

Young people facing the challenges of sustainable development

Conference Proceedings Student's Poster Session
of the CMQ2024 Conference

Edited by
Janusz Nesterak
Agata Niemczyk
Zofia Gródek-Szostak
Robert Szydło



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Introduction

The topic of sustainable development has been discussed extensively and touches every aspect of life. Therefore, discussions about it are not without foundation. What would the world look like without attention to sustainable development? One only needs to think of the first association – the effects of climate warming. Hence, the care for planet Earth, manifesting in the efficient management of every sector of the economy, serves as a premise for discussion at our conference.

As part of the 16th International Scientific Conference of the College of Management and Quality Sciences at the Krakow University of Economics (CMQ 2024), students were invited to seek answers to how businesses, local governments, and organizations deal with the idea of sustainable development. Is it just a trendy slogan, a real problem, or perhaps a challenge in today's reality?

Students have engaged with the topic and prepared posters addressing the following areas:

- Innovation management in industry markets
- Housing economy and its relationship with socio-economic changes
- Intellectual capital in a sustainable knowledge-based economy
- The concept of smart development in cities, regions, and organizations
- Renewable energy sources and responsible consumption
- Regional conditions for sustainable development
- Sustainable finance for businesses, local governments, and households
- Sustainable cities and regions – what does this mean?
- Sustainable organizations – what does this entail?
- Sustainable development for current and future generations
- Sustainable accounting practices
- Sustainable development in public administration.

The discussed topics are included in the collection of posters presented to you. This collection comprises works by students from all Colleges of the Krakow University of Economics, the Bronisław Czech University of Physical Education in Kraków, University of Wrocław, School of Management and Banking in Krakow and the Karkonosze Academy of Applied Sciences in Jelenia Góra, submitted for the student conference as part of the 16th International Scientific Conference CMQ2024 of the College of Management and Quality Sciences at the Krakow University of Economics.

The poster presentations took the form of a discussion session, during which students could thoroughly discuss their work. This initiative enriches the educational process by offering public and interactive presentations that promote a deep understanding of the discussed topics. Such meetings provide an important forum for the exchange of knowledge and reflection, giving students the opportunity to present their research and receive valuable feedback.

The editors of this monograph hope that the content of the presented posters will not only provide cognitive value to the current students, to whom the publication is addressed, but also inspire future cohorts to develop their research skills. The presented works aim not only to discuss important thematic aspects but also to encourage students to deepen their knowledge and develop research skills. Through these presentations, future generations of students can find inspiration for their own research, creative thinking, and exploration of new areas in the fields of management and economics.

The editors are convinced that the publication of this collection of posters will contribute to creating a dynamic academic environment conducive to the intellectual and research development of students.

Prof. UEK dr hab. **Janusz Nesterak**
Prof. UEK dr hab. **Agata Niemczyk**

Dr **Zofia Gródek -Szostak**
Dr **Robert Szydło**

Krakow, August 2024

Krakow is the second biggest city in Poland. It is rapidly developing and it is said that Krakow is Polish capital of start-ups. Kraków remains among the top cities for being the most business-friendly and with the greatest economic potential. And what are the factors that make Krakow the most friendly city to set up your start-up?

It may seem that creating and working on your start-up is easy but according to the data, a whopping 9/10 start-ups fail. With this poster I want to show you what factors can increase your chances of success, what you should pay attention to and maybe even encourage you explore the topic further and to follow your dreams of setting up your own start-up.

<i>Factors favoring start-ups in Krakow</i>	Examples	How does it work?
<p>University facilities In Cracow there are over 20 Schools of higher education which can provide you with necessary knowledge and with whom you can cooperate to grow and develop your start-up.</p>		<p>Universities offer help to people with numerous initiatives. E.g. Transfer Wiedzy (UEK) Offers training, consulting services and conducting surveys.</p>
<p>Organizations Both Krakow and numerous NGOs offer various support for startups.</p>	 	<p>These organizations help by:</p> <ul style="list-style-type: none"> • applying for grants for start-ups • co-organizing industry events • mentoring and guiding • promoting start-ups • giving contacts to potential customers or partners • sharing know-how with new start-ups
<p>Multitude of companies There are branches of many international corporations in Kraków that can offer help to promising start-ups by investing or offering cooperation, often sharing technology. As a result, both corporation and the startup gain benefits.</p>	 	<p>Sabre Dev Studio offers startups access to a lot of application programming interfaces for integrating travel components. Sabre also works with companies, including start-ups, integrating their technology with Sabre products. In addition, the company sponsors community events and technology conferences.</p> <p>ABB's Industrial AI Accelerator is an program focused on cooperating with startups in the field of artificial intelligence.</p>
<p>Events Krakow is host to many important industry events where you can promote your venture and gain a lot of information, knowledge from more experienced entrepreneurs and crucial contacts with both investors and clients. These types of meetings are a good way to increase your chances of success in the business world.</p>	<ul style="list-style-type: none"> ▪ Akademicki Maraton Innowacji ▪ Newcomers Welcome Club ▪ Open Coffee KRK ▪ Design Ways Conference 	<p>Akademicki Maraton Innowacji is an intensive event where students and researchers work to solve problems or create new technology projects. It lasts several days and promotes interdisciplinary collaboration to develop creative solutions.</p> <p>Open Coffee KRK is a regular event for people who want to promote their business, meet diverse people and to gain opportunity to develop.</p>

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KANS
Karkonoska Akademia Nauk
Stosowanych w Jeleniej Górze

POLES' EXPECTATIONS OF THE TOURIST OFFER IN 2024

Joanna Balcerzak Agata Pisarczyk
Julia Wierzbicka Lena Kamińska Krystian Kijak

AIM

Investigating what amenities on tourist trips affluent respondents expect in 2024

ANALYSIS

The survey involved 324 respondents of whom 107 qualified as wealthy

HYPOTHESIS

As the economic situation increases, expectations of the tourism product increase

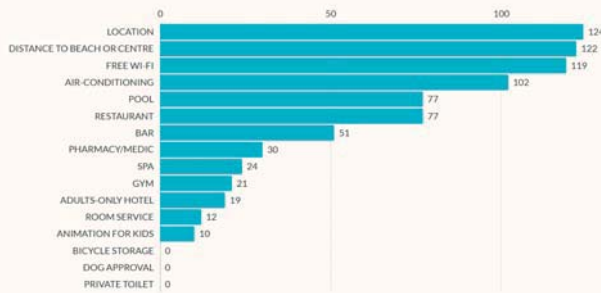
SPATIAL SCOPE

Poland

TIME SCOPE

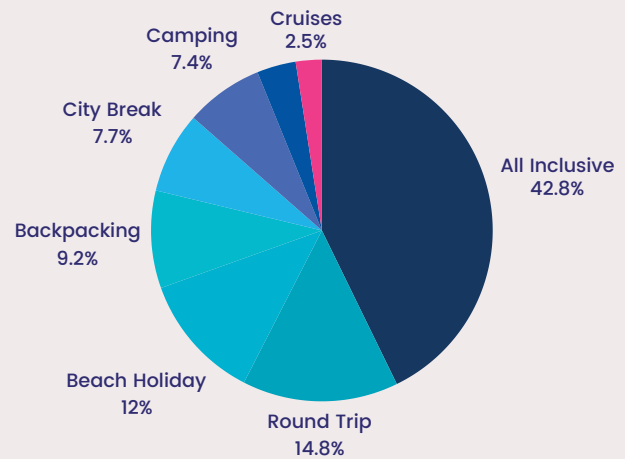
15.04.2024 - 30.04.2024

TOURISM OFFER PREFERENCES OF LOWER-MIDDLE CLASS* AND MIDDLE CLASS**

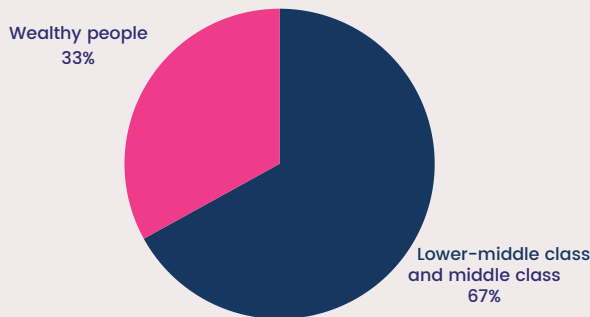


*RESPONDENTS WITH INCOME PER 1 PERSON IN HOUSEHOLD TO 3000 PLN
**RESPONDENTS WITH INCOME PER 1 PERSON IN HOUSEHOLD TO 5000 PLN

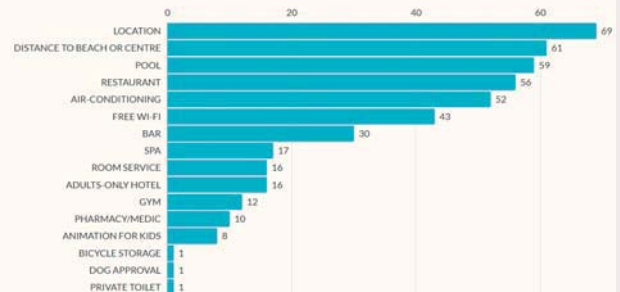
Choice of trip type:



Economic status of respondents



TOURISM OFFER PREFERENCES OF WEALTHY PEOPLE*



*RESPONDENTS WITH INCOME PER PERSON IN HOUSEHOLD MORE THAN 5000PLN

CONCLUSIONS

According to a study conducted on a sample of 324 people, we can see that wealthy people pay more attention to the equipment and amenities included in a tourist product than people with a lower financial status. In both cases, the dominant aspect in the selection of offers is the location and availability of air conditioning. In the case of wealthy people, we can observe that they do not focus on access to free Wi-Fi, but a more important criterion is the presence of a swimming pool, restaurant, bar, room service, and spa.

IMPLICATION

Respondents are more willing to use additionally paid services or look for more amenities in tourist products if their economic situation allows it.

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LET'S LIGHT HOSPITALITY UP!

The purpose of this poster is to raise awareness and promote sustainable solutions in the hospitality industry that needs lighting up to become more environmentally-friendly and bring the human being back to Nature. source: Canva

• Solar energy

Solar Energy allows businesses to:

1. save on energy bills, reducing their operational costs in the long run
2. reduce the carbon footprint and environmental impact of the hospitality industry
3. attract environmentally-conscious customers and investors
4. increase the hotel's value
5. become independent in terms of electricity

• The core of Hospitality

A Good Host is unconditionally available for their Guest, using any resources they have: material, emotional, spiritual. Such a person wants to make their Guest feel the best possible and provide them experience that will encourage them to come back.

• Relax in the Nature

Exposure to the Nature contributes to well-being increasing pleasant feelings, reduces blood pressure, heart rate, production of stress hormones and muscle tension.

According to Stamatakis and Mitchell, it can even reduce mortality.

• Organic local food

Local products produced in sustainable farms are essential for humans health. organic local products are fresh, tasty and nutritioux. Hotel objects benefit from offering their guests good quality food product. source: my photo

The solar solutions that bring some more light into the hospitality industry are:

- PV Pannels
- Solar thermal cooling system
- Solar powered heat pump

• Filtered water

Filtered water is a sustainable solution for providing drinks for hotel Guests and keeping hotel staff hydrated. It helps to reduce waste and supports local communities.

Changing plastic bottles into filtered tap water is a way to a better future of the industry.

Conclusions

Implementing various enviromentally-friendly solutions into hospitality industry is certainly increasing people's wellbeing through offering organic local products, using renewable energy and bringing Nature into humans life. It helps local economy grow and supports small businesses to thrive.

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source: my photo

REVOLUTION IN THE GLOBAL ECONOMY: INNOVATIONS IN BLOCKCHAIN DEVELOPMENT

INTRODUCTION:

BLOCKCHAIN IS A DISTRIBUTED DATABASE THAT CONTAINS DATA ABOUT ALL TRANSACTIONS CONDUCTED BY THE SYSTEM'S PARTICIPANTS. THE INFORMATION IS STORED IN THE FORM OF A "CHAIN OF BLOCKS," EACH OF WHICH RECORDS A SPECIFIC NUMBER OF COMMUNICATIONS.

THE BLOCKCHAIN TECHNOLOGY AND CRYPTOCURRENCY MARKET ARE DEMONSTRATING DYNAMIC DEVELOPMENT AND ATTRACTIVENESS, DRAWING THE KEEN ATTENTION OF NOT ONLY MAJOR FINANCIAL ORGANIZATIONS BUT ALSO ORDINARY INTERNET USERS. THE NOVELTY OF THIS TECHNOLOGY LIES IN THE FACT THAT TRANSACTION INFORMATION IS NO LONGER STORED IN A CENTRALIZED DATABASE BUT IS INSTEAD DISTRIBUTED TO THE COMPUTERS OF ALL NETWORK PARTICIPANTS, WHO STORE THE DATA LOCALLY.

GOALS OF THE POSTER:
TO SHOWCASE BLOCKCHAIN AS AN INNOVATION IN THE GLOBAL ECONOMY AND BUSINESS AS A WHOLE. PROVIDE RECOMMENDATIONS FOR ORGANIZATIONS THAT WANT TO INTEGRATE BLOCKCHAIN TECHNOLOGY INTO THEIR BUSINESS MODELS.

ADVANTAGES OF BLOCKCHAIN

BLOCKCHAIN OFFERS SIGNIFICANT ADVANTAGES OVER THE CURRENT ECONOMY, INCLUDING DECENTRALIZATION, TRANSPARENCY, AND ENHANCED SECURITY. THE TECHNOLOGY REDUCES COSTS BY ELIMINATING INTERMEDIARIES AND AUTOMATING TRANSACTIONS, ENSURES NEAR-INSTANT TRANSACTION SPEEDS, AND GUARANTEES DATA IMMUTABILITY. BLOCKCHAIN ALSO MAKES FINANCIAL SERVICES MORE ACCESSIBLE AND OPENS UP NEW OPPORTUNITIES FOR INNOVATIVE BUSINESS MODELS..

ADVANTAGES OF BLOCKCHAIN OVER BANKING SYSTEMS

THE PAYMENT SECTOR, WHERE TRADITIONAL TRANSACTIONS SUCH AS MONEY TRANSFERS, CREDIT AND DEBIT CARD PAYMENTS, WIRE TRANSFERS, CURRENCY EXCHANGE, AND ONLINE PAYMENTS, REQUIRE AN INTERMEDIARY, SUCH AS A CLEARINGHOUSE OR BANK. IN A BLOCKCHAIN-BASED SYSTEM, THERE IS NO NEED FOR AN INTERMEDIARY TO FACILITATE A TRANSACTION; IT OCCURS DIRECTLY BETWEEN THE BUYER AND THE SELLER, AND VERIFICATION ALSO HAPPENS IN A DECENTRALIZED MANNER, USING A DISTRIBUTED LEDGER. THIS WILL LEAD TO SIGNIFICANT INFRASTRUCTURE SAVINGS FOR BANKS, AS IT WILL ALLOW THEM TO ELIMINATE PAYMENT NETWORKS, WHICH ARE SLOW, CUMBERSOME, AND EXPENSIVE.

AN OPTIMAL SOLUTION COULD BE THE ADOPTION OF BLOCKCHAIN AS A LEDGER FOR PAYMENTS BETWEEN BANKS BELONGING TO THE SAME GROUP. EACH BANK WOULD ACT AS A PRIVATE PARTICIPANT IN THE BLOCKCHAIN NETWORK. SUCH A MODEL COULD BE EXTENDED TO BANKS BELONGING TO DIFFERENT GROUPS OR INTERNATIONAL PAYMENT SYSTEMS. AN EXAMPLE OF AN INTERNATIONAL PAYMENT SYSTEM BASED ON BLOCKCHAIN TECHNOLOGY, WHERE THE CONTROL DEVICE NODES ARE MANAGED BY IDENTIFIED FINANCIAL INSTITUTIONS.

IMPACT OF BLOCKCHAIN ON TRADITIONAL BUSINESS

THE TECHNOLOGY INFLUENCES THE DEVELOPMENT AND CREATION OF SERVICES FOR SELLING SPECIFIC SERVICES, SPECIALIZED BLOCKCHAIN CONSORTIA ARE CREATED TO STUDY THE TECHNOLOGY AND IMPLEMENT IT IN THE CRYPTO INDUSTRY.

THE IMPLEMENTATION OF BLOCKCHAIN TECHNOLOGY IS EXPECTED TO LEAD TO THE EMERGENCE OF NEW BUSINESS SCENARIOS CAPABLE OF TRANSFORMING ENTIRE INDUSTRIES, FROM FINANCE TO HEALTHCARE. BLOCKCHAIN HAS THE POTENTIAL TO SIGNIFICANTLY IMPROVE TAX DISCIPLINE. IT ADDRESSES TECHNOLOGY DEVELOPMENT, OPERATIONAL ACTIVITIES, AND LABOR RESOURCES. IT RAISES NEW TAX, LEGAL, AND REGULATORY ISSUES. BLOCKCHAIN TECHNOLOGY POSES A THREAT TO THE BUSINESS OF SPECIALIZED SOFTWARE PROVIDERS.

