of the business model in capturing value from innovation: Evidence from Xerox Corporation's technology spin-off companies. *Industrial and Corporate Change*, ***11***(3), 529–555. https://doi.org/10.1093/icc/11.3.529

Crowdfundme. (2023). *Investi con CrowdFundMe*. https://www.crowdfundme.it/

De Buysere, K., Gajda, O., Kleverlaan, R., & Marom, D. (2012). *A Framework for European crowdfunding. Resource document*. European Crowdfunding Network. https://ncfacanada.org/wp-content/uploads/2012/11/FRAMEWORK_EU_CROWDFUNDING-ECN.pdf

Dyląg, A., Kassenberg, A, Szymalski, W. (2019). *Energetyka obywatelska w Polsce – analiza stanu i rekomendacje do rozwoju*. Warsaw: Instytut na rzecz Ekorozwoju.

Eco Bazaar. (2023). Ecobazaar.pl

Ecoligo. (2023). *Get invested in the climate fight. Fund solar projects. Get a return. Save the planet*. https://ecoligo.com/en/

Enel Green Power. (2023). We're making the energy transition process happen. For real. www.enelgreenpower.com

EnerFund. (2023). www.enerfunding.pl

Ethex. (2023). Make money do good. https://www.ethex.org.uk/

Gomez, P. Alonso., (2018). *Crowdfunding Renewable Energy. A Practical Guide for Crowdfunding Platforms, Project Developers, Investors, and Policy Makers*. CrowdFundRES.

Hansmann, H. (1987). Economic theories of nonprofit organization. In W. W. Powell (Ed.), *The nonprofit sector: A research handbook* (pp. 27–42). New Haven: Yale University Press.

Harrison, R. (2013), Crowdfunding and the revitalization of the early stage risk capital market: catalyst or chimera? *Venture Capital*, *15*(4), 283–287.

Hervé, F., Schwienbacher, A. (2018). Crowdfunding and innovation. *Journal of Economic Surveys*, *32*(1), 1514–1530. https://doi.org/10.1111/joes.12274

Huijben, J. C. C. M., Verbong, G. P. J. (2013). Breakthrough without subsidies? PV business model experiments in the Netherlands. *Energy Policy*, *56*(C), 362–370. https://doi.org/10.1016/j.enpol.2012.12.073.

Jonek-Kowalska, I. (2020). Finansowanie podmiotów ekonomii społecznej a rozwój przedsiębiorczości społecznej w Polsce. Wnioski sprzed kryzysu wywołanego przez COVID-19 i refleksje pokryzysowe. In M. Ćwiklicki, K. Sienkiewicz-Małyjurek (Eds.), *Ekonomia Społeczna. Przedsiębiorczość społeczna w czasie kryzysu* (pp. 78–91). Kraków: Uniwersytet Ekonomiczny w Krakowie. https://doi.org/10.15678/ES.2020.2.07

Kaufmann, R. K, Newberry, D., Xin, C., & Gopal, S. (2021). Feedback among electric vehicle adoption, charging, and the cost and installation of rooftop solar photovoltaics. *Nature Energy*, *6*, 143–149. http://dx.doi.org/10.1038/s41560-020-00746-w

Lam, P. T. I., Law, A. O. K. (2016). Crowdfunding for renewable and sustainable energy projects: An exploratory case study approach. *Renewable and Sustainable Energy Reviews*, *60*, 11–20. http://dx.doi.org/10.1016/j.rser.2016.01.046

Lehner, O. M., (2013). Crowdfunding social ventures: a model and research agenda. *Venture Capital*, *15*(4), 289–311. https://doi.org/10.1080/13691066.2013.782624

Mędrzycki, R. (2019). Odnawialne źródła energii w kontekście solidarności społecznej – wprowadzenie do problematyki. *Internetowy Kwartalnik Antymonopolowy i Regulacyjny*, *1*(8). https://doi.org/10.18778/1429-3730.43.03

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study, *Journal of Business Venturing*, *29*(1).

Morris, C., Jungjohann, A. (2016). *Energy Democracy: Germany's energiewende to renewables*. Palgrave Macmillan.

Mosaic. (2023). *Financing options for professional contractors*. https://joinmosaic.com/

Nowiński, E. (2021). Transformacja energetyki a bezpieczeństwo energetyczne Polski. *Nowa Energia*, *3*, 42–46.

Nyssens, M., S. A., & Johnson, T. (2006). Social enterprise: at the crossroads of market, public policies and civil society. *Routledge Studies in the Management of Voluntary and Non-Profit Organizations*. London and New York: Routledge.

Okraszewska, E. (2016). Demokracja energetyczna – społeczeństwo jako prosument energii elektrycznej, *Gospodarka w Praktyce i Teorii*, *43*(2), 39–50. http://dx.doi.org/10.18778/1429-3730.43.03

PolakPotrafi. (2023). https://polakpotrafi.pl/projekty/?cat=inne

Pomagam.pl. (n.d.). https://pomagam.pl/

Rifkin J. (2011). *The third industrial revolution: How lateral power is transforming energy, the economy, and the world*. Palgrave MacMillan.

Schwienbacher, A. & Larralde, B. (2010). Crowdfunding of small entrepreneurial ventures. In D. Cumming (Ed.), *Handbook of Entrepreneurial Finance* (pp. 369–391). Oxford University Press. http://dx.doi.org/10.2139/ssrn.1699183

Sobol, A. (2014). Crowdfunding jako oddolne narzędzie realizacji zrównoważonego rozwoju. *Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania*, *37*(2), 137–146.

Stasik, A. (2018). Zastosowanie crowdfundingu we wspieraniu innowacji w dziedzinie zielonej energii: przegląd praktyk oraz diagnoza potencjału i barier, *E-mentor, 1*(73). https://cejsh.icm.edu.pl/cejsh/element/bwmeta1.element.desklight-430f23d6-3125-4907-855c-19afce184686.

Steinberg, S. (2012). *The crowdfunding Bible: How to raise money for any startup, video game or project*. Lulu.com.

Tkacz, M. (2016). New generation of social entrepreneurs: Exploratory research and cross case study analysis of new generation of social enterprises. *Ekonomia Społeczna*, *2*, 20–37. https://doi.org/10.15678/ES.2016.2.02

Tokarski, S. (2022). Co się zmieni po wybuchu wojny na Ukrainie? *Nowa Energia*, *2*(83), 10–16.

Trine. (2023). *It's easy to invest in a greener future*. https://trine.com/

Wasilewski, J., Kaleta, M., Baczyński, D. (2015). Selected issues of energy microgrid development in Poland, *Polityka Energetyczna – Energy Policy Journal*, *18*(1), 45–58.

Wheat, R. E., Wang, Y., Byrnes, J. E., Ranganathan, J., (2013). Raising money for scientific research through crowdfunding. *Trends in Ecology & Evolution*, *28*(228), 71–72. https://doi.org/10.1016/j.tree.2012.11.001

Wick, M. (2013). *Crowdfunding. An introduction*. Blue Beetle Books.

Witoszek, A. (2016). Crowdfunding jako źródło finansowania przedsiębiorstw innowacyjnych w fazie początkowego rozwoju. In M. Makowiec, & M. Adamczyk (Eds.), *Uniwersytet przedsiębiorczy – perspektywy i wyzwania gospodarki innowacyjnej* (pp. 103–114). Kraków: Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie.

Vasileiadou, E., Huijben, J. C. C. M., & Raven, R. P. J. M. (2016). Three is a crowd? Exploring the potential of crowdfunding for renewable energy in the Netherlands. *Journal of Cleaner Production*, *128*, 142–155. https://doi.org/10.1016/j.jclepro.2015.06.028

Zabłocki, M. (2013). Determinanty wykorzystania odnawialnych źródeł energii w Polsce. *Technika Poszukiwań Geologicznych. Geotermia, Zrównoważony Rozwój*, 52(2), 29–44.

Zott, C., Amit, R., & Massa, L. (2011). The business model: Recent developments and future Research. *Journal of Management, 37*(4), 1019–1042. https://doi.org/10.1177/0149206311406265

Ziobrowska, J. M. (2016). Crowdfunding jako nowoczesna forma wsparcia przedsięwzięć społecznych, kulturowych i biznesowych. *Finanse, Rynki Finansowe, Ubezpieczenia*, *3*(81), 285–295.