RECOMMENDATIONS

- ANALYZE YOUR NEEDS
- START WITH PILOT PROJECTS
- COLLABORATE WITH EXPERTS
- INVEST IN TRAINING
- ASSESS LEGAL ASPECTS.

CONCLUSION

BLOCKCHAIN TECHNOLOGY GENERATES ENTIRELY NEW BUSINESS SCENARIOS THAT WILL NOT ONLY COMPLETELY TRANSFORM ENTIRE INDUSTRIES IN THE FUTURE BUT ALSO LEAD TO THE DISAPPEARANCE OF SOME, SUCH AS INTERMEDIATION. RADICAL CHANGES WILL AFFECT BUSINESS MODELS AND PROCESSES, SUPPLY CHAINS, AND COMPANY-CUSTOMER RELATIONSHIPS IN ALL SECTORS OF THE ECONOMY.

[HTTPS://CYBERLENINKA.RU/ARTICLE/N/VLIYANIE-BLOKCHEYN-NA-MIROVUYU-EKONOMIKU/VIEWER](https://cyberleninka.ru/article/n/vliyaniye-blokcheyn-na-mirovuyu-ekonomiku/viewer)

BURNOUT – COUNTERACTING AND AID IN PRACTICE – STUDENTS PERSPECTIVE

Burnout is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: 1) feelings of energy depletion or exhaustion; 2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and 3) a sense of ineffectiveness and lack of accomplishment. Burn-out refers specifically to phenomena in the occupational context and should not be applied to describe experiences in other areas of life.

3 aspects of burnout

- personal
- interpersonal
- organisational



Characteristic symptoms:

Demoralization/ subjective incompetence, fatigue or loss of energy, increased irritability

Common symptoms:

Loss of interest or pleasure, anxiety, derealization, depersonalization, changes in appetite or weight, insomnia or hypersomnia, psychomotor agitation or retardation

Sometimes present symptoms:

Depressed mood

Research results

64%	declare to know how to help a person suffering from a burnout
23,9%	would advise them to change their values
17,9%	would advise them to find or focus on a hobby
10,4%	would advise them to increase the amount of physical activity
7,5%	would advise them to focus on their health
31,3%	would advise them to rest and take a break from work
70,1%	would recommend them visiting a specialist
20,9%	would recommend them talking with their boss or colleagues
38,8%	would inform close ones of this person about their current situation
47,8%	would approach this person in an especially empathetic manner
74,6%	would talk to or hear out them out
9%	would suggest spending time together
7,5%	would try to distract them from the problem

Burnout treatment

- Dropping obligations and rest from work
- Informing social network
- Registration of stress and activities
- Relaxation exercises
- Healthy lifestyle advice
- Analyzing dysfunctional thought patterns
- Learning new coping skills
- Time management
- Setting priorities regarding quality of life and interpersonal relationships
- Changing work patterns
- Obtaining social support (both from colleagues and family)
- Counseling, therapy, self-analytic techniques

"It's worth talking with someone close to them to find a proper psychological or therapeutical aid together."

"In many instances, change of bad habits may help."

"We should express understanding and thank them for sharing their problem with us."

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EDUCATION FOR ALL

"**Education for All**" is an idea that aims to ensure equal educational opportunities for all individuals, regardless of their differences in background, social status, gender, or age. This comprehensive concept involves a range of actions and initiatives aimed at eliminating any barriers that may hinder access to learning. In practice, this entails undertaking various actions, such as constructing schools in less developed regions, providing free access to education, creating support programs for people with disabilities, and promoting gender equality in the education system.

One of the fundamental principles of **Education for All** is the belief that education is a fundamental right of every human being and a key driver of social, economic, and personal development. Implementing this concept requires taking diverse actions at the local, national, and international levels. Here are some key aspects of **Education for All**:

ACCESSIBILITY

Ensuring that everyone has the opportunity to attend school regardless of their living conditions or geographic location. That means building schools in rural areas and poor urban neighborhoods, school transportation for children living in remote areas, and support programs for the disabled.

QUALIFY OF EDUCATION

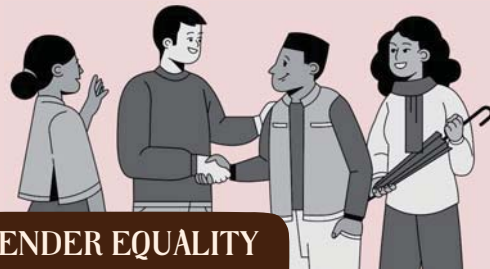
Ensure quality teaching and school infrastructure. This requires properly qualified teachers, up-to-date textbooks, modern teaching methods and well-equipped classrooms and studios.

DIVERSE EDUCATIONAL NEEDS

Consider the diversity of students' educational needs, including children with disabilities, students from ethnic or linguistic minorities, and adult learners.



Implementing **Education for All** requires the involvement of public authorities, local communities, NGOs, the private sector and civil society. It is a long-term process that requires continuous monitoring, evaluation and adaptation to changing needs and challenges. Nevertheless, investing in education for all brings many social, economic and individual benefits, contributing to a more equitable, sustainable and developed society.



GENDER EQUALITY

Ensuring equal educational opportunities for girls and boys. This means fighting gender discrimination in education, promoting girls' access to schools, and providing educational programs that take into account the needs of girls and boys.

FINANCIAL ACCESSIBILITY

Ensuring that the cost of education is not an obstacle for students and their families. This could include free schooling, scholarships for students from less affluent families, free textbooks or the provision of school meals.



BUILDING A SUSTAINABLE FUTURE

Essential Needs, Ecological Education, and Sustainable Practices for All Generations

THE AIM OF THE POSTER IS

Drawing attention to the concept of sustainable development based on the relationship between humans and the natural environment, which requires appropriate commitment and consistency from humans to ensure this relationship is proper and effective.

BASIC ASSUMPTIONS

Meets the essential needs of all people while maintaining, protecting, and restoring the health and integrity of Earth's ecosystems without compromising the ability to meet the needs of future generations.

OBJECTIVE OF THE ACTIONS

Providing permanent care for the ecosystem and implementing ecological education at all stages of both formal and informal education. This education must be included in the content of lessons in subjects such as natural science, biology, geography, economics, chemistry, psychology, and philosophy.

ECOLOGICAL AWARENESS

Ecological practices are crucial for building a sustainable future. Utilizing renewable energy sources, effective waste management, sustainable production, supplier responsibility, and education and awareness are key components of ecological practices. By implementing these practices, companies contribute not only to their business success but also to protecting our planet for future generations.

REFERENCE:

Górny B., "SYSTEM EDUKACJI I MOTYWACJI W DAŻENIU DO ZRÓWNOWAŻONEGO ROZWOJU", Wydawnictwo Państwowej Wyższej Szkoły Zawodowej w Raciborzu, Racibórz 2020



START-UPS AND THEIR IMPACT ON THE CLIMATE ENVIRONMENT



The poster will focus on the impact of startups on the climate environment and their initiatives reducing their ecological footprint, striving for better awareness and effectiveness in the fight against climate change

Today, as the challenges of climate change become more acute, we need innovative solutions that will not only reduce our impact on the environment, but also ensure sustainable development for future generations. In this context, the role of startups in creating and implementing ecological initiatives is becoming more and more important. By taking the lead, these dynamic companies are not only changing the way the economy works, but also playing a key role in achieving a better future for our planet.



Too Good To Go: A mobile app that allows restaurants, cafes and stores to sell excess food at discounted prices before the end of the business day. This helps reduce the amount of food thrown away, which is one of the main sources of food waste.

Source: <https://sefa.nl/company/too-good-to-go/>

Solar Foods: This is a Finnish startup that has developed an innovative technology called "Solein", enabling the production of protein from carbon dioxide and water in the presence of sunlight using bacteria. This sustainable method of protein production can help reduce pressure on natural resources, reduce greenhouse gas emissions and promote sustainable food production on a global scale.



Source: <https://solarfoods.com/media/>



Ecosia: An internet search engine that uses part of its profits to plant trees in various parts of the world. Every search on Ecosia helps fund afforestation projects, which helps offset the carbon emissions associated with internet use.

Source: <https://mobiirank.pl/2020/12/15/ecosia-jest-teraz-opcja-wyszukiwarki-na-ios-i-podas-macos/>

EcoBean: A startup that uses advanced technologies to transform coffee grounds into a variety of ingredients such as oils, flavors and proteins that can be used in various industrial sectors, including cosmetics and food. With this project, EcoBean aims to promote the sustainable use of natural resources and the development of innovative solutions in industry.



Source: <https://ecobean.pl/>

Conclusion:

In a world grappling with the urgent realities of climate change, the imperative for innovative solutions has never been clearer. Startups are emerging as powerful agents of change, pioneering initiatives that not only mitigate environmental impact but also foster sustainable development. From rescuing surplus food with Too Good To Go to revolutionizing protein production with Solar Foods' Solein technology, from reforesting the digital footprint through Ecosia to repurposing coffee grounds with EcoBean, these dynamic enterprises exemplify the transformative potential of entrepreneurship in the fight for a greener, more equitable future. As we stand at the precipice of a pivotal moment in human history, the role of startups in driving ecological innovation cannot be overstated. Together, they are not only reshaping economies but also laying the groundwork for a planet that thrives for generations to come.

References:

<https://businessinsider.com.pl/wiadomosci/boom-na-aplikacje-walczace-z-marnowaniem-jedzenia/0xw18gs>

<https://sprawnymarketing.pl/blog/ecosia-ekologiczna-wyszukiwarka/>

<https://www.theguardian.com/business/2024/apr/19/finnish-startup-food-air-solar-power-solein>

<https://www.innoenergy.com/news-events/ecobean-raised-7-million-euro-to-develop-a-pioneering-biorefinery-for-a-full-valorisation-of-coffee-grounds/>



as a tool for sustainable development

The purpose of this poster is to demonstrate the impact that startups have on sustainable development. Startups play a crucial role in driving innovation and progress in various sectors, including those directly related to sustainability. By introducing new technologies, business models, and practices, startups can significantly contribute to environmental, social, and economic sustainability.



Startup Sunmetric offers a tool based on artificial intelligence that enables precise and automated building detection, terrain topography analysis and roof surface analysis. This allows you to obtain precise shading and sunlight data, allowing you to accurately assess the performance potential of your photovoltaic installation. This tool will be used in industries related to renewable energy sources, technology and engineering. The funds obtained will be used to develop the neural network and further improve the technology. Thanks to this, Sunmetric will be able to support its customers even more effectively in optimizing energy and infrastructure processes.

In December 2020, the Czys3a3.vc investment fund invested PLN 1 million in the project. These funds are to be used mainly to build an advanced neural network that will enable precise measurements based on photos. The main goal is to achieve maximum accuracy by creating your own data set for training the network and verifying the measurements. Additionally, the project includes the development of methods for estimating parameters such as light intensity for various roof segments and suggesting the location of photovoltaic modules.



Kulaczkowski, one of the founders, emphasizes that they started looking for solutions to improve the process of assessing the power of installations for specific houses. They noticed that the previous method took a lot of time and required the involvement of many people, which did not always meet customer expectations. After consultations with industry companies and representatives of municipalities and cities, they concluded that an innovative approach was needed. As a result, they developed an aggregated analytics service to meet these needs. Kulaczkowski is convinced that this is the right solution that had to appear

Photovoltaics is a renewable energy source that does not emit harmful greenhouse gases when producing electricity, unlike traditional energy generation methods such as burning fossil fuels. Therefore, planning photovoltaics allows you to reduce the negative impact on the atmosphere. This solution is intended for people who prefer other space development options or do not have additional land for photovoltaic structures.



Solar planning with artificial intelligence brings many benefits for sustainable development:

1. Optimal use of resources
2. Energetic efficiency
3. Cost minimization
4. Fast and accurate analyses
5. Reduction of human errors
6. Long-term optimization

<https://www.cire.pl/artykuly/serwis-informacyjny-cire-24/181309-polski-startup-laczy-sztuczna-inteligencje-i-odnawialne-zrodla-energii>
<https://itwiz.pl/sunmetric-sieci-neuronowe-w-sluzbie-odnawialnym-zrodlom-energii/>
https://netrix.ventures/spolki_portfelowe/sunmetric/
<https://www.lubie.pl/jak-sobie-radzic-z-sasiadem-kotorego-wysokie-drzewa-zacieniaja-moje-panele-fotowoltaiczne/>

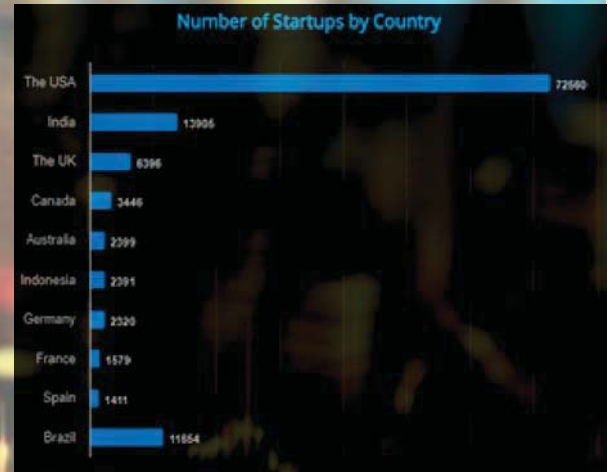


The Impact of Start-ups on the Economy Growth

Introduction: Start-ups, characterized as newly established and rapidly growing enterprises, have become pivotal entities in contemporary economies. Their capacity for innovation, disruption of traditional industries, and creation of new markets has attracted significant attention from policymakers, scholars, and entrepreneurs alike. This poster seeks to delve into the multifaceted impact of start-ups on economic growth, job creation, and innovation ecosystems.

Methodology:

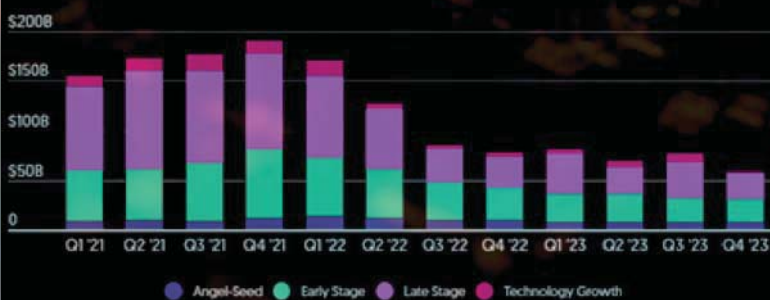
- Analysis of data from various sources such as government reports, academic studies, and industry association data concerning the number and growth of start-ups over time.
- Conducting case studies encompassing diverse sectors of the economy and different countries to understand variations in the impact of start-ups across different markets.
- Evaluation of the effectiveness of various start-up support programs, such as incubators, accelerators, and investment funds, in terms of their impact on regional and national development.



Results:

- Start-ups represent a significant source of job creation, both directly through employment within start-up firms themselves and indirectly through demand for services and products from other businesses.
- Innovations generated by start-ups stimulate economic growth by introducing new products, services, and processes, as well as by enhancing productivity and competitiveness of existing enterprises.
- Start-up ecosystems attract capital investment, talent, and knowledge exchange, thereby supporting regional development, fostering business networks, and accelerating technology transfer.

Global Venture Dollar Volume Through Q4 2023



Conclusions:

Investments in creating a conducive environment for start-ups yield substantial dividends, supporting economic resilience and long-term prosperity.

References:

<https://flair.hr/en/blog/startup-statistics/>
<https://news.crunchbase.com/startups/ai-ma-web3-metaverse-vr-2023-charts/>



Greenwashing or Genuine Change? The Truth Behind 'Sustainable'

The aim of this poster is to highlight the widespread issue of greenwashing. You're likely well-acquainted with the term, given its frequent appearance in headlines. Notably, there have been several high-profile instances, such as Shell's controversy earlier this year, where investments in natural gas were misleadingly labeled as spending on renewable energy. Similarly, FIFA faced criticism from climate experts for falsely asserting that the 2022 Qatar World Cup would be carbon neutral. These incidents, often making headlines, have heightened concerns among businesses, as accusations of greenwashing loom large, posing significant reputational risks.



Introduction

A recent investigation by The Guardian and Drilled has uncovered that Onward, a climate tech startup purportedly aimed at advancing the energy transition, is owned by Shell, a major oil company. Despite its emphasis on clean energy, Onward's job board features numerous positions in the gas and oil industry, raising concerns about greenwashing. The startup, formerly known as Studio X, rebranded with a mission to achieve a Net Zero future but continues to promote oil and gas activities. While Onward boasts an advisory board comprising notable figures, its association with the oil industry remains prominent. This revelation underscores the complexities of corporate involvement in clean energy initiatives and the need for transparency in such endeavors.

In Shell's annual report, the company stated that 12 per cent of its capital expenditure was channeled into a renewables division in 2021. The unit's webpage says it is investing in "wind, solar, electric vehicle charging, hydrogen, and more". Global Witness argued that 1.5 per cent of Shell's capital expenditure has been used to develop genuine renewables, such as solar and wind, but much of the rest of the division's resources were being pumped into fossil gas.

Also there is a possible sign of the changing priorities, the group's spending on its renewables and energy solutions division dropped in 2023 by 23% from the previous year to \$2.7 billion, according to a Reuters analysis. That represents 11% of Shell's total capital spending in 2023, compared with 14% in 2022.

Shell capital investment

Shell in 2023 reduced its spending in the renewables and energy solutions and chemicals and products divisions while increasing spending on upstream and marketing

	2022	2023
Integrated gas	4,265	4,396
Upstream	8,143	9,242
Marketing	4,831	5,612
Chemicals and products	3,838	3,192
Renewables and energy solutions	3,469	2,681

Note: In millions of \$
Source: Company results

Source: Reuters Graphics

Conclusion

In conclusion, the instances of greenwashing highlighted in the poster underscore the urgent need for transparency and accountability in corporate sustainability efforts. Without genuine commitment to clean energy transitions, such practices risk undermining trust and impeding progress towards addressing climate change.

Resources

- <https://www.washingtonpost.com/politics/2023/02/01/oil-giant-shell-accused-greenwashing-misleading-investors>
- <https://www.eu-startups.com/2023/09/impact-or-greenwashing-navigating-the-thin-green-line/>
- <https://www.ecowatch.com/shell-clean-energy-startup-onward-greenwashing.html>
- <https://www.reuters.com/markets/commodities/shells-2023-profit-falls-30-28-billion-buybacks-extended-2024-02-01/>
- <https://www.eco-business.com/news/22-brands-called-out-for-greenwashing-in-2023/>
- <https://chatgpt.com/>
- <https://canva.com/>

Determinants of consumer behavior on tourism market

Research on tourism consumer behavior stresses adaptability and customer loyalty, drawing from global, national statistical data, and primary research on 156 respondents. It underscores the rising prominence of Polish travel agencies and the pivotal role of pricing in consumer decisions, alongside highlighting the importance of word-of-mouth marketing, user reviews, and social media in promoting tourism services. These insights inform critical marketing strategies in the tourism sector.

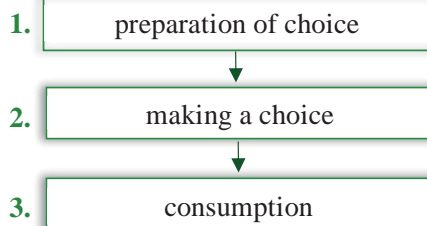
The objective of the poster is to elucidate the research findings pertaining to the evolution of purchasing trends and consumer behaviors within the realm of tourism offerings. The primary aim of the study was to ascertain the determinants guiding consumers in their selection of tourism packages offered by travel agencies.

Method:

Primary research: online survey study on a sample of 156 individuals from various social groups, characterized by varied demographic data across Poland.

Secondary research: gathered industry-specific information, conducted market analysis, statistical data.

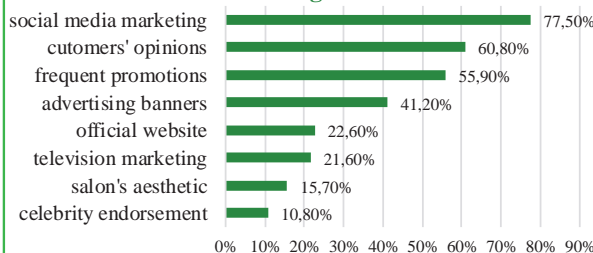
Decision-making process of a tourist service consumer



2. The most effective marketing tools and actions – respondent’s opinions:

Respondent’s opinions regarding the effectiveness of various marketing activities undertaken by travel agencies, regardless of their status as clients of the enterprises.

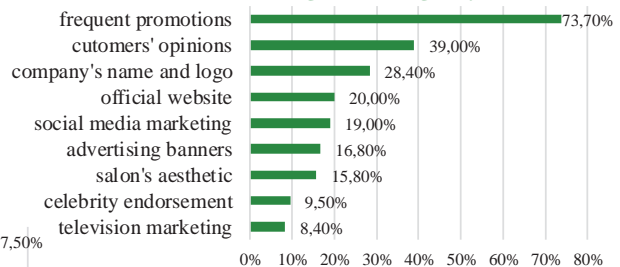
The most effective marketing tools and actions



Conclusion: Consumer behavior on tourism is primarily influenced by purchasing determinants, with price and customer opinions being key factors. Social media marketing, user feedback, and pricing strategies are also crucial. Flagship travel agencies in Poland have consistently maintained their industry-leading positions for the last five years.

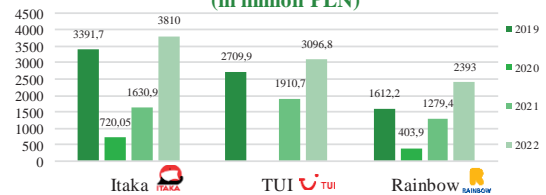
1. Determinants of choosing a travel agency’s offer: What prompted respondents to make their final purchasing decision:

Determinants of choosing a travel agency's offer



3. The most commonly selected travel agencies in Poland based on revenue: Over the researched years, Poles most frequently chose Itaka, Tui, and Rainbow as their preferred travel agencies.

Revenue from the sale of tourist services by the largest tourism companies in Poland in the years 2019-2022 (in million PLN)



REFERENCES: Herbik E., *Determinants of consumer behavior on tourism market – in light of research*, Wrocław 2024

FASHION REVOLUTION

HOW POLISH STARTUPS ARE CHANGING TRADITIONAL GARMENT MANUFACTURING TO MORE SUSTAINABLE AND ETHICAL APPROACHES

The aim of this presentation is to show the value of Polish fashion start-ups and their impact on sustainability and ethical issues. I chose this topic because of the problem of "fast fashion", which is a threat to the planet due to its huge water consumption and large amount of waste. I want to prove that Polish startups can act wisely in the fashion industry, paying attention to our future and our planet.



GOOD THINGS ARE COMING

The growth of online shopping is resulting in an increasing number of returned products, accounting for up to half of all online transactions. This trend has a negative impact on the environment, due to the increase in used packaging, usually made of plastic, and increased logistical costs for online shops. WEARFITS, a startup, has introduced a solution to this problem by creating a virtual fitting room.

In recent years, there has been a noticeable increase in the popularity of Polish niche brands producing clothing, footwear and accessories domestically. The pandemic and surge in the use of e-commerce, together with the growing support for local manufacturers, have paradoxically favoured small companies and designers. It can be observed that customers are more conscious and are guided more by quality, less by price. With rising prices, customers are making more considered purchases.

Secondly, we can see an 'eco' trend whereby the overriding value is to reduce the purchase of clothes to the minimum necessary and to give things a second life.

EXAMPLES OF SOCIALLY RESPONSIBLE STRATUPES

In line with the concept of zero waste, startup WoshWosh has shoe cleaning and refurbishment, shoemaking services. What's more, Woshwosh collaborates with the Zabka shop and you can renew your shoes by sending a parcel through the website woshwosh.zabka.pl.

Another Polish stratup is the start-up Ubrania Do Oddania, which was created in partnership with Unibail-Rodamco-Westfield. The company runs a fundraising platform, combining the collection of second-hand clothes with financial support for charitable organisations. So far, thanks to the unwanted clothes of the users of the Ubrania Do Oddania portal, more than 620,000 PLN has been donated to 120 charities. The start-up's main goal is to change the clothing industry and move it towards responsible consumption.

In summary, Polish stratups are increasingly responding to customer needs by creating innovative solutions while taking care of sustainability, ethical values and the future of our planet.

REFERENCES:

- 1) <https://startup.pfr.pl/pl/aktualnosci/polskie-start-upy-i-moda-jak-odpowiadaja-na-trendy/>
- 2) <https://woshwosh.zabka.pl/checkout/>
- 3) <https://www.instagram.com/woshwosh.pl/>
- 4) <https://ubraniadooddania.pl/>



UNIWERSYTET
EKONOMICZNY
W KRAKOWIE

Wiktor Hussakowski

Impact of BOWERY.CO on global agriculture

Bowery cultivates a future where food is grown sustainably and accessible to all. With innovative technology, we're reshaping farming for reliability and environmental responsibility. Our vision includes smart farms in every city, ensuring fresh, nutritious produce is readily available. Join us on our journey by visiting our blog.



Ai in Agriculture

AI, integral to daily life, aids Bowery in sustainable farming. It encompasses machine learning, robotics, and computer vision to optimize agriculture. Indoor vertical farms like Bowery use AI, employing the BoweryOS, a central system managing plant needs through data from sensors and cameras. This enables precise adjustments in variables like light, humidity, and nutrients, refining "crop recipes" for optimal growth. AI enhances efficiency by managing resources and energy consumption. Its role in agriculture is crucial, from sustainability to disease detection, fostering smarter, more sustainable farming practices for a growing population.



Why Bowery?

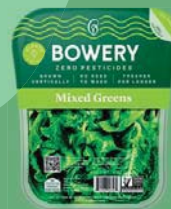
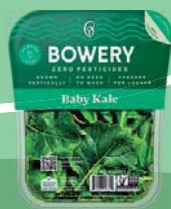
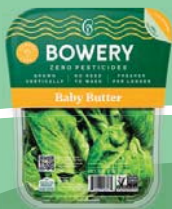


Bowery's indoor vertical farms, powered by BoweryOS, revolutionize food production. By consolidating the supply chain into single buildings, we enhance resilience, transparency, efficiency, and safety. Our technology preserves the authentic flavor of produce while also pioneering new varieties for culinary exploration. Our mission is to make nutritious, delicious food available to all, with high-tech farms minimizing harm and smart farms accessible in every city. Join us as we turn this vision into reality.



What we grow?

<https://bowery.co/produce/>



This company stands out for its innovative use of technology in agriculture, employing indoor vertical farms powered by BoweryOS to produce fresh, sustainable, and accessible food. By leveraging advanced farming techniques, they minimize environmental footprint while ensuring food safety and quality. Their dedication to providing nutritious produce while prioritizing sustainability makes them a leader in the industry, positively impacting both consumers and the planet.

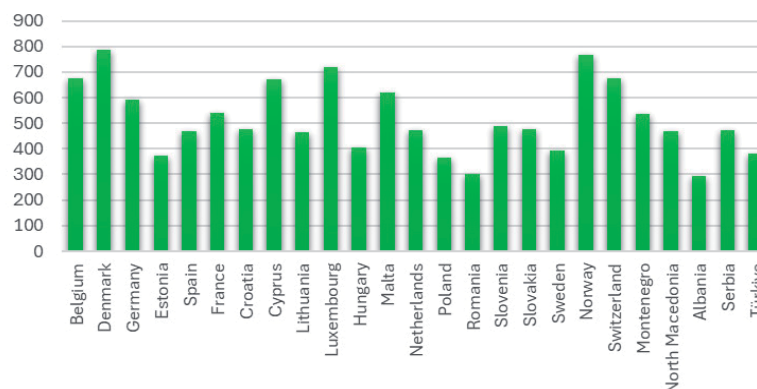
source: <https://bowery.co/>

Chemical recycling

The amount of organic waste generated per capita in the Europe is about 502 kg (Europa.eu,2022). Just less than half (48%) of the waste is recycled or composted. The rest ends up in landfills or incinerators. The aim of the poster is presenting innovative solutions to progress bio waste into useful substance.

The use of chemical recycling allows the transformation of organic waste into biodegradable raw materials. PERCAL project working as part of EU-funded projects has found a solution that brings us closer to introduction a circular economy. The project team decided to use PERSEO Bioethanol® plant built by PERSEO Biotechnology in Valencia, Spain, which has the capacity to process 25 tons of organic waste per day. The intermediate compounds that the team managed to obtain include succinic acid, lactic acid, ethanol and ethyl lactate - a liquid that could be used in cleaning products. This is the next step that will help us shape a more sustainable future.

Organic waste generated in Europe 2022 (kg per capita)



Source: <https://ec.europa.eu/eurostat/statistics>



Source: <https://ecobean.pl/>



Source: <https://ecobean.pl/>

The Polish start-up EcoBean, in cooperation with the Warsaw University of Technology, has developed coffee briquettes, which are a green alternative to traditional fuel materials and are definitely cheaper to produce than fossil fuels. At the same time, the coffee product burns much longer and releases more energy than, for example, wood. It can be used in grills, stoves and fireplaces. The resulting product is neutral in terms of carbon dioxide emissions, which is especially important at a time when a lot of cities are struggling with smog.

Technologies presented in the poster offer avenues of organic waste management in Europe. Thanks for PERSO Biotechnology and EcoBean startup organic waste can be transformed into valuable biodegradable raw materials, contributing to the advancement of a circular economy and sustainable waste processing.

<https://cordis.europa.eu/article/id/430157-biotechnology-breakthroughs-convert-organic-waste-into-sustainable-products/pl>
<https://www.perseobiotech.com/perseo-bioethanol-process/?lang=en>
<http://www.ilewazy.pl/jakie-symbole-mozesz-znalezc-na-produktach-spozywczych>
<https://www.perseobiotech.com/?lang=en>



THE EARTH IS OUR HEART

The aim of the poster is to showcase potential solutions for fostering sustainable development within ecology.

RECYCLING

Recycling is the process of converting waste materials into reusable products, reducing the strain on natural resources and minimizing environmental pollution. By sorting and processing materials like paper, plastic, glass, and metal, recycling conserves energy and reduces greenhouse gas emissions. It also creates employment opportunities in recycling industries, contributing to economic growth. Embracing recycling as a daily practice empowers individuals to play a part in protecting the planet for future generations.



SOURCE: CANVA

RENEWABLE ENERGY

Renewable energy comes from natural sources like solar, wind, and hydro power. These sustainable options reduce reliance on fossil fuels, cut emissions, and help combat climate change. They offer a cleaner, reliable, and affordable energy future. Investing in renewable energy technologies can also drive economic growth and job creation.



SOURCE: CANVA

REFORESTATION

Reforestation is the intentional process of restoring forests by planting trees in areas that have been deforested or degraded. It plays a crucial role in combating climate change by sequestering carbon dioxide and maintaining biodiversity. Reforestation efforts also help prevent soil erosion, regulate water cycles, and provide habitats for various species. By promoting reforestation initiatives, societies can contribute to environmental sustainability and mitigate the adverse effects of deforestation on ecosystems and communities.



SOURCE: CANVA

SUSTAINABLE FASHION

Sustainable fashion emphasizes eco-friendly practices and ethical production. It focuses on using natural, recycled, or upcycled materials and reducing waste. Second-hand fashion promotes reusing and repurposing clothing, extending the lifespan of garments and reducing environmental impact. By choosing sustainable or second-hand fashion, consumers can support a circular economy and help combat fast fashion's negative effects on the planet.



SOURCE: CANVA

In conclusion, highlighting the importance of sustainable development in ecology is crucial, as it underscores the imperative to conscientiously consider the needs and well-being of future generations.

GREEN FUTURE: TOGETHER FOR THE PLANET

Renewable energy sources are a key element of Agenda 2030, the global action plan for sustainable development. These goals aim to transform our world by eradicating poverty, protecting the environment and ensuring peace and prosperity for all. In the energy context, renewable energy sources are promoted as a means to achieve Goal 7, which commits to ensuring access to affordable, reliable, sustainable and modern energy for all.

The purpose of the poster is to present renewable energy sources as one of the objectives of sustainable development.



What are renewable energy sources?

Renewable energies are energy sources that naturally regenerate over time and do not run out.

ADVANTAGES

Renewable Energy Sources Are Endless

Renewable energy sources, such as the sun which will continue to shine for billions of years, are sustainable and will not be depleted, in contrast to finite fossil fuels.

Renewable Energy Is Reliable

Trade laws, political instabilities, territorial claims, and market turmoil cannot impact the use of renewable energy sources.

Renewable Energy Is Environmentally Friendly

Renewable energy sources are natural ways of energy generation and, therefore, can be considered clean. Compared to fossil fuels, the difference is significant.

Renewable Energy Can Increase Public Health

We will have healthier air and soil by reducing greenhouse emissions and other polluting substances. This will improve public health, and people will have happier lives.