Appendix. Questionnaire survey

1. *Do you know what renewable energy sources are?* (Filter question)
   A. Yes
   B. No (refer to metric)
2. *Do you think that Poland should develop renewable energy sources such as wind and solar farms and hydroelectric power plants?*

   A. Yes
   B. No
   C. I have no opinion
3. *Do you agree with the statement that the use of renewable energy sources has a positive impact on the economy, human health, the climate, and the environment?*
   A. Strongly agree
   B. Rather agree
   C. Neither agree nor disagree
   D. Rather disagree
   E. Strongly disagree
4. *What do you see as the main advantages of introducing renewable energy sources on a wider scale?*
   A. Free and virtually infinite energy
   B. Reducing bills
   C. A solution to an uncertain geopolitical situation
   D. Independence
   E. Rationalising energy expenditure
   F. Investing in the future
   G. High performance
   H. Green solution with a positive impact on climate/environment
   I. Health benefit
   J. Other … (which)
   K. I do not see the advantages.
5. *What do you see as the disadvantages of introducing renewable energy sources on a wider scale?*
   A. High initial costs
   B. Long payback period for investment in renewable energy sources
   C. Limited availability
   D. The harmfulness of some RES, e.g. geothermal energy, the use of which can result in the emission of harmful gases into the atmosphere or the pollution of deep water
   E. Interference with landscape and environment
   F. Other … (which)
   G. I do not see any flaws.
6. *Would you like to see an increase in the number of facilities and installed capacity for renewable energy sources in Poland?*
   A. Definitely yes
   B. Probably yes
   C. Not sure
   D. Probably not
   E. Definitely no.
7. *If you were in a position to do so, would you choose to sell and/or share surplus self-generated energy (e.g. from the use of photovoltaic panels) with your neighbours?*
   A. Yes
   B. No (justify)
   C. I have no opinion.

8. *Do you know what crowdfunding is all about?*
   A. Yes
   B. No (refer to metric)
9. *Do you think crowdfunding can have a positive impact on the development of renewable energy sources in Poland?*
   A. Definitely yes
   B. Probably yes
   C. Not sure
   D. Probably not
   E. Definitely no.
10. *What advantages do you see in using crowdfunding to support renewables?*
   A. Accelerating the energy transition
   B. Cost optimization
   C. Innovation of the solution
   D. Speed of investment
   E. Opportunity to earn/return on investment
   F. Promoting resource sharing in the economy
   G. Independence from state policy
   H. The possibility of being a prosumer
   I. Other… (which)
11. *Do you know of specific crowdfunding projects that have raised funding for the use of renewable energy sources? If yes, indicate examples.*
   A. Yes …
   B. No.
12. *What barriers do you see against the use of crowdfunding in the area of renewables?*
   A. Lack of adequate education and information on the subject
   B. Lack of money
   C. Unclear regulations
   D. Lack of projects in which to invest
   E. No need for renewable energy sources
   F. Lack of confidence that the project will succeed
   G. Other … (which)
13. *Would you like to participate in a crowdfunding campaign supporting renewable energy sources as a funder shortly?*
   A. Definitely yes
   B. Rather yes
   C. Not sure
   D. Rather not
   E. Definitely no.

Metrics

14. *Gender*:
   A. Female
   B. Male
   C. Other
   D. I do not wish to specify

15. *Age*:
    A. Under 18 years
    B. 18 years – 29 years
    C. 30 years – 44 years
    D. 45 years – 59 years
    E. Over 60 years
16. *Region of residence*:
    A. Dolnośląskie
    B. Kujawsko-Pomorskie
    C. Lubelskie
    D. Lubuskie
    E. Łódzkie
    F. Małopolskie
    G. Mazowieckie
    H. Opolskie
    I. Podkarpackie
    J. Podlaskie
    K. Pomorskie
    L. Śląskie
    M. Świętokrzyskie
    N. Warmińsko-Mazurskie
    O. Wielkopolskie
    P. Zachodniopomorskie
17. *Education*:
    A. Basic
    B. Basic vocational education
    C. Medium (secondary education)
    D. Incomplete higher
    E. Higher
18. *Material situation*:
    A. I can afford to cover all my expenses and I have savings to build up from.
    B. The household budget allows for current expenses, but I cannot afford larger, often unplanned expenses.
    C. The budget allows for all expenses, but unfortunately I am not able to save.
    D. I am unable to meet even the most urgent needs.

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