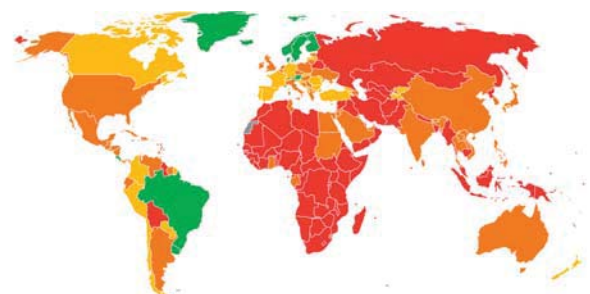
TYPES OF RENEWABLE ENERGY SOURCES:

-  SOLAR ENERGY
-  WIND ENERGY
-  GEOTHERMAL ENERGY
-  HYDROPOWER
-  OCEAN ENERGY

Renewable energy sources and the Agenda 2030:

- ensure universal access to affordable, reliable and modern energy services,
- significantly increase the share of renewables in the global energy mix,
- double the rate of increase in global energy efficiency,
- increase international cooperation to facilitate access to clean energy research and technology in the areas of renewable energy, energy efficiency and advanced and cleaner fossil fuel technologies, and promote investment in energy infrastructure and clean energy technologies,
- expand infrastructure and upgrade technologies to enable access to modern and sustainable energy services for all people in developing countries.

Degree of target achievement worldwide



- SDG achieved
- Challenges remain
- Significant challenges remain
- Major challenges remain
- Information unavailable



References:
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<https://www.un.org/en/climatechange/what-is-renewable-energy>
<https://www.greenmatch.co.uk/blog/2021/09/advantages-and-disadvantages-of-renewable-energy>
<https://kampania17celow.pl/ce1-7-czysta-i-dostepna-energia/>
<https://dashboards.sdgindex.org/map/goals/sdg7>

THE AGRONOMIC SOLUTION TO PROTECT CROPS AND SIMULTANEOUSLY GENERATE SOLAR ENERGY



The aim of this poster is to show this innovative technology from Insolight addresses the critical need for sustainable agriculture by providing a dynamic solution to optimize both solar energy generation and crop growth.

This innovative technology from Insolight, a Swiss company, enables the dynamic adjustment of solar panel transparency to match the specific requirements of plants in real-time.



Source: <https://cnkingpeng.en.made-in-china.com/product/jSEHKUPZsRC/China-Low-Tunnel-Single-Span-Plastic-Film-Agriculture-Double-Layer-Greenhouse.html>

**INSOLAGRIN
REPLACING
PLASTIC TUNNELS**



Source: <https://insolight.ch/projects/>

Semi-transparent photovoltaic (PV) modules equipped with bifacial solar cells not only generate solar electricity but also provide crop protection. Embedded sensors constantly monitor environmental conditions, transmitting data to the control system. If necessary, a shading layer is activated to offer additional shade and enhance electricity production. Insolagrín can be operated either automatically or manually via the web interface.

BENEFITS OF USING INSOLAGRIN AGRIVOLTANIC SOLUTION

Light Transmission Control



The optical layer is continuously adjusted to provide precise amounts of light to the crops.

Ventilation



The structure's openings ensure efficient ventilation to maintain optimal temperature and humidity levels.

Crop Protection



Crops remain completely shielded from rain, snow, or hail, with rainwater collected via gutters for irrigation purposes.

Graphics: <https://insolight.ch/solution/>

Night mode against frost



At night, the optical layer automatically deploys to keep crops warm and shield them from frost.

Reduced Water Consumption



The optical layer shades crops to cool them during heatwaves, reducing water usage.



Raspberries grown under isolagrín required on average 30% less water compared to the plastic tunnels

While the strawberries grown under isolagrín required on average 36% less water



In conclusion this approach promotes sustainable development by efficiently utilizing land space for both energy production and agricultural purposes, contributing to environmental conservation and economic viability.

References:

- <https://www.facebook.com/InsolightTech/videos/253635284410380>
- <https://www.youtube.com/watch?v=pt-lxmmDDUI&t=78s>
- <https://insolight.ch/solution/>
- <https://www.gramwzielone.pl/energia-sloneczna/20163861/ta-szklarnia-fotowoltaiczna-dostosuje-swiatlo-do-potrzeb-roslin>
- <https://insolight.ch/>

START-UPS FOR PEOPLE

INNOVATIVE SOLUTIONS ENHANCING QUALITY OF LIFE

The objective of this poster is to raise awareness about the role of start-ups in improving quality of life through innovative solutions.

WHAT IS A START-UP?



TOO GOOD TO GO

This is a start-up that fights food waste by providing a platform for restaurants and stores to sell food at discounted prices to prevent it from being wasted. As a result, it reduces the amount of food thrown away in landfills, which contributes to decreasing the negative environmental impact.



TERRACYCLE

Terracycle is a company that specializes in recycling hard-to-process waste, such as multi-material packaging or used e-cigarettes. Through innovative recycling technologies, Terracycle reduces the amount of waste going to landfills and promotes a sustainable waste management model.



LIME

Lime is a company offering electric scooter rental services for short distances in many cities worldwide. By promoting the use of electric transportation, Lime contributes to reducing emissions and traffic congestion, resulting in improved air quality in cities.



RENEWAL WORKSHOP

This start-up focuses on revitalizing and recycling clothing. Through repairing, laundering, and renewing garments, the Renewal Workshop reduces the amount of textiles ending up in landfills while promoting conscious fashion practices and combating industrial waste.

CONCLUSION

Start-ups impact sustainable development by introducing innovative solutions, reducing environmental harm, promoting social and economic benefits, and transforming traditional business models into more sustainable and ethical ones.

SUSTAINABLE DEVELOPMENT – OUR RESPONSIBILITY

The objective of this poster is to raise awareness about sustainable development and highlight its key components. It aims to educate viewers about the importance of environmental protection, social justice, sustainable economy, corporate social responsibility, sustainable urban development, education, social awareness, and international cooperation in achieving sustainable development goals.

ENVIRONMENTAL PROTECTION	<ul style="list-style-type: none"> • Taking care of nature, saving animals and plants, and making sure people don't harm the environment too much.
SOCIAL JUSTICE	<ul style="list-style-type: none"> • Making sure everyone has what they need like schools, hospitals, and fair pay, so everyone has a chance to do well.
SUSTAINABLE ECONOMY	<ul style="list-style-type: none"> • Making sure we make money without hurting the environment or other people, and balancing making money with making life good for everyone.
CORPORATE SOCIAL RESPONSIBILITY	<ul style="list-style-type: none"> • Companies should be fair and not just focused on making money, but also think about how they affect people and nature.
SUSTAINABLE URBAN DEVELOPMENT	<ul style="list-style-type: none"> • Planning cities so that everyone has a place to live, ways to get around, parks to enjoy, and making sure we don't hurt nature while doing it.
EDUCATION AND SOCIAL AWARENESS	<ul style="list-style-type: none"> • Teaching people about how to take care of the planet and each other, and helping everyone understand why it's important.
INTERNATIONAL COOPERATION	<ul style="list-style-type: none"> • We need to work with other countries to solve problems like taking care of the environment and making life better for everyone around the world

Source: Own elaboration

In conclusion, sustainable development demands our collective responsibility. By prioritizing environmental protection, social justice, sustainable economy, corporate social responsibility, sustainable urban development, education, social awareness and international cooperation, we can pave the way for a better future. Through awareness, education, responsible practices and collaboration, we can address today's challenges and build a sustainable world for generations to come.

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THREE PILARS OF HARMONIOUS PROGRESS

The aim of my poster is to highlight the essence of sustainable development, which revolves around achieving a harmonious equilibrium between people, finances, and the environment. It emphasizes the crucial interplay between these three pillars in fostering societal advancement over time.

SOCIAL

Education

Investing in accessible and quality education for lifelong learning.



Equality

Ensuring equal opportunities for all members of society.



Healthcare

Providing affordable and comprehensive healthcare services for all.



ECONOMIC

Sustainability

Promoting sustainable practices in business and industry.



Innovation

Fostering innovation and entrepreneurship for economic growth.



Equity

Creating an economic system that reduces disparities and promotes fairness.



ENVIRONMENT

Conservation

Protecting and preserving natural resources and biodiversity.



Renewable Energy

Shifting to renewables to curb climate change.



Development

Balancing growth with eco-responsibility for future generations.



The essence of sustainable development is highlighted through the balance between people, finances, and the environment. The advocacy for investing in education, promoting economic innovation, and environmental conservation for future generations is underscored.

Referneces:

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The graphic design was produced using Canva, with the infographic sourced from there.

THE IMPORTANCE OF RESEARCH AND DEVELOPMENT IN THE SPORTS INDUSTRY

S

STRATEGY

The beginning of a strategic approach to R&D is a thorough analysis of the sports market and the identification of trends. This allows understanding of current consumer needs, emerging directions in sports development, dominant technologies, etc.

Research into new materials, devices, mobile applications, artificial intelligence, or data analysis can significantly influence the development of new products and services.

A strategic approach to R&D requires continuous investment in product innovations.

Scientific research on biomechanics, physiology, and athletes' health is of immense importance.

The development of new training methods, rehabilitation techniques, health monitoring, or injury prevention contributes to improving athletes' performance and overall health.

P

PARTNERSHIP

Collaboration between sports companies, technology firms, and other businesses can lead to the development of innovative products, services, and technologies. Collaboration across borders allows for the exchange of ideas, best practices, and resources on a global scale.

Engaging athletes directly in the R&D process can provide valuable insights into their needs, preferences, and performance challenges. Co-creation sessions, focus groups, and user testing can help ensure that products and services are tailored to meet athletes' requirements.

Partnering with universities or research institutions allows access to cutting-edge research facilities, academic expertise, and funding opportunities.

O

ORGANIZATIONS

Organizations play a crucial role in sports research and development, they provide financial resources for research projects, equipment development, and talent acquisition in the sports industry. Many sports organizations own or operate research facilities, laboratories, and testing centers dedicated to sports science and technology. These facilities provide researchers with access to specialized equipment. Sports organizations support education and training programs for coaches, athletes, and sports science professionals. By investing in talent development initiatives, they cultivate a skilled workforce capable of leveraging scientific insights and technological advancements to optimize athletic performance.

R

REACTION

Conducting market research helps understand customer needs and preferences, allowing for the adjustment of product offerings to changing requirements. Striving for product and service personalization to better address individual customer needs. This may involve tailoring products to specific age groups, skill levels, or lifestyle preferences. Using rapid prototyping to quickly test and iterate on new ideas, allowing for faster adaptation to market changes. Focusing on sustainable development, responding to growing consumer interest in eco-friendly products and solutions.

T

TECHNOLOGY

Technology innovation in sports R&D plays a crucial role in enhancing athletic performance, improving safety measures, and refining the overall sports experience. Innovations in materials science have led to the development of lighter, stronger, and more durable equipment and gear. Wearable sensors and biomechanical analysis tools enable researchers to collect data on athletes' movements. Virtual reality technologies are revolutionizing sports training and spectator experiences. Athletes can use VR simulations to practice scenarios in a controlled environment. Sports R&D also focuses on developing sustainable and eco-friendly solutions, such as energy-efficient stadiums, recyclable materials for equipment.

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BANKS IN POLAND – SUSTAINABLE DEVELOPMENT REPORT



INTRODUCTION

Non-financial reporting is the newest and dynamic a developing branch of reporting in a modern, global organization. Actions consistent with ESG principles allow companies to pursue sustainable development, meet society's expectations and adapt to regulations regulating these issues.

BANK AREA

ESG includes three essential elements of responsibility in business - "Environmental, Social, and Governance". Non-financial indicators included in the ESG framework attract the attention of investors, private equity funds and financial institutions. Banks plan to introduce the following changes in their activities in the environmental area:



SANTANDER

Counteracting the effects of climate change - this is the goal of "green banking", the Responsible Banking Strategy. By 2050, the entire Banco Santander S.A. Group wants to achieve net zero emissions.



MILLENNIUM BANK

Plans to: pro-ecological investments and energy-saving, low emission energy sources ,modern energy infrastructure, regarding renewable source energy



ING BANK

Allocates funds to finance: Renewable Energy Sources, pro-ecological projects, promotion of electromobility, including leasing of electric vehicles and hybrid



BNP PARIBAS

Introduces: minimizing energy consumption, limiting the number of business trips, purchase of energy from renewable sources, purchase of hybrid cars.



ALIOR BANK

Wants to: modernization of energy installations, replacement of part of the car fleet with LPG fueled ones, construction of a photovoltaic installation, using LED lighting.

CONCLUSION

Banks whose main goal is financial activity are increasingly paying attention to non-financial factors. Environment, society and corporate governance are becoming increasingly important.

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Consumers' decision-making and behavioral economics in real estate market in Poland

Real estate market and behavioral economics are both well researched in many ways. However there are very few articles and researches touching an adhibition of discoveries from the field of behavioural economics to the real estate market. If behavioural economics mechanisms work well in many markets, they shall also have an impact on consumers' decision-making in real estate market.

The objective of the poster is to examine cognitive biases and their impact on consumers' behaviour and decision-making in real estate market in Poland and moreover to present results of primary research on apartment purchase decisions under the influence of

Method:

The research was based on primary research in form of online survey study on a sample of 317 individuals and secondary research on cognitive biases and characteristics of real estate market in Poland.

The study was conducted in three versions. They differed in the order of the questions, which was intended to examine the anchor heuristics. Information given to respondents in different orders contributed to differences in responses by respondents anchoring certain values to each question, which influenced subsequent responses. The questionnaires were also intended to examine the mental accessibility heuristic based on the description of apartments, the representativeness heuristic through real estate photos and the effect of aversion to extremes by providing the prices of three apartments. Additionally, in the first questionnaire the exact value of the property was calculated, and in the other two versions only prices per square meter and apartment area were provided. The value of the third apartment was the lowest, and the second apartment had a lower price per square meter.



Of the heuristics examined, the mental availability heuristic had the greatest impact on purchase decisions. The anchor heuristic and then the representativeness heuristic showed a slightly smaller impact. Finally, in every questionnaire, the property was selected, reaching over 70% votes, in which the price wasn't in the middle compared to others. This study did not demonstrate the influence of aversion to extremes in the sample.

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The impact of green innovations on the development of garment industry

The aim of the poster is to underscore the economic importance of green innovations within the apparel industry.

In recent years, the global conversation surrounding environmental sustainability has reached a crescendo with industries across the spectrum being scrutinized for their contributions to environmental degradation. Among these, the clothing industry stands out as a significant player, second only to the oil industry in terms of its environmental impact.



Amidst growing concerns over climate change and ecological degradation, stakeholders within the clothing industry are increasingly recognizing the urgent need for transformative action. Customers are showing a heightened concern for greenwashing, prioritizing genuine environmental responsibility over misleading or exaggerated sustainability claims from brands.



In Forbes' 2021 study, 94% of participants asserted a tendency toward brand loyalty when transparency was present, while 90% cited authenticity as a pivotal factor influencing their support for particular brands.



Moreover, governments are enacting strict laws to address pollution, reduce carbon emissions, and encourage more sustainable methods in the sector.

Against this backdrop of heightened awareness and regulatory intervention, the clothing industry finds itself at a crossroads, facing both unprecedented challenges and opportunities for innovation.

To satisfy customer needs, brands implement various green innovations - technological and social practices adopted to make less harmful environmental impact.

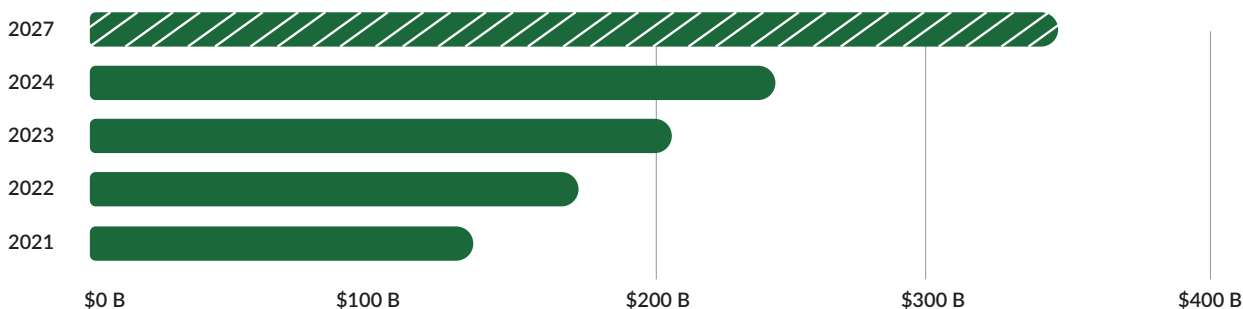
Examples of green innovations implemented by specific companies in apparel industry:

- The Polish brand Bohema produces vegan shoes made from plant materials such as cactus skin and pineapple leaves. Plant-based materials are less harmful to the environment than animal or synthetic ones. A similar concept is embodied by VIVO by Orska, a producer of vegan bags.
- Colorfix is a company that produces dyes using plant and animal genetics and then transfers them to bacteria. As a result, this type of dye is 100% biodegradable and ecological.
- Queen of Raw has developed a new solution - Materia MX Software - which enables reduction of excess inventory by automatization of buying, selling, reuse and recycling of excess stock. Sold redundant inventory not only brings a profit but also limits resources waste. Implementation of this development in multiple enterprises resulted in reduction of operating cost by +/- 15%.
- US based start-up Eon Group presented a platform which enables end-to-end product traceability, audit of full item lifecycle from production to sale, customer use, resale and recycle. Every product is given with a unique ID. As every item may be identified with its digital passport which includes information about its material composition, recycling process can be more efficient.

What are the forecasts for the development of the garment industry?

1. Implementation of Circular Economy and "Cradle-to-Cradle" model - this process will be aimed at reducing waste, promoting resource efficiency, and designing products for perpetual recycling or biodegradation. These practices, including the use of recycled fibers and innovative dyeing techniques, not only contribute to environmental conservation but also offer economic benefits by reducing production costs and enhancing brand reputation in the growing market for sustainable fashion
2. Reconfiguration of supply chains - implementation of innovative ERP systems that will allow companies to reduce inventory surpluses.
3. Geographical restructuring of apparel supply chains - implementation of nearshoring strategy, shortening of supply chains. Nearshore approach means moving production closer to the market it serves.
4. Increase of the market share of clothing from sustainable sources - from 4,3% in 2022 to 6,1% in 2026,
5. The global secondhand apparel market is projected to experience an average growth rate three times higher than the overall global apparel market.

Global secondhand apparel market value



Data source: World Economic Forum 2024, accessed 11 May 2024, <https://www.weforum.org/agenda/2024/04/secondhand-cloth-sustainable-fashion-circular-economy/>

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Smart city – opportunities and threats in the face of sustainable development

Sustainable cities, eco cities, green cities, smart cities – different terms, but one goal and idea: meeting the needs of residents in such way that cities serve not only current but also future generations. Smart cities are the result of many years of activities resulting from the implementation of a coherent local policy. It is an urban area where technology and data collection help to improve quality of life as well as the sustainability and efficiency of city operations.

The purpose of the poster is to present the concept of a smart city not only from the perspective of opportunities and benefits, but also to present potential difficulties and risks that may arise, and to suggest possible ways to prevent them.

6 KEY AREAS OF SMART CITY



SMART ECONOMY



SMART LIVING

SMART ENVIRONMENT



SMART PEOPLE

SMART MOBILITY



SMART GOVERNMENT



OPPORTUNITIES

Benefits for business

A smart city uses various types of electronic methods and sensors to collect specific data. The information obtained from this data is used to effectively manage assets, resources and services. Frost and Sullivan's analysis predicts that the growth of smart cities around the world will create \$2.46 trillion in business opportunities by 2025.

Environmental benefits

According to the McKinsey&Company report, thanks to the technologies used in smart cities, we can:

- save 30-300 lives each year in a city with over 5 million inhabitants,
- reduce the number of crimes by 30-40%,
- save 25-80 liters of water per day per person,
- speed up the crisis response system by 20-35%,
- reduce the global burden of disease by 8-15%.

Benefits for transport & mobility

Data collected by smart-city technology is processed and analyzed to monitor and manage traffic and transport systems. This would improve real-time public transit, digital public transit payment, autonomous vehicles, predictive maintenance of transportation infrastructure, real-time road navigation and intelligent traffic signals. Car sharing and bike sharing will be even more popular thanks to smart-city technology.

THREATS

Along with the opportunities, there are also challenges that have come about as a result of smart city development:

- Cybersecurity – the backbone of a smart city is data. Reliance on technology in smart cities makes them vulnerable to cyber attacks, data leaks and hacking attempts.
- Privacy – the collection of huge amounts of data about residents raises concerns about data protection and privacy, surveillance and possible misuse of personal data.
- Dependency on technology – fully automated city life means that in case of breakdown its functioning can be completely paralyzed.
- Funding and investment – building a smart city requires substantial financial investment.
- Inequality – the risk of increased socio-economic inequality among certain social groups (low-income people, the elderly, people with disabilities) due to limited access to new technologies and services.
- Public acceptance and awareness – lack of properly conducted public consultation; residents not being informed enough about planned changes and services not being designed according to their preferences.
- Ethical dilemmas – the development of AI and automation has raised concerns about job loss and its impact on employment.
- Lack of consumer awareness of rational use of public utilities – the task of local government should be to form an educated consumer who rationally uses energy, gas and water.

RECOMMENDED STRATEGY



To overcome the challenges connected with building smart cities, a multifaceted approach is needed:

- Implement strong cybersecurity protocols, including encryption and authentication to safeguard infrastructure and data from cyber attacks.
- Ensuring equal access to smart city services through initiatives that provide digital technology access and training for populations that need it.
- Pay attention to the needs of residents and adapt the realization of specific solutions to meet them.
- Involving citizens in the city planning and decision-making process can offer valuable insights of the actual needs of the community.
- Collaborations between the government and private sector can provide the necessary funding and expertise.
- Social awareness of the cyberspace threats as well as how to deal with them and reduce the damage caused by cybercrime.
- Developing the skills of the workforce by training and education programs to prepare workers for the smart city environment.

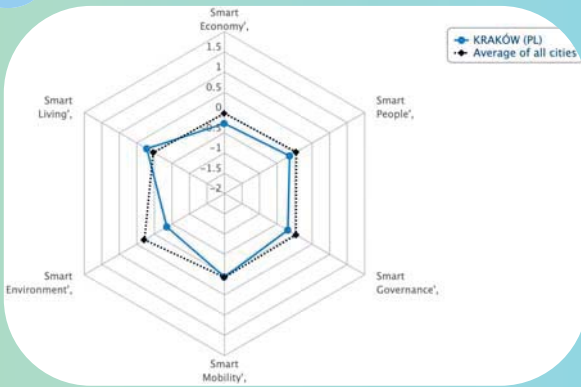
CONCLUSION

Building smart cities presents a complex interplay of challenges and opportunities. While the barriers are significant, starting from technology integration to governance issues, the opportunities they present in terms of efficiency, sustainability and quality of urban life are significant. By taking a strategic, inclusive and forward-thinking approach, cities can overcome these challenges and realize the full potential of smart city technologies, paving the way for a more sustainable and resilient urban future.

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THE "SMART CITY" CONCEPT IN THE SUSTAINABLE DEVELOPMENT OF KRAKOW

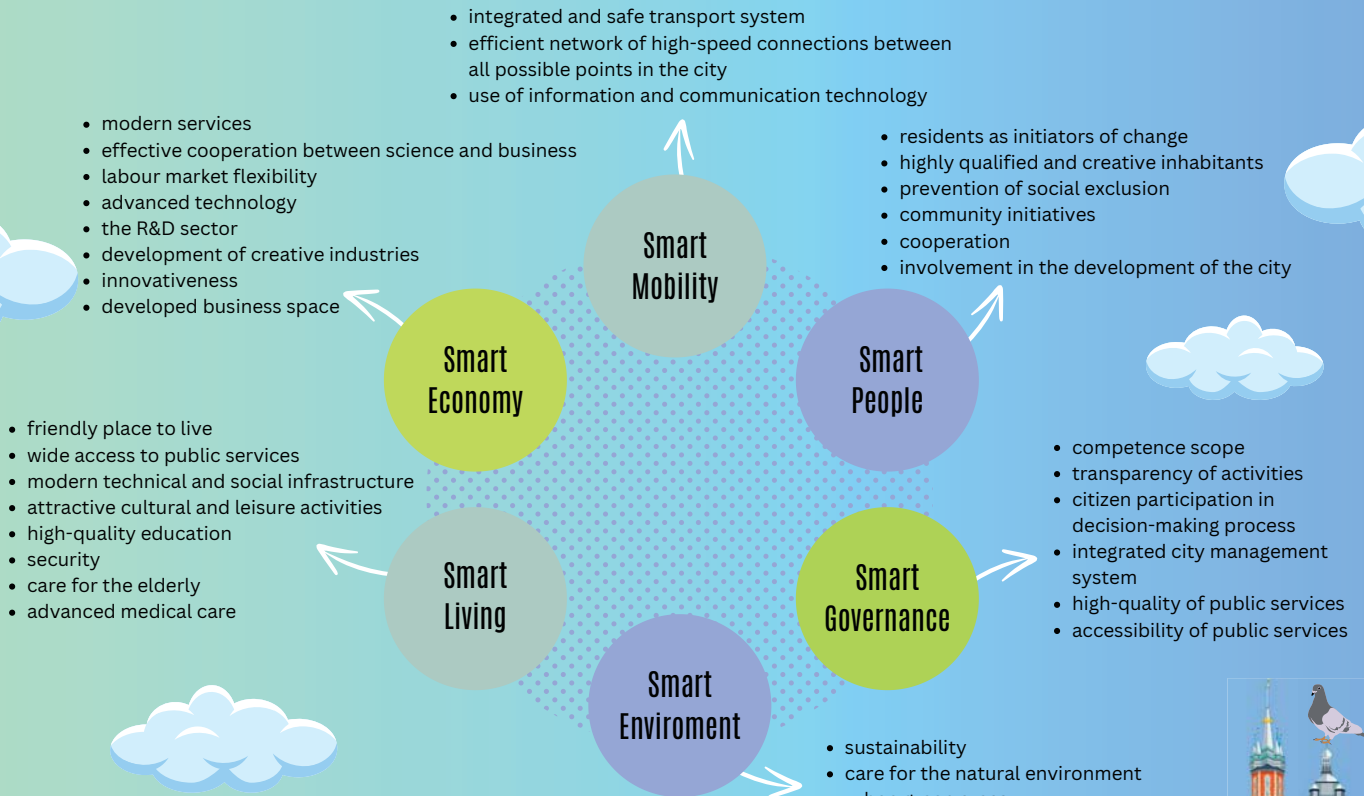


Kraków's profile using a radar chart, depicting six essential dimensions of Smart City operation, compared to the average values calculated for all ninety European cities examined in the analysis.

The purpose of the poster is to present the innovations which Krakow is introducing on its territory to improve the life of the community and make the city more eco-friendly and sustainable. It is also a presentation of vital ideas and methods for introducing intelligent solutions in crucial sectors such as economy, people, living, mobility, environment and governance.

A smart city is defined by its investment in human and social capital, as well as its commitment to sustainable development through efficient road and transport infrastructure that enhances residents' quality of life. Constantly seeking out innovative solutions, these cities are equipped to address future challenges and effectively manage natural resources through participatory approaches. The integration of intelligent solutions is now imperative, particularly in the realm of urban development, as it represents a groundbreaking concept for the future.

THE SMART CITY MODEL OF KRAKOW



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Diving into Tesla's history of innovation

The aim of the poster is to highlight Tesla's unparalleled legacy of innovation, showcasing how its groundbreaking advancements have reshaped industries and revolutionized technology. Through compelling visuals and insightful information, we delve into Tesla's transformative contributions, inspiring audiences to appreciate the impact of its innovative spirit.

"To accelerate the world's transition to sustainable energy" – Tesla



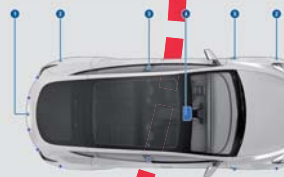
Tesla model Y

The Tesla Model Y was far and away the best-selling electric vehicle in 2023. It's estimated to have sold about 395,000 units over the course of the year.



Tesla Cybertruck

The Cybertruck base model will come with rear-wheel drive and a 250-mile range, and won't be available until at least 2025, Tesla says. It'll go from 0 to 60 mph in 6.5 seconds.



Autopilot features

Autopilot uses the cameras on Model 3, which monitor the surrounding area and detect other vehicles, pedestrians, road markings, and obstacles such as barriers and curbs. There are cameras mounted on the front, rear, left, and right sides of Model 3 (see Cameras).



Power Your Home, Save Money

Powerwall is a compact home battery that stores energy generated by solar or from the grid. You can use this energy to power the devices and appliances in your home day and night, during outages or when you want to go off-grid. With customizable power modes, you can optimize your stored energy for outage protection, electricity bill savings and more.

In conclusion, Tesla's innovation lies in its pioneering development of electric vehicles with cutting-edge technology and its relentless pursuit of autonomy, sustainability, and energy solutions, reshaping the automotive industry's landscape. Through its disruptive approach and commitment to pushing boundaries, Tesla continues to lead the way in redefining transportation and renewable energy sectors.

Source:

<https://www.tesla.com>

<https://cars.usnews.com/cars-trucks/advice/best-selling-evs>



Discover Style, Save the Planet: Sustainable Development in the World of Vinted



Ewelina Majka

The poster illustrates how Vinted utilizes sustainable development in its operations. I was prompted to choose this topic by the fact that Vinted became the first Lithuanian unicorn, meaning a startup valued at over one billion dollars.

Vinted, founded in 2008 in Lithuania by Mildažysta Jasiunskaitė and Justas Janauskas, is a rapidly growing startup revolutionizing clothes and fashion accessory trading. It's now one of Europe's largest sales platforms, connecting millions globally. Vinted's success stems from its simple and innovative model, allowing users to sell, buy, and exchange clothes, reducing waste and promoting sustainability. The platform boasts a user-friendly interface, facilitating seamless transactions for both sellers and buyers.



Photo: Canva Source

- 1. Exchange and Reuse:** By allowing users to sell and purchase used clothing, Vinted promotes the idea of exchange and reuse of products, contributing to the reduction of textile waste and resource consumption.
- 2. CO2 Emissions Reduction:** Buying used clothing instead of new helps reduce greenhouse gas emissions associated with the production and transportation of new products.
- 3. Waste Minimization:** Vinted helps reduce the amount of clothing sent to landfills by enabling users to both sell and purchase used clothing.

- 4. Promotion of Minimalism:** By facilitating the sale and purchase of used clothing, Vinted promotes the idea of minimalism and helps users understand that they don't need a large amount of clothing to be fashionable and express their personality.
- 5. Environmental Awareness:** Vinted can also serve an educational role, increasing users' awareness of the environmental impact of the fashion industry and encouraging them to make more sustainable purchasing decisions.

Vinted



During the latest funding round, Vinted's valuation surpassed one billion dollars, although the exact amount was not disclosed by the company. This marks the first 'unicorn' in Lithuania, although - as TechCrunch reminds us - not the first in the Baltic countries, as Estonian Bolt is also valued at over a billion dollars. There isn't such a company in Poland yet, but the closest to achieving such a result are currently startups Booksy, Brainly, and DocPlanner.



SUMMARY

Founded in 2008 in Lithuania, Vinted is a rapidly growing startup that is revolutionizing the way people buy and sell clothing. Their platform enables the exchange of used clothes, reducing textile waste and promoting a conscious approach to fashion. With a valuation exceeding a billion dollars, Vinted is an example of sustainable business in the fashion industry.

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- [3]Photos: Canva Source

Game theory in production planning

Responsible supply of goods to the market

Description of an algorithm for supply optimization with a known market size

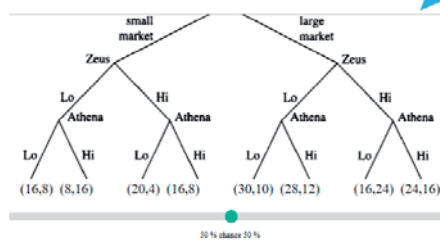


Overproduction

Responsible production involves, among other things, preventing overproduction. This helps to avoid wasting raw materials, leading to their responsible consumption. Moreover, responsible production enhances company finances via reduced production, storage, and utilization costs.

So, how can we avoid overproduction? We should produce no more than we are able to sell. To calculate this, we need to predict not only customer demand but also take into account the production decisions of our competitors. While the former can be estimated relatively accurately nowadays, we can use game theory to forecast how many products will be bought from us and how many from our competitors.

Game theory helps us understand situations where multiple entities (known as "players") make decisions that impact each other. It is like studying a game where each player tries to achieve the best outcome for themselves. In a game, each player has a set of possible actions they can take, and the outcome depends on the combination of everyone's actions. Game theory explores how these players might behave, how they might strategize, and what outcomes are possible.



The payoffs (expected values):

		Athena	
		Lo	Hi
Zeus	Lo	(23,00 , 9,00)	(18,00 , 14,00)
	Hi	(18,00 , 14,00)	(20,00 , 12,00)

Optimal strategies:

Zeus: 0.2857 Lo, 0.7143 Hi
Athena: 0.2857 Lo, 0.7143 Hi

The value of the game:

Zeus: 19.43 & Athena: 12.57

Let's imagine a situation in which there are two stereo equipment producers: Zeus and Athena, that are launching a new product. They estimate that there are two possible market sizes for their products: 24 million or 40 million. Based on that, they have two options: prepare for a small or a large market. If we are able to estimate outcomes for every course of action (for example, when Zeus prepares for a large market and Athena prepares for a small market, in the case of a small market, their shares will be 8 and 16 million respectively), we will have a game in which two actors are trying their best to achieve better results for themselves. We can solve the game by identifying the best strategy for each player (this involves finding "equilibria", a state in which no player benefits from changing their strategy if others keep theirs unchanged). After that, we will know how much of the market share each of the competitors will get. With that knowledge, we can adjust our production to supply exactly the needed amount of goods. Thus, avoiding overproduction and using raw materials responsibly.

Straffin, P. D. (1993). *Game theory and strategy*. Mathematical Association Of America.

DEGROWTH: A PATH TO SUSTAINABLE PROSPERITY

INTRODUCTION

Degrowth emerged as a concept addressing challenges of environmental degradation, resource depletion, and social inequality. Rather than focusing on economic expansion, degrowth advocates argue for a reduction in consumption and production, with the aim of achieving ecological sustainability and social justice. By challenging growth-oriented paradigms, degrowth offers a pathway towards a more balanced and equitable society, where human flourishing is no longer contingent on endless economic expansion.

OBJECTIVES

Achieve Ecological Sustainability:

- Reduce carbon emissions and environmental impact.
- Promote the conservation of natural resources.

Promote Social Justice:

- Reduce social and economic inequalities.
- Ensure fair distribution of wealth and resources.

Foster Human Well-being:

- Shift focus from material wealth to quality of life.
- Enhance community bonds and social cohesion.

Redefine Prosperity:

- Develop new metrics to measure societal progress beyond GDP.

CHALLENGES AND CRITICISMS

Economic Transition:

- Risk of increased unemployment in traditional growth-dependent sectors.
- Need for retraining programs and job creation in sustainable industries.
- Potential for economic contraction and impacts on living standards.
- Strategies required to manage economic impacts during the transition.

Political and Social Resistance:

- Difficulty in gaining political support for degrowth policies.
- Importance of advocacy and public awareness campaigns.
- Necessity for a significant cultural shift away from consumerism.
- Role of education in promoting sustainable lifestyles.

Resource Redistribution:

- Ensuring fair distribution of resources during the transition.
- Addressing global inequalities between developed and developing nations.
- Developing effective policies for equitable resource redistribution.

Measurement and Metrics:

- Developing alternative metrics to measure prosperity and well-being.
- Importance of holistic indicators like the Genuine Progress Indicator (GPI) and Human Development Index (HDI).
- Challenges in collecting and standardizing new types of data.

CASE STUDIES

KERALA, INDIA

In Kerala there is a strong focus on human development, with an emphasis on education, healthcare, and social welfare rather than solely on economic growth. This approach is supported by robust public policies aimed at enhancing human development. In terms of social justice, Kerala has implemented measures to reduce social and economic inequalities, fostering inclusive growth that benefits marginalized communities. As a result, the state boasts high human development indices and equitable social structures.



Source: Creative Commons

BARCELONA, SPAIN

In Barcelona the concept of urban commons has been promoted through the establishment of community gardens and shared urban spaces, which enhance local food security and expand green spaces within the city. Additionally, participatory budgeting has been implemented, allowing for inclusive decision-making in municipal spending and fostering greater community engagement and empowerment. As a result, these initiatives have led to improved sustainability and enhanced social cohesion within the community.



Source: Creative Commons

CONCLUSION

In conclusion, degrowth presents a viable alternative to traditional growth-centric models, offering the potential to address environmental, social, and economic challenges in a holistic manner. To fully realize this potential, there is a need for comprehensive research and pilot programs to explore and validate degrowth strategies. Additionally, the development of supportive policy frameworks is essential to facilitate the transition. Broad societal engagement and education are also crucial to ensure widespread understanding and adoption of degrowth principles, ultimately leading to a more sustainable and equitable future.

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Poland's energy transformation

Over the past years, coal was considered the main fuel guaranteeing Poland's energy stability. Nowadays, we are observing dynamic changes in the energy sector. The need to reduce CO₂ emissions and climate commitments oblige Poland to introduce a transformation in the field of energy production.

The aim of the poster is to determine the current position of coal in the energy sector in Poland.

What is the future of hard coal?

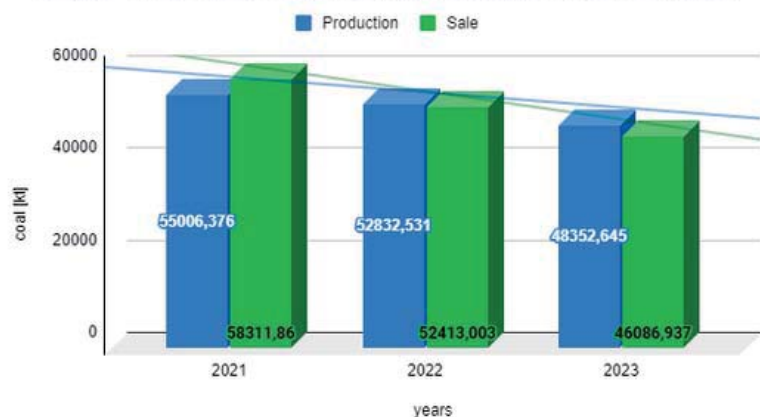
Poland's energy policy until 2040 (PEP2040) sets out plans related to upcoming changes in the energy sector. The adopted policy aims to achieve climate neutrality.

PEP 2040 - carbon

- In 2030, the share of coal in electricity generation will not exceed 56%.
- The reduction of coal use in the economy will take place in a way that ensures a just transition.
- Moving away from coal burning in households in cities by 2030, in rural areas by 2040 while maintaining the possibility of using smokeless fuel until 2040.

Changes over the years 2021-2023

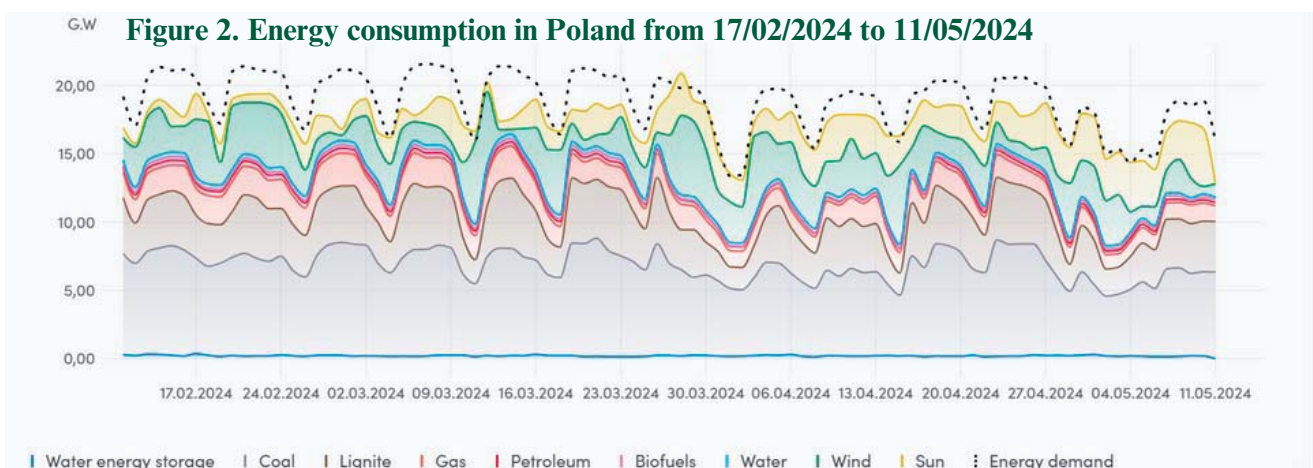
Figure 1. Hard coal - Total net coal production and total sales



Source: Own analysis, based on figures published by ARP S.A., online: <https://polskirynekwegla.pl/raporty-dynamiczne> [access 06.05.2024]

Over recent years, a decline in both the production and sales of hard coal has been observed [chart 1]. The downward trend is consistent with the direction of development specified in Poland's energy policy.

Figure 2. Energy consumption in Poland from 17/02/2024 to 11/05/2024



Source: Dynamic report, online: <https://emp.pw.edu.pl> [access: 11.05.2024]

Currently, in addition to energy obtained from coal, wind energy, solar energy and gas are also of great importance.

REFERENCES:

- [1] Obwieszczenie Ministra Klimatu i Środowiska z dnia 2 marca 2021 r. w sprawie polityki energetycznej państwa do 2040 r. (M.P. z 2021 r., poz. 264)
Graphic design in Canva, Google sheet

AI PROMPT ENGINEER



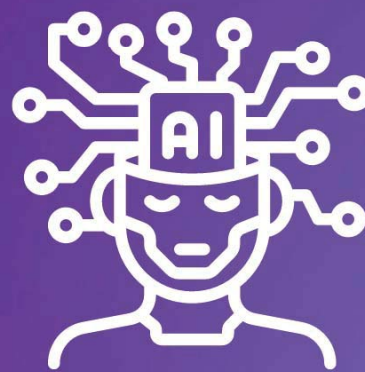
What is AI Prompt Engineering?

AI prompt engineering is the process of designing, developing, and creating prompts that effectively guide the behavior of artificial intelligence systems. These prompts are designed to elicit specific responses or actions from the AI, helping to shape its decision-making and problem-solving capabilities. This process is crucial in the development and training of AI systems to ensure they function as intended and meet the needs of their users.

What does the AI Prompt Engineer do?

AI Prompt Engineer designs, creates, and tests queries directed at AI applications such as content generation tools, chatbots, or virtual assistants.

His job is to improve the results generated by AI tools by creating and refining prompts that an artificial intelligence model can then use to generate specific output data. He experiments with different prompts to get the best results from the AI model.



What skills should a Prompt Engineer have?

- Analytical thinking and problem-solving skills
- Technical knowledge and expertise in programming languages and software development
- Knowledge of Big Data technologies (due to working with large amounts of data)
- Creativity in creating and optimizing prompts.

What is a prompt engineer responsible for?

- Developing and implementing prompts in software applications or systems.
- Testing and evaluating AI prompt performance and making improvements as needed.
- Researching and staying up-to-date on the latest AI technologies and trends.
- Analyzing data and user feedback to optimize the timing and content of prompts to increase user engagement and drive desired behaviors.

References:

<https://www.devire.pl/blog/ai-prompt-engineer-sztuczna-inteligencja-tworzy-nowy-zawod/>
<https://www.coursera.org/articles/how-to-become-a-prompt-engineer>

The application of Artificial Intelligence in the realm of sports.

The role of AI in sports

Artificial intelligence (AI) is playing an increasingly important role in the world of sports, bringing with it innovative solutions and changing the ways we manage and practice sports. The use of AI in sports can bring many benefits, but it also requires caution and awareness of potential risks. It is important to strike a balance between using advanced technologies and preserving the integrity and spirit of the sport.

Examples

- Referee Support:** Technologies like hawk-eye in tennis and goal-line tech in soccer assist in decision-making during contentious situations.
- Tactical Analysis:** AI analyzes team and opponent tactics, suggesting optimal strategies.
- Personalized Training:** AI tailors training plans to individual athletes' needs, enhancing performance and preventing injuries.
- Rehabilitation Monitoring:** AI monitors rehabilitation progress, customizing programs to athletes' needs.
- Event Support:** AI enhances broadcasts, fan experiences, and the betting industry, making events more interactive.
- Modernization:** AI makes sports more efficient and predictable, benefiting athletes and fans.

Pros and cons

The pros:

- Improved performance and results through better tactical and strategic decisions.
- Enhanced precision in refereeing decisions, reducing human error.
- Personalized training plans based on individual athlete data.
- Introduction of technological innovations, improving game quality and creating new opportunities.

The cons:

- Inequality of access: Wealthier teams may gain an advantage with advanced AI technologies.
- Privacy risks: Collection and analysis of personal data raise privacy concerns.
- Dependence on technology: Over-reliance on AI can diminish the human element in sports.
- Potential technical errors: AI can fail, potentially affecting game outcomes negatively.

Artificial Intelligence in Sports Market Size

The sports AI market size was estimated at \$4.61 billion in 2023. Estimates for subsequent years continue to grow. In 2029, it is estimated to grow to more than 20 billion dollars.

Does AI threaten human jobs in the sports industry?

AI systems are increasingly used to assist or replace human work due to their ability to access vast information. It's uncertain if AI will fully replace humans in sports jobs, but AI impacts workplace identity and job security, causing fears of layoffs and significant workplace changes. Understanding how AI affects employee identity can guide future research, helping manage risks and improve human-AI collaboration.

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SUSTAINABILITY IN ENERGY: THE ROLE OF PHOTOVOLTAIC PANELS

Introduction

Photovoltaics is a technology that converts sunlight into electrical energy. It uses semiconductors like silicon in photovoltaic panels to generate electric current from solar radiation. Because it's clean and renewable, photovoltaics is gaining popularity as a way to combat climate change and reduce reliance on fossil fuels. It's used in small residential installations and large solar farms, supporting a sustainable energy future.



Advantages of Photovoltaics:

- **Renewable Energy Source:** Utilizes the sun, which is unlimited and renewable.
- **Financial Savings:** Reduces electricity bills, and energy surpluses can be sold back to the grid.
- **Environmental Friendliness:** Does not emit harmful greenhouse gases or air pollutants.
- **Energy Independence:** Allows independence from traditional energy suppliers.
- **Low Operating Costs:** Photovoltaic systems are durable and require minimal maintenance.
- **Government Support:** Many countries offer tax incentives and subsidies for photovoltaic installations.
- **Flexibility of Applications:** Can be installed on roofs, in gardens, or in solar power systems.

Regulations and Government Policy in Poland

"My Electricity" Program:

This is a government grant program that supports photovoltaic micro-installations for households. Through this program, you can receive funding to cover part of the costs associated with purchasing and installing a photovoltaic system. The program is highly popular and plays a significant role in the increasing number of photovoltaic installations in Poland.

Tax Incentives:

The Polish government has introduced tax incentives for individuals and businesses investing in photovoltaics. The thermomodernization tax credit allows the cost of photovoltaic installation to be deducted from taxable income, encouraging homeowners to invest in renewable energy.

Building Regulations:

Poland has introduced regulations aimed at promoting energy efficiency in buildings, often including incentives to use photovoltaics. In some cases, there are requirements for new buildings to be equipped with renewable energy technologies.

Conclusion

Photovoltaics have the potential to drive a sustainable energy future. To maximize their impact, ongoing investment in research, development, and support systems is needed to enable broader adoption and contribute to the decarbonization of the energy sector.

This poster aims to highlight the key role of photovoltaics in the energy transition. As a source of clean, renewable energy, photovoltaics help reduce greenhouse gas emissions and decrease reliance on fossil fuels.

Who most often installs photovoltaics?

Homeowners: This is the most common group for whom photovoltaics is a way to reduce energy costs and increase energy independence.

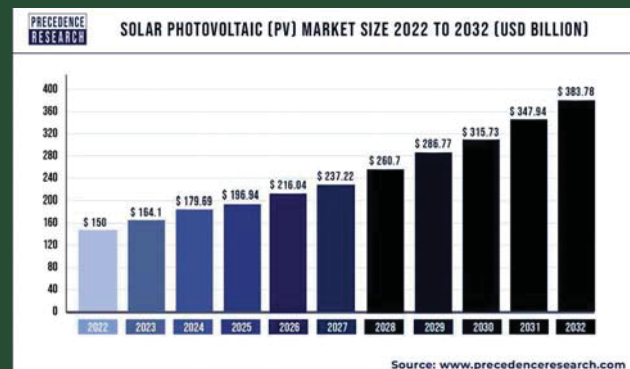
Companies and businesses: Companies invest in photovoltaics to reduce electricity bills, increase sustainability, and improve their environmental image.

Farmers: Owners of agricultural properties use photovoltaics to power farm equipment and other devices in rural areas.

Public institutions: Schools, hospitals, and other public buildings are increasingly using photovoltaics to reduce energy costs and promote sustainability.

Housing cooperatives and condominium associations: These organizations install photovoltaics to reduce energy costs for residents and minimize carbon footprints.

The diversity of these groups demonstrates that photovoltaics has applications in many sectors and is a popular choice for both individual and business users.



The global solar photovoltaic (PV) market was estimated at USD 150 billion in 2022 and is predicted to hit over USD 383.78 billion by 2032 and poised to grow at a CAGR of 9.90% during the forecast period 2023 to 2032.

references:

<https://tiny.pl/dcj25>, <https://tiny.pl/tls9r>, <https://tiny.pl/wwp9n>, <https://tiny.pl/r1brx>



Youth in Action for Sustainable Development

The poster "Youth in Action for Sustainable Development" explores the dynamic role of young people in driving sustainable change.

It aims to highlight diverse youth-led projects and innovative solutions, showcasing their passion and commitment towards building a more sustainable future for all.

EZR, which stands for Education for Sustainable Development, is a initiative primarily aimed at youth. Its goal is to equip people with the skills and knowledge needed to act for a more sustainable life. It's a response to contemporary challenges like the climate crisis and global inequality. EZR promotes social transformation, aiming to create a world where everyone can lead dignified lives while caring for our planet. It's an educational approach encompassing various concepts such as environmental and global education. EZR contributes to achieving the 17 Sustainable Development Goals of the UN by involving young people in practical actions for a better world.



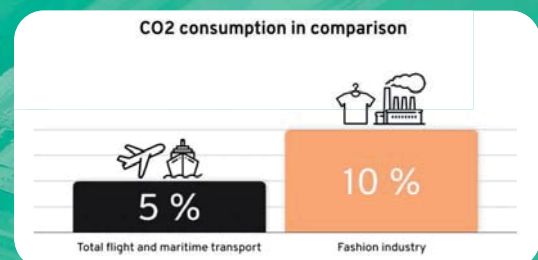
Fridays for Future (FFF) is a global youth-led climate strike movement initiated by Greta Thunberg in August 2018. It began with Greta's school strike for climate outside the Swedish Parliament, demanding urgent action on the climate crisis. The movement spread worldwide with the hashtag **#FridaysForFuture**, inspiring millions of young people to join in protesting outside their local parliaments and city halls. FFF is part of a hopeful wave of change, urging everyone to take action on the climate crisis.



Plant-for-the-Planet, founded by Felix Finkbeiner at age 9, aims to combat climate change through tree planting. It raises awareness globally and encourages youth to take action with the motto **"Stop Talk Start Planting."** Millions of trees have been planted, showcasing the power of youth-led environmental activism.



"Fashion Revolution" is a global movement sparked by the 2013 Rana Plaza garment factory tragedy in Bangladesh, where over 1100 workers died. It aims to raise awareness about labor conditions in the fashion industry and **promote ethical production practices**. Youth organize events like fashion shows and workshops to highlight issues of fast fashion and advocate for responsible consumerism. They also engage in actions such as petitions and protests to push for improved working conditions and supply chain transparency in fashion brands.



Sources: Ellen Macarthur Foundation. (2017). A New Textiles Economy. & EEA Europa. (2016). "Luft und schiffsverkehr im Fokus"

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- <https://www.fashionrevolution.org/>



SUSTAINABLE TRANSPORT THE GREEN FUTURE OF TRANSPORT

Benefits of public transport

- Reduced Emissions
- Traffic Congestion Reduction
- Cost Savings
- Accessibility
- Safety
- Community Integration
- Land Use Efficiency
- Health Benefits
- Energy Efficiency
- Quality of Life

The essence of public transport lies in its ability to efficiently and affordably move large numbers of people within urban and suburban areas, reduce traffic congestion, air pollution, and carbon emissions.

The aim of this poster is to promote the idea of public transport as an alternative to individual transport.

1. **Public transport offers a multitude of benefits that go beyond just getting from point A to point B.** By choosing public transportation, individuals can contribute to a more sustainable and inclusive society. Here's how public transport positively impacts our communities:
2. **Environmental Preservation:** Public transport plays a crucial role in preserving our environment by reducing air pollution, conserving energy, and promoting sustainable practices. By opting for buses, trains, or trams, we can help protect our planet for future generations.
3. **Social Equity:** Public transport promotes social equity by providing a level playing field for all individuals, regardless of their socio-economic background. It ensures that everyone has access to essential services and opportunities, fostering a more inclusive and fair society.
4. **Traffic Safety:** Public transport enhances road safety by reducing the number of individual vehicles on the road, thereby decreasing the likelihood of accidents and injuries. Safer roads create a more secure environment for both passengers and pedestrians.
5. **Economic Growth:** Investing in public transport infrastructure stimulates economic growth by creating job opportunities, boosting local businesses, and attracting investments. A well-connected public transport network is vital for the prosperity of a community.
6. **Cultural Enrichment:** Public transport serves as a cultural hub, bringing people from diverse backgrounds together and fostering a sense of community. It allows for cultural exchanges, events, and experiences that enrich the tapestry of urban life.
7. **Innovation and Technology:** Public transport drives innovation in transportation technologies and infrastructure, paving the way for smart cities and sustainable mobility solutions. Embracing new technologies in public transport can lead to a more efficient and interconnected urban environment.
8. **Climate Resilience:** Public transport builds climate resilience by offering alternative transportation options during extreme weather events or emergencies. It provides a lifeline for communities to stay connected and mobile in challenging situations.
9. **Educational Opportunities:** Access to public transport opens up educational opportunities for students of all ages. It ensures that individuals can reach schools, universities, and libraries, fostering a culture of lifelong learning and knowledge-sharing.
10. **Civic Engagement:** Public transport encourages civic engagement by promoting public spaces and communal areas where people can interact, engage in dialogue, and participate in local governance. It strengthens the social fabric of a community.
11. **Future-Forward Thinking:** Embracing public transport reflects a forward-thinking attitude towards urban planning and sustainability. By prioritizing public transportation, we pave the way for a more efficient, resilient, and vibrant society for generations to come.
12. **In conclusion, public transport is not just a mode of transportation; it is a catalyst for positive change, community empowerment, and a brighter future for all. Let's continue to support and advocate for public transport to create a more sustainable and inclusive world.**

Conclusions

Public transport is a great way to reduce your carbon footprint and pollution, as well as reduce the time you spend on your daily journey. It is more efficient than cars and can be combined with bicycles or scooters, including electric ones. It also engages people to a more physically active lifestyle.

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<https://www.energy.gov/energysaver/articles/energy-101-video-sustainable-public-transportation>
<https://www.mdpi.com/2032-6653/12/1/46>

Sustainable organizations operating in Cracow

Sustainable organizations play a crucial role in promoting sustainable development worldwide and locally.

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The aim of the poster is to introduce how companies implement in practice four out of the seventeen Sustainable Development Goals outlined by the United Nations.

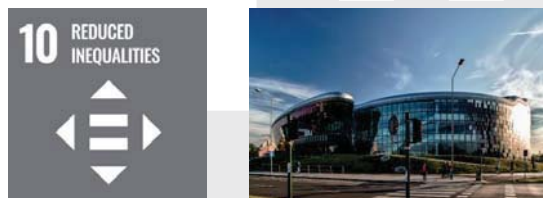


5 GENDER EQUALITY	Board of Directors at Shell (%)	2023	2022	2021
		Women	42	55
	Men	58	45	50



At **Shell Business Operations Krakow** over 5 000 people are employed, making it one of the largest employers in Lesser Poland. In 2023 six out of 13 (42%) Shell plc Board members were women. This exceeds the FTSE Women Leaders Review target of 40% women on boards by 2025. In Poland 68% of Shell employees are women, over 60% of people in managerial positions are women. Shell is open to employing people with disabilities, people of various ethnic origins and LGBTQ+. In their job offers they encourage applying for positions, even if you do not see yourself fully reflected in every job requirement listed. Research has shown that women and underrepresented groups often only apply when they feel 100% qualified.

The ninth goal of the United Nations Sustainable Development Agenda is Industry, Innovation and Infrastructure. **InPost** is a leader in implementing innovative solutions and infrastructural improvements. By delivering shipments to the Parcel Lockers, instead of to the recipient's door, they contribute to reducing the number of traffic jams, and thus to reducing the carbon footprint by up to 75%. There are over 20 000 devices throughout Poland that can solve the so called "Last mile problem", which is the last, most expensive stage of delivery to the recipient. They also established cooperation with the City of Krakow as part of the "Green City" program.



The municipal company **Kraków5020** operates the **ICE Krakow Congress Centre** which is a state-of-the-art, multifunctional venue in the very heart of Krakow. The building is architecturally accessible for people with disabilities. Elevators, parking spaces, and large restrooms are standard solutions. Inside, there is a medical room, and the audience area has dedicated spaces for wheelchair users. People with visual disabilities can benefit from audio description of rooms and paths from public transportation stops. During selected events, the organization provides a Polish Sign Language interpreter. What is more, some employees have completed basic Polish Sign Language courses.



4F is a Polish brand with headquarters in Krakow that offers high quality sports clothing and accessories. From 2022, they are implementing a program that aims at closing the loop and transitioning towards circular fashion. It focuses on both designing clothes in a more sustainable way and giving the ones that already exist a second life by renewing, repairing and upcycling. Used clothes can be disposed of in two ways: You can pack your clothes in a box and order a free courier to pick them up or bring them to a physical 4F store - collection is available in every store - and drop them into a special container marked with the 4F Change logo.

Resources:

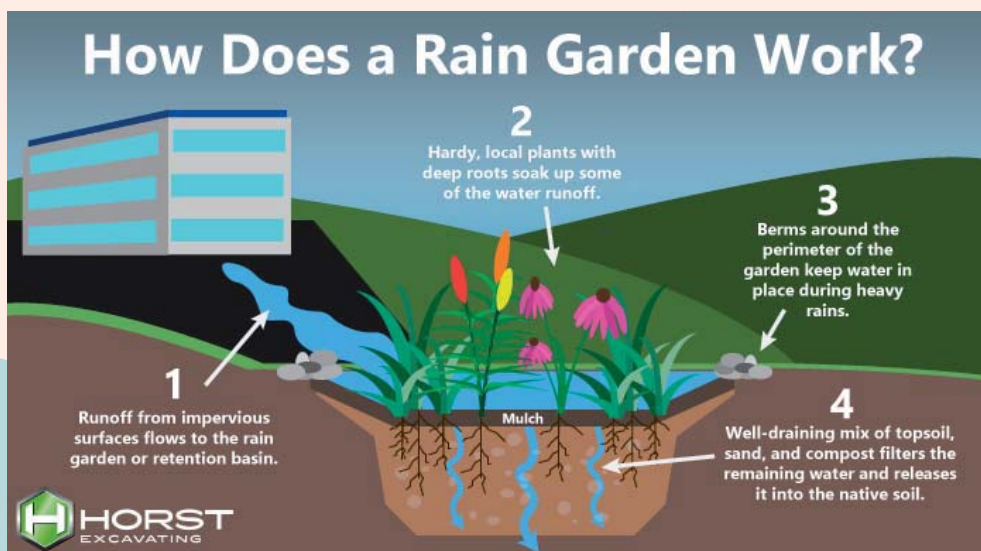
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<https://www.shell.com/who-we-are/diversity-equity-and-inclusion/ambitions-and-progress.html>
<https://icekrakow.pl/informacje-praktyczne>
<https://4fchange.com/en/strategy/>

RAIN GARDENS AND WATER SYSTEM MANAGEMENT

AIM OF PROJECT:

A rain garden is a depressed area in the landscape that collects rain water from a roof, driveway or street and allows it to soak into the ground. Planted with grasses and flowering perennials, rain gardens can be a cost effective and beautiful way to reduce runoff water.

Weather forecasts predict an increase in the effects of climate change, such as rainfall and strong winds, causing flooding and communication problems in cities. Almost 70% of rainwater is discharged into the sewage system, increasing the risk of flooding and thus causing the loss of this valuable resource. The lack of green spaces increases temperatures and worsens heatwaves. Planting rain gardens is an effective solution



Source: <https://www.horstexcavating.com/>

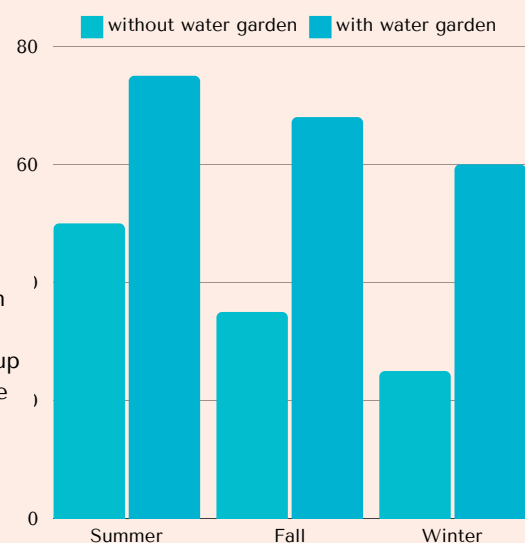
Benefits of rain garden:

- Improves water quality by filtering out pollutants
- Aesthetically pleasing
- Preserves native vegetation
- Provides localized stormwater and flood control
- Attracts beneficial birds, butterflies and insects
- Easy to maintain after establishment

Rain gardens are generally constructed on the downside of a slope on property and collect rainwater runoff from the lawn, roof and/or the driveway. Once water collects in the rain garden, infiltration may take up to 48 hours after a major rainfall. Also, rain gardens incorporate native vegetation; therefore, no fertilizer is needed and after the first year, maintenance is usually minimal.

<https://groundwater.org/rain-gardens><https://www.epa.gov/green-infrastructure/what-green-infrastructure#raingardens><https://www.rhs.org.uk/garden-features/rain-gardens>

Humidity outside



from forest to fashion

AirMycelium™

by ecovative

introduction

AirMycelium technology unleashes the properties and intelligent nature of fungal fibers once locked beneath the forest floor. By guiding the geometrical growth patterns of mycelia, the platform can produce a wide selection of materials created completely with biological processes. Vertical farms grow pure mycelium products at industrial scales, meeting the sustainable material needs of today.

WATCH THE VIDEO



leather

Forager™, Ecovative's soft goods division, meets the rising demand for sustainable leather alternatives with AirMycelium™ technology. Partnering with nature, Forager grows synthetic-free materials for the fashion industry. These pure mycelium hides are 100% vegan, boasting high tensile strength and tear resistance, equivalent to animal leathers, and grown in just nine days.



beauty

Ecovative introduces a sustainable solution for the beauty industry with pure mycelium-based foams that undergo natural processes and dissolve into compost-ready matter within 45 days after use. Unlike conventional plastic products, our mycelium alternatives are home compostable, providing a luxurious feel and accommodating serum infusions loved by consumers.



food

Recognizing the growing demand for sustainable food options, MyForest Foods has emerged, leveraging innovative AirMycelium™ technology to produce gourmet mycelium-based alternatives to traditional animal products. Their flagship product, My™Bacon, has quickly gained popularity, offering a delicious, nutrient-rich bacon alternative with a fraction of the environmental impact.



foams

Forager's high-performance foams are available in a variety of forms with fully customizable qualities, from incredibly soft and thin to extremely firm and dense, and everything in between. Insulating, water-repellant, and naturally fire-resistant, Forager™ forms are an open-cell, fully compostable material made of 100% pure mycelium.

conclusion

AirMycelium™ technology by Ecovative promotes sustainability by creating biodegradable, vegan products using mycelium. This method reduces resource use and waste, offering eco-friendly alternatives to traditional leather, food, and beauty items. By lowering the environmental impact of livestock farming and plastic waste, AirMycelium supports a more sustainable and ethical approach to production and consumption.

reference: <https://www.ecovative.com/>

Verification of the effectiveness of discriminant analysis as a tool for enterprise bankruptcy prediction



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**WYŻSZA SZKOŁA ZARZĄDZANIA
I BANKOWOŚCI W KRAKOWIE**

INTRODUCTION

The state of insolvency is not a short-term and sudden occurrence; its symptoms appear much earlier. For this reason, attempts to create a system for early warning of financial problems in enterprises were made around the world at the beginning of the 20th century. In Poland, due to the development of free market economy, it was not until the early 1990s that the first discriminant models began to emerge.

Despite this, several domestic models have been created over the years and have become very popular.

The observations presented above motivated the author to explore topics related to corporate bankruptcy, discriminant models, and research on the effectiveness of selected models.

RESEARCH METODOLOGY

This research focuses on the theoretical issues relating to bankruptcy and discriminant analysis models, as well as the assessments of the effectiveness of selected models in predicting corporate bankruptcy.

The author set several partial goals, which allowed for the determination of the overall aim of the study. For research purposes, research questions were asked, and a hypothesis was proposed.

PARTIAL GOALS

To achieve the main objective of the study, partial goals were defined:

- analysis of issues concerning to corporate bankruptcy,
- presentation of the concepts of discriminant analysis and characterisation of selected models developed by Polish authors,
- application of selected discriminant models in the analysis of enterprise bankruptcy in Poland.

RESEARCH QUESTION

The research questions posed by the author was whether the use of models developed by Polish economists to predict the bankruptcy of enterprises in Poland is effective, and which of the popular discriminant models demonstrates the best bankruptcy prediction.

HYPOTHESIS

For research purposes, a hypothesis was formulated which assumed that the discriminant models created by Polish economists demonstrate high effectiveness in predicting enterprise bankruptcy, and their effectiveness depends on the industry in which the enterprises operate. To verify the hypothesis, data from the financial statements of twelve bankrupt enterprises were used.

RESEARCH

The selected discriminant models were applied to three groups of enterprises:

- commercial,
- service,
- production.

The study covered the period from four years before the declaration of bankruptcy up to the year of its declaration. This approach aimed to identify the model with the greatest predictive abilities and a group of enterprises in which the models most frequently indicated financial distress.

DISCRIMINANT FUNCTION ANALYSIS

$$Z = W_1 \cdot X_1 + W_2 \cdot X_2 + \dots + W_n \cdot X_n$$

QUOTE

“Capitalism without bankruptcy is like Christianity without hell.”

Frank Borman
former chairman of Eastern Airlines

DISCRIMINANT ANALYSIS

Discriminant analysis is a statistical method used to divide information from financial statements according to a specific criterion and to organize it on the basis of a few dependent variables at the same time. Dependent variable is a qualitative variable.

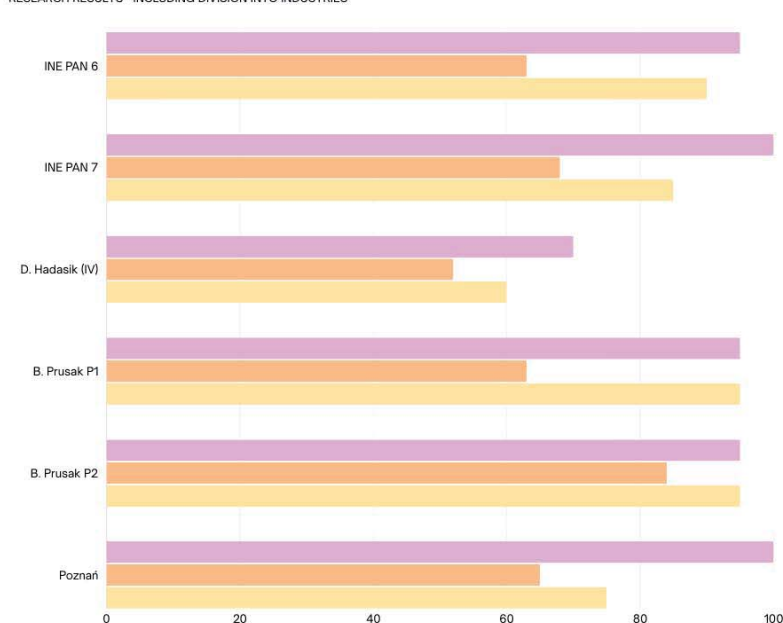
To conduct an examination, a linear discriminant function, in practice the function referred to Z-score, is used. Discriminant function is the sum of the coefficients that characterise company's economic (X) and financial situation and the weights that correspond to them, i.e. discriminant coefficients (W).

The function form is given on the left side.

LEGEND

- Trading enterprises
- Service enterprises
- Manufacturing enterprises

RESEARCH RESULTS - INCLUDING DIVISION INTO INDUSTRIES



RESEARCH RESULTS - INCLUDING DIVISION INTO INDUSTRIES

	Trading enterprise	Service enterprise	Manufacturing enterprise	The average number of correct predictions
INE PAN 6	95%	63%	90%	83%
INE PAN 7	100%	68%	85%	85%
D. Hadasik (IV)	70%	52%	60%	61%
B. Prusaka P1	95%	63%	95%	85%
B. Prusaka P2	95%	84%	95%	91%
Poznań	100%	65%	75%	80%

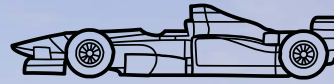
RESEARCH RESULTS AND CONCLUSIONS

The models with the highest effectiveness were those developed by B. Prusak. The P2 model demonstrated a correct prediction rate of about 90%. Models P1 and INE PAN 7 also achieved very high results, with 85% correct predictions in both cases. The INE PAN 6 and the Poznań models showed slightly lower effectiveness (83% and 80%, respectively), but still very high. The model developed by D. Hadasik showed average but acceptable effectiveness.

For commercial enterprises, the INE PAN 7 and the Poznań models showed the highest effectiveness, achieving 100% accuracy in predicting risk. In service enterprises, all the models demonstrated lower overall effectiveness compared to the other two groups. Nevertheless, in both service and production enterprise groups, the P2 model by B. Prusak demonstrated the highest effectiveness.

It is noteworthy that different versions of models of the same author (INE PAN 6 and 7 and B. Prusak P1 and P2) show varying levels of predictive ability. This suggests that it is crucial for authors to continue working on and improving their models after the initial development, as this leads to a real improvement in the model's performance.

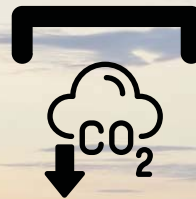
Based on the research, it can be concluded that the use of discriminant models developed by Polish economists to predict enterprise bankruptcy in Poland is highly effective in the selected cases.



SUSTAINABILITY DEVELOPMENT IN FORMULA 1

Sustainable development and environmental protection are key issues that increasingly influence the activities of many industries around the world. **Formula 1, which is the most popular motor racing series**, also does not remain indifferent to ecological challenges and is constantly looking for ways to **reduce its negative impact on the planet**. In recent years, there have been numerous changes aimed at making racing more environmentally friendly. What actions are taken by Formula 1 authorities and individual teams to **limit CO₂ emissions, reduce resource consumption and minimize the negative impact of this sport on ecosystems?**

F1's main goal is to be **carbon neutral** by **2030**, and the **2022** data comes as progress is being made toward that goal. The key approach is to reduce carbon emissions by at least **50%** for the **2018** notification.



The development of **sustainable fuels** is also a key area of focus. The plan is for all teams to adopt advanced sustainable fuels by **2026**.



F1 prioritizes action on **diversity and inclusion**. Initiatives such as F1 Academy and collaboration with organizations such as Motorsport UK aim to increase the participation of people from underrepresented groups and **develop talent** from **diverse backgrounds**.

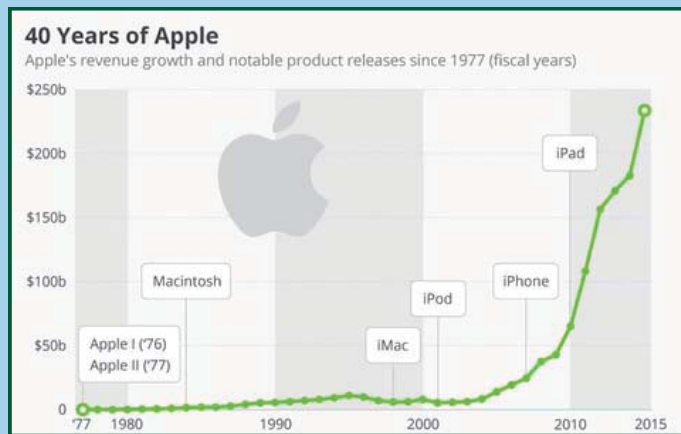


CURRENTLY, IN THE FACE OF **CLIMATE CHALLENGES**, IT IS ALSO A PLATFORM FOR SEARCHING FOR SOLUTIONS FOR SUSTAINABLE TRANSPORT. THE GRADUAL ABANDONMENT OF FOSSIL FUELS, THE DEVELOPMENT OF **HYBRID AND ELECTRIC DRIVES AND THE OPTIMIZATION OF PRODUCTION PROCESSES** ARE JUST SOME OF THE AREAS IN WHICH FORMULA 1 CAN HAVE A POSITIVE IMPACT NOT ONLY ON MOTOR SPORT, BUT ALSO ON **THE ENTIRE AUTOMOTIVE INDUSTRY**.

sources: swiatwyscigow.pl, canva, fliliga.pl

Exploring Apple's legacy of innovation

The company which paved the way to the future generation of technology. According to Boston Consulting Group, Apple is the most innovative company in the world. The aim of the poster is present Apple's innovative and how they had impact on company's growth.



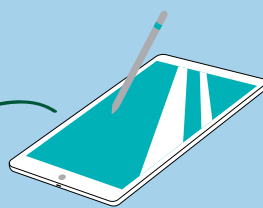
<https://www.statista.com/chart/4574/apples-revenue-since-1977/>



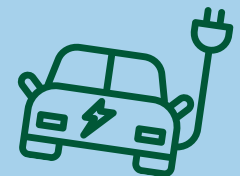
One of the most innovative Apple products is Mac. It debuted in 1984. The Mac was the first personal computer with a graphical using interface and mouse.



Apple Watch was introduced in 2014. Apple connected a watch and features focuses on health and fitness.



It was the first connection between smartphone and computer in the world. It attracted consumers with portability. Nowadays iPad is a popular device for education and office work.



Apple currently is working on Apple Car. It can become a huge innovation because none of IT companies have their own car.



Apple set a new experience of listening to music by introducing a wireless AirPods in 2016.

Apple's innovations not only had brought success of the company but also change the technology and IT market. Apple has excellent marketing campaign which attracts a lot of customers. The design of the devices is different from the other brands which also contributed to Apple's success. Each part and each device influenced on Apple's growth through the years.

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chatgpt

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KRAKOW
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OF ECONOMICS

ASPERGER'S: AN ACE MINE

Michał Tarański

WHY & HOW COMPANIES SHOULD HIRE WORKERS WITH ASPERGER'S

Employment status of workers with ASD

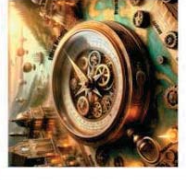


■ Employed ■ Unemployed

Unfortunately, most of people with Autism Spectrum Disorder, including Asperger Syndrome are not employed, and support for autistic people on Polish labor market remains lacking. A time to familiarize companies with right ways to recruit aces on the spectrum has come.

People with Asperger's Syndrome are bound to become excellent workers in occupations that utilize their strengths. They often possess highly developed analytical thinking skills and demonstrate a logical approach to issue solving. Their skills can find their place in accounting, engineering, statistics and research work as well as software development. Choosing the right job for a person with Asperger's Syndrome depends on their abilities, education and interests.

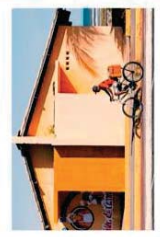
Features of people on the autistic spectrum that are important for every employer:



Specialization • Concentration • Technical skills • Work motivation • Credibility

KEYS TO GOOD COMMUNICATION BETWEEN ASPIE AND THE EMPLOYER

Clear definition of rules in the workplace	Usage of written or graphic instructions	Delivery of frequent and immediate feedback	Explanation and preparation for changes	Consistency in eye contacts with the employee
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<https://cbt.pl/poradnie/ograniczenia-i-wyjatkowy-potencjal-czyli-osoby-z-zaburzeniami-ze-spektrum-autyzmu-na-rynku-pracy/>
<https://www.nik.gov.pl/plik/id.22196.vp.24863.pdf>

Promoting social development of youth

Introduction:

Young people have great potential to make a positive difference in the world, but they often lack the motivation and support to develop themselves. To address this, it is important to create an environment where young people are encouraged and supported in their growth. This can be achieved through various educational and community initiatives that inspire them to develop themselves and take an active part in the affairs of society, such as environmental protection and urban greening.

Issues:

The rapid development of technology is leading to transformations in various areas of society, including the economy, education, workplaces, and communications. This threatens traditional learning methods and requires people to constantly adapt. The lack of conscious youth creates challenges in shaping the future of society. Many young people face a lack of opportunities for education, professional growth and personal development, which can lead to social inequality and economic hardship.

Solution:

Creation of social movements and initiatives aimed at encouraging young people to actively participate in society and develop their personalities. Organization of educational events, seminars and workshops aimed at developing critical thinking, communication skills and creativity among young people.

There is a youth organization for conscious youth called Plast. This organization is engaged in the cultural growth of children and helps them grow as human beings. Every year this movement is gaining momentum and developing with more and more participants and places around the world.

Creating information resources and online platforms for self-education and development accessible to young people of all ages and social status.

Involvement of young people in public projects and initiatives in areas that are important for their future and the development of society.



<https://www.google.com/url?sa=i&url=https://www.czechuniversities.com/2016/02/study-in-the-czech-republic-information-and-communication-technologies&pg=AOvVaw1WpzdDHF6gDp8VJQ05&ust=11580207274000&source=images&cc=rf&op=1&ved=0CBiQjRqFwoTCLDy0ZzyjYDFQAAAAA4AAAAABAE>



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https://scholar.google.pl/scholar?q=%D0%BF%D1%80%D0%BE%D0%B1%Do%BB%Do%B%Do%BC%Do%B8%+D1%81%D1%83%D1%87%Do%BD%D0%BE%Do%B%Do%BE%+D1%81%D1%83%D1%81%Do%BF%D1%96%Do%BB%D1%8C%D1%81%D1%82%Do%B2%Do%Bo@hl=uk&as_sdl=o&as_vis=1&oi=scholar
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RESEARCH KANS POSTER



PREFERENCES IN CHOOSING HOLIDAY DESTINATIONS BY POLISH AND UKRAINIAN TOURISTS - A COMPARATIVE ANALYSIS

AIM

The aim of the study was to conduct a comparative analysis (i.e., a comparison) of the preferences in choosing holiday destinations between Polish and Ukrainian tourists.

HYPOTHESIS

There is no difference between Polish and Ukrainian tourists in the way they spend their holidays.

SUBJECT SCOPE

- Polish and Ukrainian tourists staying in Poland

SPATIAL SCOPE

- Poland

TIME SCOPE

- 15.04.2024 - 30.04.2024

THEMATIC SCOPE

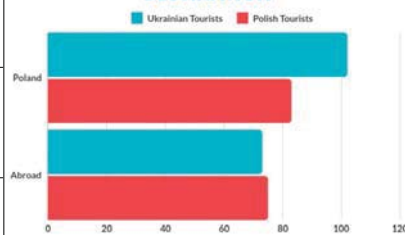
- Vacation destinations

SAMPLE SIZE

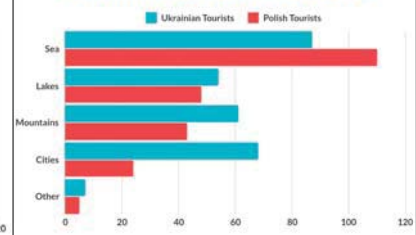
- 150 Polish tourists
- 150 Ukrainian tourists



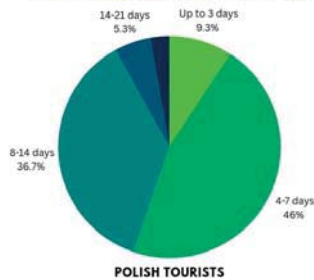
PREFERRED TYPE OF HOLIDAY DESTINATION



PREFERRED HOLIDAY LOCATIONS



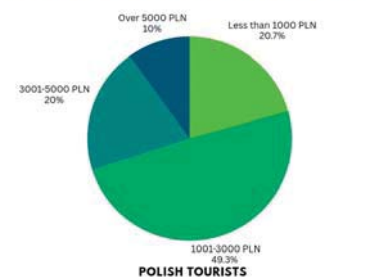
PLANNED DURATION OF VACATION



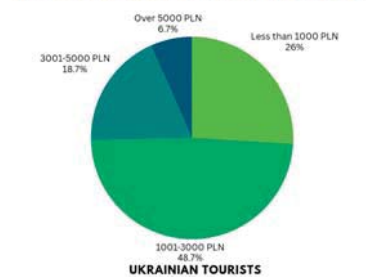
PLANNED DURATION OF VACATION



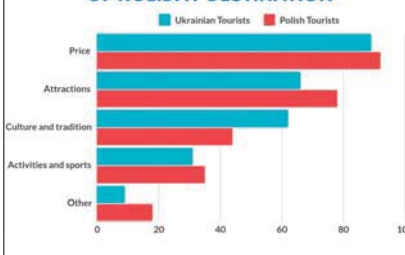
BUDGET ALLOCATION FOR VACATION PER PERSON



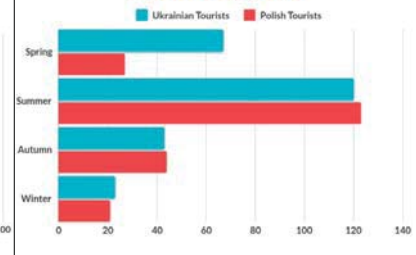
BUDGET ALLOCATION FOR VACATION PER PERSON



FACTORS INFLUENCING THE CHOICE OF HOLIDAY DESTINATION



PREFERENCES FOR TRAVELING IN SPECIFIC SEASONS



CONCLUSIONS

The results of the conducted study indicate minor differences between the preferences of Polish and Ukrainian tourists in choosing holiday destinations and other key aspects related to vacations. The comparative analysis showed that both tourist groups have similar preferences regarding the type of holiday destination, planned vacation duration, factors influencing the choice of destination, and the budget allocated for vacations per person. Additionally, the study indicated that both Polish and Ukrainian tourists have similar preferences for traveling in specific seasons. These findings suggest that the common factors shaping the preferences of both nationalities could be due to similar socio-cultural and economic conditions.

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